Johnson Controls

THE MEDICAL CENTER OF AURORA
INTERVENTIONAL RADIOLOGY 3 RENOVATION
MODIFICATION TO EXISTING FIRE ALARM SYSTEM

Provide a full size set of legible approved construction documents **PRINTED IN COLOR** for review by the Field Inspector.

COA Adopted Codes for this project:
ICC-2015 - NEC-2020
NFPA 13-2013 - NFPA 72-2013
COA Amendments 22 & 66

RSN: *1528622*
Permit #: *2021-1949751-CT*

City of Aurora Building Division
Counter Permit intake by: MLA
Date: *Mar 26, 2021*
RSN: *1528622*
Permit: *2021-1949751-CT*
2015 INTERNATIONAL CODES & AMENDMENTS — Scope of permit to be field verified

Johnson Controls
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AURORA, CO 80012
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NICET CERTIFICATION INFORMATION
NANCY S. WILTSIE
NICET Fire Alarm, III
Certification #93727
Valid Through: 03/01/24
March 24, 2021

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LEGENDS

FIRE ALARM SYMBOL LEGEND

QTY	SYMBOL	DESCRIPTION	BRAND	MODEL	BACKBOX	WIRE TYPE
		INITIATING DEVICES				
4N	S	ADDRESSABLE PHOTOELECTRIC SMOKE SENSOR W/ STANDARD BASE	SIMPLEX	4098-9714 HEAD 4098-9792 BASE	4" OCT, 1-1/2" D	M
2N	H	ADDRESSABLE STANDARD HEAT SENSOR W/ STANDARD BASE	SIMPLEX	4098-9733 HEAD 4098-9792 BASE	4" OCT, 1-1/2" D	M
1N	S	ADDRESSABLE DUCT SMOKE DETECTOR W/ RELAY OUTPUT	SIMPLEX	4098-9756	MOUNTS TO DUCTWORK	M P
		SAMPLING TUBE, 49"	SIMPLEX	4098-9856		
		MODULES AND RELAYS				
1N	CR	RELAY IAM	SIMPLEX	4090-9002	4" SQ. 2-1/8" D W/ DBL. GANG COVER	M R
1N	R	ENCAPSULATED RELAY	SIMPLEX	4098-9843	SINGLE GANG 2-1/8" D W/ COVER	R
		NOTIFICATION APPLIANCES				
2N	#	ADDRESSABLE MULTI-TONE HORN/STROBE, WALL MOUNT, RED, FIRE, SET AT CHIME SETTING	SIMPLEX	49MTV-WRF	SINGLE GANG 1-1/2" D	A
2N	#	ADDRESSABLE MULTI-CANDELA STROBE ,CEILING MOUNT, APPLIANCE ONLY, CLEAR LENS	SIMPLEX	49VO-APPLC	4" SQ. 1-1/2" D	A
		APPLIANCE COVER, WHITE, FIRE LETTERING	SIMPLEX	49VOC-CWF		
		CEILING ADAPTER PLATE SG	SIMPLEX	49VO-APCS		
		MISCELLANEOUS DEVICES				
1N		REMOTE TEST STATION	SIMPLEX	2098-9806	SINGLE GANG 2"D	K
1N	10K	END-OF-LINE RESISTOR 10K (EOL)	SIMPLEX	4081-9008		
1N	FATC	32 PT TERMINAL CABINET	SPACE AGE	SSU00660		

GENERAL NOTES:

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

FIRE ALARM WIRE LEGEND

	CIRCUIT DESCRIPTION	CONSTRUCTION	GAUGE	CIRCUIT PROPERTIES	ACCEPTABLE CABLE TYPES: FPLR	FPLP	THHN	TFFN	OUTDOOR *	C.L.
A	ADDRESSABLE NOTIFICATION	UTP SOLID	14 AWG	60pf/ft. MAX CAPACITANCE, 3 twists/ft. MINIMUM	X	X				
K	REMOTE TEST SWITCH/LED	(2) 2 COND. SOLID	14 AWG		X	X				
M	IDNET	UTP SOLID	18 AWG	60uF MAX TOTAL LINE CAPACITANCE	X	X				
P	POWER	2 COND. SOLID	14 AWG		X	X	X	X		
R	RELAY	2 COND. SOLID	14 AWG		X	X	X	X		

CONDUIT SIZE	MAX CONDUCTOR AREA	CONDUIT SIZE	MAX CONDUCTOR AREA
1/2"	0.122 SQ. INCH*	1-1/4"	0.598 SQ INCH*
3/4"	0.213 SQ INCH*	1-1/2"	0.814 SQ INCH*
1"	0.346 SQ INCH*	2"	1.342 SQ INCH*

* 40% CONDUIT FILL PER N.E.C. — STP = SHIELDED TWISTED PAIR

ITEMS SUCH AS CAPACITANCE BETWEEN CONDUCTORS AND WIRE GAUGE CAN BE CRUCIAL TO THE CIRCUIT DESIGN OF THIS SYSTEM INSTALLATION. THE INSTALLING CONTRACTOR IS RESPONSIBLE FOR SELECTING AND INSTALLING CABLE MANUFACTURER AND MODEL THAT MEETS OR EXCEEDS THE ABOVE REQUIREMENTS. RECOMMENDED CABLE MANUFACTURERS AND MODEL NUMBERS ARE AVAILABLE UPON REQUEST.

FIRE DEPT./BLDG DEPT. PLAN REVIEW #:

AURORA BUILDING CODES DIVISION
15151 EAST ALAMEDA PARKWAY, 2ND FLOOR PERMIT CENTER
AURORA, COLORADO 80012
(303) 739–7420

GENERAL NOTES

1. THESE DRAWINGS DEPICT GENERAL LOCATIONS OF LIFE SAFETY EQUIPMENT & FIELD DEVICES. EXACT ROUTING OF CONDUITS IS TO BE DETERMINED IN THE FIELD BY THE INSTALLING CONTRACTOR TO SUIT CONDITIONS. ALL CHANGES SHALL BE CLEARLY INDICATED ON THE RECORD DRAWINGS.
2. SHOULD ANY CONDITIONS EXIST THAT DIFFER FROM WHAT IS INDICATED ON THESE DRAWINGS WHICH CAUSE MAJOR DEVIATIONS IN THE WORK SHOWN, THE CONTRACTOR SHALL CONTACT JOHNSON CONTROLS IN A TIMELY MANNER SO AS NOT TO IMPAIR THE CONSTRUCTION SCHEDULE.
3. CONTRACTOR IS RESPONSIBLE FOR MAKING AND OBTAINING APPROVAL FOR ALL NECESSARY ADJUSTMENTS IN CIRCUITING AS REQUIRED TO ACCOMMODATE THE RELOCATION OF EQUIPMENT AND/OR DEVICES WHICH ARE AFFECTED BY ANY AUTHORIZED CHANGE. ALL CHANGES SHALL BE CLEARLY INDICATED ON THE RECORD DRAWINGS.
4. A STAMPED SET OF APPROVED FIRE ALARM DRAWINGS SHALL BE AT THE JOB SITE AND SHALL BE USED FOR INSTALLATION.
5. 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.
6. UPDATE THE AS-BUILT DRAWING SET DAILY WITH JOB PROGRESS. RETURN THE AS-BUILT DRAWING SET TO JOHNSON CONTROLS NO LATER THAN 7 DAYS AFTER FINAL TEST.
7. THE CONTRACTOR WILL MAINTAIN ALL AREAS OF THE BUILDING IN A NEAT AND WORKMANLIKE MANNER.
8. DO NOT APPLY POWER EXCEPT IN THE PRESENCE OF A FACTORY TRAINED JOHNSON CONTROLS 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 APPLICABLE ELECTRICAL CODES. REFER TO "APPLICABLE CODES & STANDARDS' FOR SPECIFIC CODE REFERENCES.
12. ALL WIRING SHALL BE INSTALLED ACCORDING TO APPLICABLE ELECTRICAL CODES.
13. FIRE ALARM CIRCUITS SHALL BE IDENTIFIED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES. MARK ALL FIRE ALARM WIRES IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODE SECTIONS FOR POWER LIMITED AND NON-POWER LIMITED WIRE.
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 PENETRATING 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 OUTDOORS SHALL BE INSTALLED IN ACCORDANCE APPLICABLE ELECTRICAL CODES, 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 MAXIMUM CONDUIT FILL RATIO AS PER APPLICABLE ELECTRICAL CODES REQUIREMENTS.
23. EXISTING CONDUITS MAY BE USED BY THE INSTALLATION CONTRACTOR AS DEEMED NECESSARY; HOWEVER, ANY EXISTING CONDUIT WILL BE USED ONLY IF CONDUITS MEET CURRENT STANDARDS AND CODES. JOHNSON CONTROLS MAKES NO STATEMENTS WRITTEN OR VERBAL AS TO THE CONDITION OF EXISTING CONDUITS.

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AURORA BUILDING DIVISION 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 2015 IFC AND THE 2020 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 2015 IFC AND THE 2009 ANSI A117.1 STANDARD.
- PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2015 IFC, SECTION 907.5 AND THE 2013 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. 2015 IFC SECTION 907.10.2.

APPLICABLE CODES & STANDARDS

JURISDICTIONS WITHIN THE STATE MAY HAVE AMENDMENTS TO THE STATE ADOPTED CODE. CHECK WITH THE LOCAL JURISDICTION AUTHORITY FOR MORE DETAILS.

International Fire Code (IFC), 2015 Edition

National Electric Code (NFPA 70), 2020 Edition

International Building Code (IBC), 2015 Edition

National Fire Alarm and Signaling Code (NFPA 72), 2013 Edition

Colorado Dept. of Health and Environment - Hospital Licensing Rules, 2009 Edition

ICC / ASME A117.1, 2009 Edition

Adopted Chapter 22 and 66 Amendments

OCCUPANCY TYPE(S):	SPRINKLER PROTECTION:	AREA:	STORIES:	CONSTRUCTION:
I-2 INSTITUTIONAL GROUP	BUILDING IS FULLY SPRINKLERED	TOTAL: APPROX. 450,396 SQ. FT. SCOPE: APPROX. 1,112 SQ. FT.	TOTAL: 6 STORIES + BASEMENT SCOPE: PARTIAL 1ST FLOOR	TYPE 1-A

SCOPE OF WORK

MODIFY EXISTING FIRE ALARM SYSTEM: PROVIDE NEW DEVICES, RELOCATE AND DEMO EXISTING DEVICES AS SHOWN ON DRAWINGS.

AREA TO RECEIVE WORK INCLUDES APPROXIMATELY 1,112 SQUARE FEET ENCOMPASSING AN EXISTING INTERVENTIONAL RADIOLOGY (IR) 3 AREA AND ACCESSORY ROOMS. IR AND ASSOCIATED CONTROL AND EQUIPMENT ROOM TO BE RENOVATED. INTERIM HEAT DETECTION TO BE USED DURING CONSTRUCTION. HEAT DETECTORS WILL BE NEW AND RE-USE EXISTING BASES OF REMOVED SMOKE DETECTORS WHERE AVAILABLE. ALL INTERIM DEVICES TO TIE TO EXISTING NODE 1 FIRE ALARM CONTROL PANEL LOCATED IN FIRE COMMAND CENTER 1E-2902A. AFTER CONSTRUCTION, NEW INITIATION AND NOTIFICATION TO BE INSTALLED IN RENOVATED IR AREA. ALL INITIATION DEVICES TO BE ADDRESSABLE AND TIE TO EXISTING TRANSPONDER 4 LOCATED IN ELEC CS16. ALL NOTIFICATION DEVICES TO BE ADDRESSABLE AND TIE TO THE EXISTING ENHANCED POWER SUPPLY (EPR) 2 LOCATED IN EXISTING BREAK ROOM 7300A. EPR TO REPORT TO TRANSPONDER 4. ALL WIRING INTO THE IR AREA WILL BE WIRED INTO THE NEW TERMINAL CABINET PRIOR TO WIRING IN THE IR AREA. EXISTING GRAPHIC MAP AT THE FIRE COMMAND CENTER 1C-1013A TO BE UPDATED WITH NEW ARCHITECTURE AND NEW INITIATION DEVICES.

⚠ FACP CALCULATION FOR ALARM TIME ADJUSTED PER NFPA 72 - 2013 EDITION

ALL NEW WIRING TO BE CLASS B. NEW DEVICES TO FOLLOW EXISTING SEQUENCE OF OPERATIONS. NO FURTHER CHANGES TO OCCUR.

THE EXISTING FIRE ALARM SYSTEM 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 ANY EXISTING FIRE ALARM SYSTEM DEMOLITION WORK.

AUTOMATIC FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX OR UUJS UNDERWRITERS LABORATORY OR SHALL MEET THE REQUIREMENTS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 3011. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BE ARRANGED BY THE OWNER.

DESIGN STATEMENT

THIS PROJECT'S DESIGN IS BASED ON THE ENGINEERED PLANS AND SPECIFICATIONS PREPARED BY:
PATH 21 ARCHITECTURE + PLANNING

ARCHITECTURAL PLANS DATED:	JANUARY 07, 2021
MECHANICAL PLANS DATED:	JANUARY 07, 2021
ELECTRICAL PLANS DATED:	JANUARY 05, 2021
SPECIFICATIONS DATED:	
ADDENDUM DATED:	

ABBREVIATIONS LEGEND

AC = ABOVE CEILING
AFF = ABOVE FINISHED FLOOR
AHJ = AUTHORITY HAVING JURISDICTION
ALM = ALARM
ANN = ANNUNCIATOR
BMS = BUILDING MANAGEMENT SYSTEM
C = CEILING MOUNTED
CD = CANDELA RATING
DET = DETECTOR
DGP = DATA GATHERING PANEL
E = EXISTING TO REMAIN
EOL = END OF LINE
EPO = EMERGENCY POWER OFF
ER = ELEVATOR RECALL
FAA = FIRE ALARM ANNUNCIATOR
FACP = FIRE ALARM CONTROL PANEL
FATC = FIRE ALARM TERMINAL CABINET
FBO = FURNISHED BY OTHERS
FCC = FIRE COMMAND CENTER
FSD = FIRE SMOKE DAMPER
FTR = FIRE ALARM TRANSPONDER
H = HIGH HUMIDITY
HT = HEIGHT
HVAC = HEATING VENTILATION & AIR CONDITIONING
IMS = INFORMATION MANAGEMENT SYSTEM
MAX = MAXIMUM
MIN = MINIMUM
N = NEW DEVICE
NAC = NOTIFICATION APPLIANCE CIRCUIT
NDU = NETWORK DISPLAY UNIT
NEC = NATIONAL ELECTRIC CODE
NFPA = NATIONAL FIRE PROTECTION ASSOCIATION
NIC = NOT IN CONTRACT
NPU = NETWORK PROCESSING UNIT
NTS = NOT TO SCALE
PAP = PRE-ACTION PANEL
RC = EXISTING TO REMOVE AND COVER
RD = EXISTING DEVICE TO BE RELOCATED
RL = RELOCATED DEVICE
RR = REMOVE EXISTING & REPLACE W/ EXISTING
SCC = STATUS COMMAND CENTER
SLC = SIGNALING LINE CIRCUIT
SMK = SMOKE
SUPV = SUPERVISORY
TAC = TRUEALERT ADDRESSABLE CONTROLLER
TOS = TOP OF SHAFT
TRBL = TROUBLE
TS = TAMPER SWITCH
TYP = TYPICAL
UON = UNLESS OTHERWISE NOTED
VCC = VOICE COMMAND CENTER
VT = VALVE TAMPER
W = WATTAGE
W/ = WITH
W/O = WITHOUT
WF = WATERFLOW
WG = WIRE GUARD
WP = WEATHERPROOF
XP = EXPLOSION PROOF

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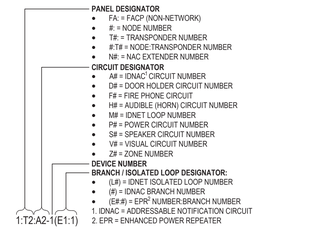
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ENGLEWOOD, COLORADO 80112
PHONE: 303-754-0001

DEVICE TAG LEGEND



SYSTEM SEQUENCE OF OPERATIONS

M.C.O.A. NORTH TOWER (NODE 2)	SYSTEM OUTPUTS																							
	FACP Annunciation						Notification						Required Controls										Supplementary			
SEQUENCE OF OPERATIONS	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE COMMON TROUBLE SIGNAL	ACTUATE EVACUATION SIGNALS (SPEAKERS STROBES)	ACTUATE SPRINKLER BELL	DISPLAY CHANGE OF STATES AT REMOTE ANNUNCIATOR	TRANSMIT FIRE ALARM SIGNAL TO OFF-SITE REPORTING	TRANSMIT SUPERVISORY SIGNAL TO OFF-SITE REPORTING	TRANSMIT TROUBLE SIGNAL TO OFF-SITE REPORTING	FAIL SAFE DOORS:	DAMPER SHUT DOWN:	RELEASE OVERDOOR FIRE DOORS	RELEASE ELEVATOR FIRE DOORS	RELEASE ASSOCIATED ROLL UP DOOR	ELEVATOR SHUNT DOWN (*)	ELEVATOR RECALL - MAIN FLOOR	ELEVATOR RECALL - ALTERNATE FLOOR	ELEVATOR HAT FLASH	OVERRIDE (MODE XYZ1##)	SILENCE AUDIBLE SIGNAL (EXCLUDING EXTERIOR HS)	ACTUATE OUTDOOR EXPOSITRODE	
SYSTEM INPUTS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1 SMOKE DETECTOR	X	X					X		X	X			X	X	X							X	X	1
2 SMOKE DETECTOR AT 2ND, 4TH & 5TH FLR CLERK DESK.	X	X					X		X	X				X		X						X	X	2
3 SMOKE DETECTOR AT SMOKE PARTITION	X	X					X		X	X				X								X	X	3
4 MANUAL PULL STATION	X	X					X		X	X				X								X	X	4
5 HEAT DETECTOR	X	X					X		X	X				X								X	X	5
6 DUCT DETECTOR			X	X			X		X		X		X	X										6
7 DUCT DETECTOR AT FIS DAMPER			X	X			X		X		X		X	X										7
8 MAIN FLR. ELEV. LOBBY SMOKE DETECTOR	X	X					X		X	X			X	X	X		X			X		X	X	8
9 ELEV. LOBBY SMOKE DETECTORS (EXCL. MAIN FLR.)	X	X					X		X	X									X			X	X	9
10 ELEV. MECH. ROOM SMOKE DETECTOR	X	X					X		X	X												X	X	10
11 ELEV. SHAFT HEAT DETECTOR	X	X					X		X	X							X	X				X	X	11
12 ELEV. MECH. ROOM HEAT DETECTOR	X	X					X		X	X							X	X				X	X	12
13 WATERFLOW SWITCH	X	X					X	X	X	X												X	X	13
14 TAMPER SWITCH			X	X			X		X		X													14
15 POST INDICATOR VALVE SWITCH			X	X			X		X		X													15
16 FACP AC POWER FAILURE					X	X						X												16
17 FACP LOW BATTERY					X	X						X												17
18 OPEN CIRCUIT					X	X						X												18
19 GROUND FAULT					X	X						X												19
20 NOTIFICATION APPLIANCE CIRCUIT SHORT					X	X						X												20
21 ALARM SIGNAL SILENCE																						X	X	21
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X

NOTE: Audible Evacuation Signal shall be Temporal Pattern per NFPA 72.

- *Disconnect power after a time delay equal to the time it takes for the car to travel from the highest to the lowest level plus 10 seconds.*

New devices will be added to the existing sequence of operations. No further changes will occur.

NOTE: New devices will follow the existing Sequence of Operations, no further changes to occur.

ISSUE LOG				
MARK	DATE	CAD	CHK	DESCRIPTION
1	03/24/2021	CBR	NSW	CHANGES PER INTERNAL PEER REVIEW DATED 03/24/2021

Revisions shown with ⚠ symbol

THE MEDICAL CENTER OF AURORA
INTERVENTIONAL RADIOLOGY 3 RENOVATION
THE MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, COLORADO 80012

FOR PERMIT

DRAWN BY:	CBR
CHECKED BY:	NSW
ISSUE DATE:	3/19/21
JOB #:	
PROJECT #:	419:619975503
JOHNSON CONTROLS © 2021	

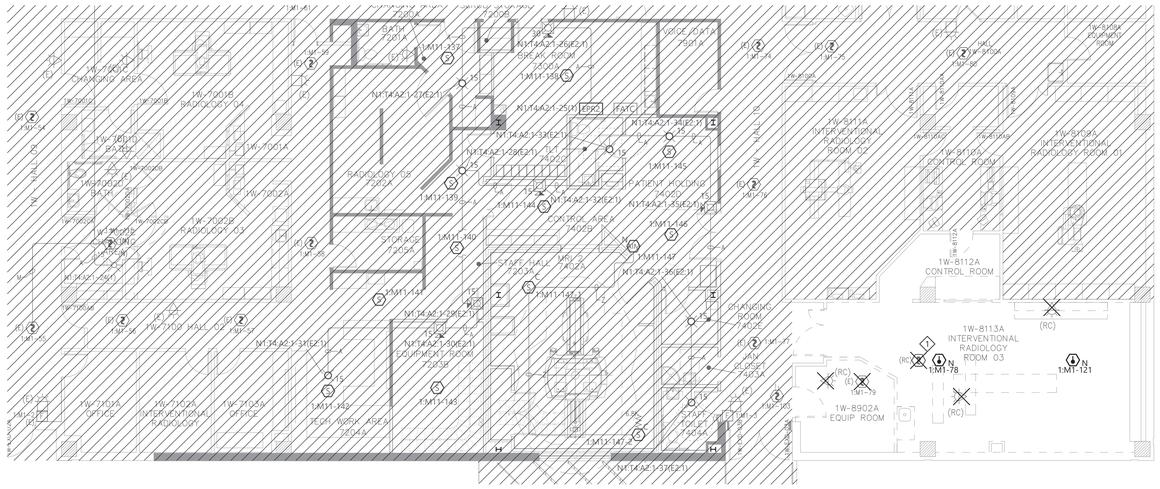
SYSTEM: FIRE ALARM SYSTEM

SHEET: COVER SHEET

FA-001

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LAST SAVED BY: JHUSCHC
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36" x 42" Arch E1 Size


1W-7001D BATH
1W-7001B RADIOLOGY 04
1W-7001A
1W-7002B RADIOLOGY 03
1W-7002A
1W-7003A OFFICE
1W-7003B INTERVENTIONAL RADIOLOGY
1W-7001C CHANGING AREA
1W-7001E CHANGING AREA
1W-7002C CHANGING AREA
1W-7003C CHANGING AREA
1W-7000A HALL
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7200A RADIOLOGY 05
7201A RADIOLOGY 06
7202A RADIOLOGY 01
7203A RADIOLOGY 02
7200A STORAGE
7201A VOICE / DATA
7202A STAFF HALL
7203A STAFF TOILET
7200A EQUIPMENT ROOM
7201A EQUIPMENT ROOM
7202A EQUIPMENT ROOM
7203A EQUIPMENT ROOM
7200A TECH. WORK AREA
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1W-8112A CONTROL ROOM
1W-8113A INTERVENTIONAL RADIOLOGY ROOM 03
1W-8902A EQUIP. ROOM
1W-8100A INTERVENTIONAL RADIOLOGY ROOM 01
1W-8110A CONTROL ROOM
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1W-8137W CHANGING

RSN: 1528622
Permit # 2021-1949751-CT
Sheet 3 of 37



PARTIAL RISER DIAGRAM

SCALE:N.T.S.

RISER NOTES:

1. RISER IS A DIAGRAMMATICAL REPRESENTATION OF THE SYSTEM ARCHITECTURE IN BUILDING CROSS SECTION. IT IS NOT INTENDED TO REPRESENT ACTUAL WIRE RUNS, PANEL CONFIGURATIONS OR PENETRATIONS. REFER TO FLOOR PLANS AND PANEL DETAILS FOR CIRCUIT ROUTING AND CONFIGURATION INFORMATION.
2. ALL WIRING SHALL COMPLY WITH APPLICABLE ELECTRICAL CODES. REFER TO "APPLICABLE CODES & STANDARDS" ON SHEET FA-001 FOR SPECIFIC CODE REFERENCES.
3. THE INFORMATION OR SYMBOLS SHOWN IN BOLD LINETYPE ARE NEW OR RELOCATED.
4. THE INFORMATION OR SYMBOLS SHOWN IN LIGHT LINETYPE ARE EXISTING.

KEYED NOTES:

1. 120VAC PRIMARY POWER SOURCE SHALL BE A MECHANICALLY PROTECTED BRANCH CIRCUIT. THE CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKING, AND BE IDENTIFIED AS "FIRE ALARM CIRCUIT"

Johnson Controls
DISTRICT 1-418
10600 E. BELLEVIEW AVE
AURORA, CO 80017
SERVICE: 303-355-5000
PHONE: 303-350-9500
FAX: 303-355-9615

NICET CERTIFICATION INFORMATION

NANCY S. WILTSIE
NICET Fire Alarm, III
Certification #93727
Valid Through: 03/01/24

Nancy S Wiltsie

March 24, 2021

THE MEDICAL CENTER OF AURORA
INTERVENTIONAL RADIOLOGY 3 RENOVATION

THE MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, COLORADO 80012

Revisions shown with A symbol

ISSUE LOG				
MARK	DATE	CAD	CHK	DESCRIPTION
1	03/24/2021	CBR	NSW	CHANGES PER INTERNAL PEER REVIEW DATED 03/24/2021:

FOR PERMIT

DRAWN BY:	CBR
CHECKED BY:	NSW
ISSUE DATE:	3/19/21
JOB #:	
PROJECT #:	419-619975503

JOHNSON CONTROLS © 2021

SYSTEM:
FIRE ALARM SYSTEM

SHEET:
PARTIAL RISER DIAGRAM

FA-201

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FILE PATH: C:\Users\jmuth\Johnson Controls\Project Electronics - 1501 S Potomac - Aurora South\South Tower - Node 1\2B-Interventional Radiology 3 - 2021 - 619975503\FireFA-201.dwg
LAST SAVED BY: JMAUCHC
LAST PRINTED: 3/24/2021 11:59:45 AM
30" x 42" - Arch E1 Size

MEDICAL CENTER OF AURORA SOUTH TOWER NODE 1 FACP 4100es FACP

Module	Qty	Description		Standby Current	Total Standby	Alarm Current	Total Alarm
Panel Equipment							
4100-7150	*1*	*MASTER CONTROLLER UPGRADE W/ 2X40 DISPLAY (4100 BA*		*0.1630*	*0.1630*	*0.2100*	*0.2100*
4100-0304	*1*	*STYLE 7 REMOTE UNIT INTERFACE*		*0.0850*	*0.0850*	*0.0850*	*0.0850*
4100-5005	*8*	*ZONE MODULE, 8 IDC, CLASS B*		*0.0750*	*0.6000*	*0.1950*	*1.5600*
4100-3003	*2*	*8 PT AUX RELAY MODULE 3 AMP*		*0.0250*	*0.0500*	*0.2800*	*0.5600*
4100-0110	*5*	*MAPNET II ADDRESSABLE MODULE*	*	*0.2700*	*1.3500*	*0.2900*	*1.4500*
4100-4321	*10*	*6 CIRCUIT CLASS B (STYLE Y)*		*0.0250*	*0.2500*	*0.0700*	*0.7000*
4100-6078	*1*	*NETWORK IF CARD, MODULAR*		*0.0460*	*0.0460*	*0.0460*	*0.0460*
4100-6056	*2*	*NETWORK MEDIA CARD WIRED*		*0.0550*	*0.1100*	*0.0550*	*0.1100*
4100-5101	*2*	*EXPANSION PWR SUPPLY (XPS) - 120VAC 60HZ*		*0.0500*	*0.1000*	*0.0500*	*0.1000*
4100-6038	*1*	*DUAL RS-232 IF CARD*		*0.1320*	*0.1320*	*0.1320*	*0.1320*
4100-6005	*2*	*MASTER CONTROLLER POWER SUPPLY*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
4100-3110	*3*	*IDNet/2+2 MODULE - UP TO 250 DEVICES 4 ISOLATED LOOPS*	*	*0.0500*	*0.1500*	*0.1000*	*0.3000*
4100-0108	*1*	*EXPANSION 120V 8AMP POWER SUPPLY*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
4100-96xx	*4*	*REMOTE ANNUNCIATORS & MINIPLEX TRANSPONDERS*	*	*RUI CURRENT DRAWS INCLUDED BELOW*			
		Panel Totals			**3.0360**		**5.2530**
IDNet Addressable Devices (SLC)							
4090-9001	*7*	*IDNET SUPERVISED IAM*	*	*Constant current draw of .8mA standby and 1mA alarm per address used. Devices requiring additional current are accounted for in the section labelled "Miscellaneous Peripheral Devices Requiring Additional System Power".*			
4090-9002	*1*	*IDNET RELAY IAM*	*				
4098-9714	**22**	**TRUEALARM PHOTO SMOKE SENSOR**					
4098-9733	**8**	**TRUEALARM HEAT SENSOR**	*				
4098-9756	*2*	*TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT*	*				
4098-9789	*1*	*TRUEALARM SENSOR BASE W/ LED OUTPUT*	*				
4098-9792	**29**	**TRUEALARM SENSOR BASE**	*				
4099-9006	*10*	*ADDRESSABLE DOUBLE ACTION MANUAL STATION, PUSH*	*				
Mapnet Addressable Devices (SLC)							
2190-9155	*1*	*MAPNET CLASS B MONITOR ZAM*	*				
2190-9161	*6*	*MAPNET CLASS B SIGNAL ZAM*	*				
2190-9163	*44*	*MAPNET UNSUPERVISED CONTROL ZAM*	*				
2190-9172	*41*	*MAPNET SUPERVISED IAM*	*				
2190-9173	*3*	*MAPNET 2 POINT INPUT/OUTPUT ZAM*	*				
2099-9795	*22*	*MAPNET SINGLE ACTION PULL STATION*	*				
4098-9714	*336*	*TRUEALARM PHOTO SMOKE SENSOR*					
4098-9733	*34*	*TRUEALARM HEAT SENSOR*	*				
4098-9756	*37*	*TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT*	*				
4098-9789	*331*	*TRUEALARM SENSOR BASE W/ LED OUTPUT*	*				
4098-9792	*39*	*TRUEALARM SENSOR BASE*	*				
Miscellaneous Peripheral Devices That Require (Additional) System Power							
4098-9843	*39*	*ENCAPSULATED RELAY PAM-SD*		*0.0000*	*0.0000*	*0.0150*	*0.5850*
4098-9756	*39*	*TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT*		*0.0030*	*0.1170*	*0.0150*	*0.5850*
4603-9101	*11*	*SERIAL LCD ANNUNCIATOR*		*0.0650*	*0.7150*	*0.1400*	*1.5400*
2098-9808	*1*	*REMOTE ALARM INDICATOR*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
Notification Appliances			**Setting**				
4009-9001	*2*	*FOUR CIRCUIT NAC EXTENDER, 120 VAC*		*0.0000*	*0.0000*	*0.0150*	*0.0300*
4903-9219	*10*	*HORN/STROBE NON-SYNC, RED*	*15*	*0.0000*	*0.0000*	*0.1330*	*1.3300*
4903-9292	*102*	*CH70-2415W-FR 15CD CHIME/STROBE*	*15*	*0.0000*	*0.0000*	*0.0700*	*7.1400*
4904-9137	*114*	*15CD VISIBLE ONLY RED*	*15*	*0.0000*	*0.0000*	*0.0900*	*10.2600*
4906-9101	*1*	*V/O MC NON-ADDRESS, RED, WALL*	*15*	*0.0000*	*0.0000*	*0.0600*	*0.0600*
4906-9101	**5**	**V/O MC NON-ADDRESS, RED, WALL**	**75**	**0.0000**	**0.0000**	**0.1860**	**0.9300**
CH70-24MCW-FR	*4*	*MULTI CD CHIME STROBE, WALL MNT, RED*	*15*	*0.0000*	*0.0000*	*0.0820*	*0.3280*
RSS-24MCW-FR	*1*	*MULTI CD STROBE, WALL MNT, RED*	*15*	*0.0000*	*0.0000*	*0.0600*	*0.0600*
		Peripheral Totals			**0.8320**		**22.8480**
		RUI Totals	**15**		**0.0525**		**0.0525**
		Address Totals	**597.5 Addresses**		**0.9708**		**0.9808**
		System Totals*:		**Standby**	**4.8913**	**Alarm**	**29.1343**

* Device Address current draw included below (See Additional Current Draws):

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

Battery Set #1 (Cabinet/Charger #1)				Standby Current	Standby Total	Alarm Current	Alarm Total
Select ALL Power Supplies on this battery set:							
PS-1					0.9640		8.8500
PS-2					1.3320		8.3850
PS-3					0.7310		8.9960
XPS-1					0.1560		0.3100
XPS-2					0.6850		1.5600
				Sub Total	**3.8680**		**28.1010**
Additional Current Draws:							
RUI Connected Peripheral Devices		15	x 0.0035		= 0.0525	x 0.0035	= 0.0525
MAPNET/IDNet Device Address Communication Current		598	x 0.001625		= 0.9708	x 0.001642	= 0.9808
				Sub Total	**4.8913**		**29.1343**
Spare addressable point capacity	**20%**	120	x 0.001625		= 0.1950	x 0.001642	= 0.1970
				Total	**5.0862**		**29.3313**
Standby Time =	4	Hrs	x 5.0862		= 20.3448	Standby Ah	
Alarm Time =	5	Min	0.08333 x 29.3313		= 2.4443	Alarm Ah	
					22.7891		
Additional Spare Battery Capacity =	**20%**			+	4.5578		
					27.3469		
Battery Discharge Factor =	**20%**			+	5.4694		
Minimum Battery Required	**2081-9276 33AH (2x)**				**32.8163**		
Battery Supplied	**2081-9296 50AH (2x)**						

* System Totals represent total system current requirements. Those currents may be distributed between multiple battery sets or power supplies as shown above.

⚠ *EXISTING FIRE ALARM PANEL IS CONNECTED TO A DEDICATED CIRCUIT FROM THE GENERATOR. BUILDING IS NON-VOICE.*

MAPNET CHANNEL M1

	Address	Device Type	Point Type	Location Description	SWITCH SETTINGS 1	2	3	4	5	6	7	8		9
	M1-1	*ADRPUL*	*PULL*	*1:M1-1 FLR 1 W - EXIT BY X-RAY WAITING*	X								ON	
	M1-2	*ADRPUL*	*PULL*	*1:M1-2 FLR 1W - EXIT HALL BY NUCLEAR MED*		X							ON	
	M1-3	*ADRPUL*	*PULL*	*1:M1-3 FLR 1W - EXIT BY INTERVENTIONAL*	X	X							ON	
	M1-4	*ADRPUL*	*PULL*	*1:M1-4 FLR 1 CENTRAL TWR EXIT BY MRI*			X						ON	
	M1-5	*RPHOTO*	*SDUCT*	*1:M1-5 X-RAY ROOF - AHU-97-9 DUCT D.*	X		X						ON	
	M1-6	*RPHOTO*	*SDUCT*	*1:M1-6 X-RAY ROOF - AHU-97-9 DUCT D*		X	X						ON	
	M1-7	*RPHOTO*	*SDUCT*	*1:M1-7 X-RAY ROOF - AHU-97-14 DUCT D*	X	X	X						ON	
	M1-8	*RPHOTO*	*SDUCT*	*1:M1-8 X-RAY ROOF - AHU-97-14 DUCT D.*				X					ON	
	M1-9	*RPHOTO*	*SDUCT*	*1:M1-9 X-RAY ROOF - AHU-97-15 DUCT D.*	X			X					ON	
	M1-10	*RPHOTO*	*SDUCT*	*1:M1-10 X-RAY ROOF - AHU-15 DUCT DET.*		X		X					ON	
	M1-11	*GENIAM*	*SO*	*1:M1-11 FLR 1 CENTRAL TWR X-RAY HALL*	X	X		X					ON	
	M1-12	*RZAM*	*RELAY*	*1:M1-12 X-RAY ROOF - AHU-97-9 DOWN*			X	X					ON	
	M1-13	*RZAM*	*RELAY*	*1:M1-13 X-RAY ROOF AHU 97-14 SHUTDOWN*	X		X	X					ON	
	M1-14	*RZAM*	*RELAY*	*1:M1-14 X-RAY ROOF AHU 97-15 SHUTDOWN*		X	X	X					ON	
	M1-15	*PHOTO*	*VSMOKE*	*1:M1-15 FLR 1W - HALL BY X-RAY WAITING*	X	X	X	X					ON	
	M1-16	*PHOTO*	*VSMOKE*	*1:M1-16 FLR 1W - X-RAY - PET SCAN*					X				ON	
	M1-17	*PHOTO*	*VSMOKE*	*1:M1-17 FLR 1W - X-RAY - PET SCAN*	X				X				ON	
	M1-18	*PHOTO*	*VSMOKE*	*1:M1-18 FLR 1W - HALL BY X-RAY WAITING*		X			X				ON	
	M1-19	*PHOTO*	*VSMOKE*	*1:M1-19 FLR 1W - HALL BY X-RAY WAITING*	X	X			X				ON	
	M1-20	*PHOTO*	*VSMOKE*	*1:M1-20 FLR 1W - X-RAY WAITNG RM*			X		X				ON	
	M1-21	*PHOTO*	*VSMOKE*	*1:M1-21 FLR 1W - HALL BY X-RAY WAITING*	X		X		X				ON	
	M1-22	*PHOTO*	*VSMOKE*	*1:M1-22 FLR 1W - HALL BY X-RAY WAITING*		X	X		X				ON	
	M1-23	*PHOTO*	*VSMOKE*	*1:M1-23 FLR 1W - BY PATHOLOGY STAIRS*	X	X			X				ON	
	M1-24	*PHOTO*	*VSMOKE*	*1:M1-24 FLR 1W - HALL BY PATHOLOGY*				X	X				ON	
	M1-25	*PHOTO*	*VSMOKE*	*1:M1-25 FLR 1W - HALL BY PATHOLOGY*	X			X	X				ON	
	M1-26	*PHOTO*	*VSMOKE*	*1:M1-25 FLR 1W - HALL BY PATHOLOGY*		X		X	X				ON	
	M1-27			*SPARE*	X	X		X	X				ON	
	M1-28			*SPARE*			X	X	X				ON	
	M1-29			*SPARE*	X		X	X					ON	
	M1-30			*SPARE*		X	X	X					ON	
	M1-31			*SPARE*	X	X	X	X					ON	
	M1-32			*SPARE*					X				ON	
	M1-33			*SPARE*	X				X				ON	
	M1-34			*SPARE*		X			X				ON	
	M1-35			*SPARE*	X	X			X				ON	
	M1-36	*PHOTO*	*VSMOKE*	*1:M1-36 FLR 1W - PATHOLOGY LAB*			X		X				ON	
	M1-37	*PHOTO*	*VSMOKE*	*1:M1-37 FLR 1W - ULTRASOUND SUITE*	X		X		X				ON	
	M1-38	*PHOTO*	*VSMOKE*	*1:M1-38 FLR 1W - ULTRASOUND SUITE*		X	X		X				ON	
	M1-39	*PHOTO*	*VSMOKE*	*1:M1-39 FLR 1W - HALL BY X-RAY WAITING*	X	X	X		X				ON	
	M1-40	*PHOTO*	*VSMOKE*	*1:M1-40 FLR 1W - HALL BY X-RAY OFFICES*				X	X				ON	
	M1-41	*PHOTO*	*VSMOKE*	*1:M1-41 FLR 1W - X-RAY WAITNG RM*	X			X	X				ON	
	M1-42	*PHOTO*	*VSMOKE*	*1:M1-42 FLR 1W - X-RAY OFFICE SUITE*		X		X	X				ON	
	M1-43	*PHOTO*	*VSMOKE*	*1:M1-43 FLR 1W - X-RAY OFFICE SUITE*	X	X		X	X				ON	
	M1-44	*PHOTO*	*VSMOKE*	*1:M1-44 FLR 1W - X-RAY OFFICE SUITE*			X	X	X				ON	
	M1-45	*PHOTO*	*VSMOKE*	*1:M1-45 FLR 1W - HALL BY X-RAY OFFICES*	X		X	X	X				ON	
	M1-46	*PHOTO*	*VSMOKE*	*1:M1-46 FLR 1W - HALL BY X-RAY OFFICES*		X	X	X	X				ON	
	M1-47	*PHOTO*	*VSMOKE*	*1:M1-47 FLR 1W - HALL BY NUCLEAR MED*	X	X	X	X	X				ON	
	M1-48	*PHOTO*	*VSMOKE*	*1:M1-48 FLR 1W - HALL BY NUCLEAR MED*					X	X			ON	
	M1-49	*PHOTO*	*VSMOKE*	*1:M1-49 FLR 1W - HALL BY NUCLEAR MED*	X				X	X			ON	
	M1-50	*PHOTO*	*VSMOKE*	*1:M1-50 FLR 1W - NUCLEAR MEDICINE*		X			X	X			ON	
	M1-51	*PHOTO*	*VSMOKE*	*1:M1-51 FLR 1W - NUCLEAR MEDICINE*	X	X			X	X			ON	
	M1-52	*PHOTO*	*VSMOKE*	*1:M1-52 FLR 1W - NUCLEAR MED HOT LAB*			X		X	X			ON	
	M1-53	*PHOTO*	*VSMOKE*	*1:M1-53 FLR 1W - HALL BY NUCLEAR MED*	X		X		X	X			ON	
	M1-54	*PHOTO*	*VSMOKE*	*1:M1-54 FLR 1W - EXIT HALL BY X-RAY 4*		X	X		X	X			ON	
	M1-55	*PHOTO*	*VSMOKE*	*1:M1-55 FLR 1W - EXIT HALL BY X-RAY 3*	X	X	X		X	X			ON	
	M1-56	*PHOTO*	*VSMOKE*	*1:M1-56 FLR 1W - INTER-HALL BY X-RAY 3*				X	X	X			ON	
	M1-57	*PHOTO*	*VSMOKE*	*1:M1-57 FLR 1W - INTER-HALL BY X-RAY 3*	X			X	X	X			ON	
	M1-58	*PHOTO*	*VSMOKE*	*1:M1-58 FLR 1W - INTER-HALL BY X-RAY 3*		X		X	X	X			ON	
	M1-59	*PHOTO*	*VSMOKE*	*1:M1-59 FLR 1W - INTER-HALL BY X-RAY 4*	X	X		X	X	X			ON	
	M1-60	*PHOTO*	*VSMOKE*	*1:M1-60 FLR 1W - HALL BY CAT SCAN*			X	X	X	X			ON	
	M1-61	*PHOTO*	*VSMOKE*	*1:M1-61 FLR 1W - HALL BY CAT SCAN*	X		X	X	X	X			ON	
	M1-62	*PHOTO*	*VSMOKE*	*1:M1-62 FLR 1W - HALL BY CAT SCAN*		X	X	X	X	X			ON	
	M1-63	*PHOTO*	*VSMOKE*	*1:M1-63 FLR 1W - CAT SCAN SUITE*	X	X	X	X	X	X			ON	
	M1-64	*PHOTO*	*VSMOKE*	*1:M1-64 FLR 1W - HALL BY CAT SCAN*						X			ON	
	M1-65			*SPARE*	X					X			ON	
	M1-66			*SPARE*		X				X			ON	
	M1-67			*SPARE*	X	X				X			ON	
	M1-68			*SPARE*			X			X			ON	
	M1-69	*PHOTO*	*VSMOKE*	*1:M1-69 FLR 1W - HALL BY X-RAY LOUNGE*	X		X			X			ON	
	M1-70	*PHOTO*	*VSMOKE*	*1:M1-70 FLR 1W - HALL BY INTERVENTIONAL*		X	X			X			ON	
	M1-71	*ADRPUL*	*PULL*	*1:M1-71 FL 1 CENTRL TWR MRI NRS STATION*	X	X	X			X			ON	
	M1-72			*SPARE*				X		X			ON	
	M1-73	*RZAM*	*RELAY*	*1:M1-73 1ST FL ROLL UP DOOR*	X			X		X			ON	
	M1-74	*PHOTO*	*VSMOKE*	*1:M1-74 FLR 1W - HALL BY INTERVENTIONAL*		X		X		X			ON	
	M1-75	*PHOTO*	*VSMOKE*	*1:M1-75 FLR 1W - INTERVENTIONAL X-RAY*	X	X		X		X			ON	
	M1-76	*PHOTO*	*VSMOKE*	*1:M1-76 FLR 1W - HALL BY INTERVENTIONAL*			X	X		X			ON	
	M1-77	*PHOTO*	*VSMOKE*	*1:M1-77 FLR 1W - HALL BY INTERVENTIONAL*	X		X	X		X			ON	
1	**M1-78**	**HEAT**	**HEAT**	**INTERIM**		X	X	X		X			ON	
2	**M1-79**			**SPARE**	X	X	X	X		X			ON	
	M1-80	*PHOTO*	*VSMOKE*	*1:M1-80 FLR 1W - INTERVENTIONAL X-RAY*					X	X			ON	
	M1-81	*PHOTO*	*VSMOKE*	*1:M1-81 FLR 1W - INTERVENTIONAL X-RAY*	X				X	X			ON	
	M1-82	*PHOTO*	*VSMOKE*	*1:M1-82 FLR 1W - INTERVENTIONAL X-RAY*		X			X	X			ON	
	M1-83	*PHOTO*	*VSMOKE*	*1:M1-83 FLR 1W - HALL BY MRI EQUIP. RM*	X	X			X	X			ON	
	M1-84	*PHOTO*	*VSMOKE*	*1:M1-84 FLR 1W - HALL BY MRI EQUIP. RM*			X		X	X			ON	
	M1-85			*SPARE*	X		X		X	X			ON	
	M1-86			*SPARE*		X	X		X	X			ON	
	M1-87			*SPARE*	X	X	X		X	X			ON	
	M1-88			*SPARE*				X	X	X			ON	
	M1-89	*PHOTO*	*VSMOKE*	*1:M1-89 FLR 1W - HALL BY MRI*	X			X	X	X			ON	
	M1-90	*PHOTO*	*VSMOKE*	*1:M1-90 FLR 1W - HALL BY MRI*		X		X	X	X			ON	
	M1-91	*PHOTO*	*VSMOKE*	*1:M1-91 FLR 1W - X-RAY - PET SCAN*	X	X		X	X	X			ON	
	M1-92			*SPARE*			X	X	X	X			ON	
	M1-93	*GENIAM*	*SO*	*1:M1-93 1ST FL PHARMACY SUPPLY TAMPER*	X		X	X	X	X			ON	
	M1-94	*GENIAM*	*WATER*	*1:M1-94 FLR 1W - BLOOD BANK FLOW*		X	X	X	X	X			ON	
	M1-95	*MBZAM*	*HEAT*	*1:M1-95 FLR 1W - MRI SCANNER ROOM*	X	X	X	X	X	X			ON	
	M1-96	*PHOTO*	*VSMOKE*	*1:M1-96 FLR 1W - MRI CONTROL RM*					X	X			ON	
	M1-97	*PHOTO*	*VSMOKE*	*1:M1-97 FLR 1W - MRI SUITE*	X				X	X			ON	
	M1-98	*PHOTO*	*VSMOKE*	*1:M1-98 FLR 1W - MRI EQUIPMENT RM*		X			X	X			ON	
	M1-99	*PHOTO*	*VSMOKE*	*1:M1-99 FLR 1W - INTERVENTIONAL X-RAY*	X	X			X	X			ON	
	M1-100	*PHOTO*	*VSMOKE*	*1:M1-100 FLR 1W - INTERVENTIONAL BAY 2*			X		X	X			ON	
	M1-101	*PHOTO*	*VSMOKE*	*1:M1-101 FLR 1W - INTERVENTIONAL BAY 1*	X		X		X	X			ON	
	M1-102	*PHOTO*	*VSMOKE*	*1:M1-102 FLR 1W - INTERVENTIONAL N.STAT.*		X	X		X	X			ON	
	M1-103	*RPHOTO*	*SDUCT*	*1:M1-103 FLR 1W - HALL BY INTERVENTIONAL*	X	X	X		X	X			ON	
	M1-104			*SPARE*				X	X	X			ON	
	M1-105			*SPARE*	X			X	X	X			ON	
	M1-106	*PHOTO*	*VSMOKE*	*1:M1-106 FLR 1W - ELECTRIC RM BY LAB*		X		X	X	X			ON	
	M1-107	*PHOTO*	*VSMOKE*	*1:M1-107 FLR 1 W - OR STORAGE*	X	X		X	X	X			ON	
	M1-108			*SPARE*			X	X	X	X			ON	
	M1-109			*SPARE*	X		X	X	X	X			ON	
	M1-110			*SPARE*		X	X	X	X	X			ON	
	M1-111			*SPARE*	X	X	X	X	X	X			ON	
	M1-112			*SPARE*					X	X	X		ON	
	M1-113			*SPARE*	X				X	X	X		ON	
	M1-114			*SPARE*		X			X	X	X		ON	
	M1-115	*PHOTO*	*VSMOKE*	*1:M1-115 FLR 1 RADI. 03 CHANGING AREA*	X	X			X	X	X		ON	
	M1-116			*SPARE*			X		X	X	X		ON	
	M1-117			*SPARE*	X		X		X	X	X		ON	
	M1-118			*SPARE*		X	X		X	X	X		ON	
	M1-119			*SPARE*	X	X	X		X	X	X		ON	
	M1-120			*SPARE*				X	X	X	X		ON	
1	**M1-121**	**HEAT**	**HEAT**	**INTERIM**	X			X	X	X	X		ON	
	M1-122			*SPARE*		X		X	X	X	X		ON	
	M1-123			*SPARE*	X	X		X	X	X	X		ON	
	M1-124			*SPARE*			X	X	X	X	X		ON	
	M1-125			*SPARE*	X		X	X	X	X	X		ON	
	M1-126			*SPARE*		X	X	X	X	X	X		ON	
	M1-127			*SPARE*	X	X	X	X	X	X	X		ON	

NOTE: THE LABELS SHOWN ABOVE WILL BE USED FOR PROGRAMMING PURPOSES.
THE LABELS ARE BASED UPON INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS.
ANY CHANGES TO THESE LABELS MUST BE NOTED ON THE SUBMITTAL REVIEW, PRIOR TO PROGRAMMING.
POINTS SHOWN IN ITALIC TEXT REFER TO EXISTING DEVICES.

GENERAL NOTES:

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

KEYNOTES:

1. INTERIM DEVICE FOR CONSTRUCTION. TO BE REMOVED AFTER CONSTRUCTION IS COMPLETE.
2. DEVICE REMOVED PER CONSTRUCTION.

Johnson Controls
DISTRICT: 1-415
1501 SOUTH POTOMAC STREET
AURORA, CO 80012
SERVICE: 303-355-6000
PHONE: 303-355-5900
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NICET CERTIFICATION INFORMATION
NANCY S. WILTSIE
NICET Fire Alarm, III
Certification #93727
Valid Through: 03/01/24
March 24, 2021

THE MEDICAL CENTER OF AURORA INTERVENTIONAL RADIOLOGY 3 RENOVATION

THE MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, COLORADO 80012

Revisions shown with ⚠ symbol

ISSUE LOG MARK	DATE	CAD	CHK	DESCRIPTION
1	03/24/2021	CBR	NSW	CHANGES PER INTERNAL PEER REVIEW DATED 03/24/2021

FOR PERMIT

DRAWN BY:	CBR
CHECKED BY:	NSW
ISSUE DATE:	3/19/21
JOB #:	
PROJECT #:	419:619975503
	JOHNSON CONTROLS © 2021

SYSTEM: **FIRE ALARM SYSTEM**

SHEET: **FIRE ALARM CONTROL PANEL INTERIM CALCULATIONS & SCHEDULES**

FA-601

FILE PATH: C:\Users\jhuchi\Johnson Controls\Project Electronics - 1501 S Potomac - Aurora South\South Tower - Node 1\29-Interventional Radiology 3 - 2021 - 619975503\FireFA-601.dwg
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LAST PRINTED: 3/24/2021 11:59:48 AM
36" x 42" Arch E1 Size

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GENERAL NOTES:

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

KEYNOTES:

1. INTERIM DEVICE FOR CONSTRUCTION. TO BE REMOVED AFTER CONSTRUCTION IS COMPLETE.
2. DEVICE REMOVED PER CONSTRUCTION.

MEDICAL CENTER OF AURORA SOUTH TOWER NODE 1 FACP 4100es FACP VOLTAGE DROPS

WIRE RESISTANCE BASED ON TABLE 8 FROM NATIONAL ELECTRICAL CODE (UNCOATED SOLID COPPER WIRE) @ 75 Celsius

| | | |

GENERAL NOTES:

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

MEDICAL CENTER OF AURORA SOUTH TOWER TRANSPONDER 4 4100es XPDR

Module	Qty	Description		Standby Current	Total Standby	Alarm Current	Total Alarm
Panel Equipment							
4100-9600	*1*	*BASIC TRANSPONDER*	*	*0.0870*	*0.0870*	*0.0870*	*0.0870*
4100-0634	*1*	*POWER DISTRIBUTION MODULE 120V*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
4100-0636	*1*	*BOX TO BOX HARNESS KIT*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
4100-2300	*1*	*EXPANSION BAY (PHASE 10 ONLY)*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
4100-5311	*1*	*ENHANCED POWER SUPPLY, 3 CHANNELS, IDNet, 120V*		*0.2250*	*0.2250*	*0.4900*	*0.4900*
4009-9601	*2*	*IDNAC REPEATER 120V PLATINUM UL/ULC*		*0.0700*	*0.1400*	*0.0960*	*0.1920*
		Panel Totals			**0.4520**		**0.7690**
IDNet Addressable Devices (SLC)							
4090-9001	*1*	*IDNET SUPERVISED IAM*	*	*Constant current draw of .8mA standby and 1mA alarm per address used. Devices requiring additional current are accounted for in the section labeled "Miscellaneous Peripheral Devices Requiring Additional System Power".*			
4090-9002	**16**	**IDNET RELAY IAM**	*				
4098-9714	**98**	**TRUEALARM PHOTO SMOKE SENSOR**					
4098-9733	*9*	*TRUEALARM HEAT SENSOR*	*				
4098-9755	*2*	*TRUEALARM DUCT SMOKE SENSOR W/O RELAY OUTPUT*	*				
4098-9756	**10**	**TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT**	*				
4098-9792	**107**	**TRUEALARM SENSOR BASE**	*				
4099-9004	*4*	*ADDRESSABLE SINGLE ACTION MANUAL STATION*	*				
Miscellaneous Peripheral Devices That Require Additional System Power							
4098-9843	**10**	**ENCAPSULATED RELAY PAM-SD**		**0.0000**	**0.0000**	**0.0150**	**0.1500**
4098-9756	**10**	**TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT**		**0.0030**	**0.0300**	**0.0150**	**0.1500**
4603-9101	*4*	*SERIAL LCD ANNUNCIATOR*		*0.0650*	*0.2600*	*0.1400*	*0.5600*
2088-9021	*5*	*ENCAPSULATED RELAY PAM-1*		*0.0000*	*0.0000*	*0.0150*	*0.0750*
4098-9605	*2*	*PHOTO SMOKE DETECTOR SSD*		*0.0001*	*0.0002*	*0.0000*	*0.0000*
4098-9788	*2*	*2 WIRE DETECTOR BASE*		*0.0000*	*0.0000*	*0.0000*	*0.0000*
2098-9806	**12**	**REMOTE TEST STATION W/ LED AND KEY SWITCH**		**0.0000**	**0.0000**	**0.0000**	**0.0000**
IDNac Notification Appliances			**Setting**				
4009-9601	*2*	*IDNAC REPEATER 120V PLATINUM UL/ULC*	*	*0.0032*	*0.0064*	*0.0032*	*0.0064*
4906-9202	*5*	*ADDRESSABLE CEILING MNT MC VO, RED*	*75*	*0.0008*	*0.0040*	*0.1800*	*0.9000*
49MT-WRF	*3*	*MULTI-TONE AUDIBLE ONLY, RED, WALL MOUNT*	*520 H*	*0.0016*	*0.0048*	*0.0999*	*0.2970*
49MTV-WRF	**20**	**MULTI-TONE A/V, RED, WALL MOUNT**	**15**	**0.0016**	**0.0320**	**0.1450**	**2.9000**
49MTV-WRF	*10*	*MULTI-TONE A/V, RED, WALL MOUNT*	*30*	*0.0016*	*0.0160*	*0.1630*	*1.6300*
49MTV-WRF	*6*	*MULTI-TONE A/V, RED, WALL MOUNT*	*75*	*0.0016*	*0.0096*	*0.1980*	*1.1880*
49VO-APPLC	*7*	*STROBE, APPLIANCE ONLY, CEILING MOUNT*	*15*	*0.0008*	*0.0056*	*0.0550*	*0.3850*
49VO-APPLC	**2**	**STROBE, APPLIANCE ONLY, CEILING MOUNT**	**30**	**0.0008**	**0.0016**	**0.0830**	**0.1660**
49VO-APPLW	*1*	*VO APPLIANCE ONLY WALL MT*	*15*	*0.0008*	*0.0008*	*0.0470*	*0.0470*
49VO-APPLW	*4*	*VO APPLIANCE ONLY WALL MT*	*30*	*0.0008*	*0.0032*	*0.0570*	*0.2280*
49VO-APPLW	*1*	*VO APPLIANCE ONLY WALL MT*	*75*	*0.0008*	*0.0008*	*0.1000*	*0.1000*
49VO-WRF	*29*	*VO, WALL MT, RED, FIRE LABEL*	*15*	*0.0008*	*0.0232*	*0.0470*	*1.3630*
49VO-WRF	*4*	*VO, WALL MT, RED, FIRE LABEL*	*30*	*0.0008*	*0.0032*	*0.0570*	*0.2280*
49VO-WRF	*1*	*VO, WALL MT, RED, FIRE LABEL*	*75*	*0.0008*	*0.0008*	*0.1000*	*0.1000*
			Total IDNac Device Current:		**0.1120**		**9.5384**
			IDNac Current Boost for 29vdc Regulated Output **				**5.4380**
			Peripheral Totals		**0.2902**		**15.9114**
			RUI Totals 4		**0.0140**		**0.0140**
			Address Totals 140 Addresses		**0.1120**		**0.1400**
* Device Address current draw included below (See Additional Current Draws):			**System Totals*:**	**Standby**	**0.9802**	**Alarm**	**16.8344**

Battery Set #1 (Cabinet/Charger #1)				Standby Current	Standby Total	Alarm Current	Alarm Total
Select ALL Power Supplies on this battery set:							
EPS-1					0.6822		8.3384
				Sub Total	**0.6822**		**8.3384**
Additional Current Draws:							
IDNac Current Boost for 29vdc Regulated Output **							3.8919
RUI Connected Peripheral Devices	4	x 0.0035			= 0.0140	x 0.0035	= 0.0140
MAPNET/IDNet Device Address Communication Current	140	x 0.000800			= 0.1120	x 0.001000	= 0.1400
				Sub Total	**0.8062**		**12.3843**
Spare addressable point capacity	**20%**	28	x 0.0008		= 0.0224	x 0.001	= 0.0280
				Total	**0.8306**		**12.4123**
Standby Time =	**4**	Hrs	x 0.8306		= 3.3224	Standby Ah	
Alarm Time =	**5**	Min	0.08333 x 12.4123		= 1.0344	Alarm Ah	
					4.3568		
Additional Spare Battery Capacity =	**20%**			+	0.8714		
					5.2281		
Battery Discharge Factor =	**20%**			+	1.0456		
Minimum Battery Required	**2081-9274 10AH (2x)**				**6.2737**		
Battery Supplied	**2081-9287 25AH (2x)**						

* System Totals represent total system current requirements. Those currents may be distributed between multiple battery sets or power supplies as shown above.

** IDNac Current Boost formula: ((29.5 * IDNac Alarm Current) / .92) / 20.4 = Adjusted Current
DC-DC Converter Output = 29.5vdc. Terminal Output is 29vdc due to 0.5vdc internal loss.
Converter Worst Case efficiency is 92%, 20.4vdc represents battery output in 85% depleted state

Repeater Power Supply Battery Set:				Standby	Standby Total	Alarm	Alarm Alarm Total
EPR-1					0.0836		**1.2240**
Additional Current Draw:							
IDNac Current Boost for 29vdc Regulated Output **					0.0000		0.6431
				Total	**0.0836**		**1.8671**
Standby Time =	**4**	Hrs	x 0.8306		= 0.3344	Standby Ah	
Alarm Time =	**5**	Min	0.08333 x 1.8671		= 0.1556	Alarm Ah	
					0.4900		
Additional Spare Battery Capacity =	**20%**			+	0.0980		
					0.5880		
Battery Discharge Factor =	**20%**			+	0.1176		
Minimum Battery Required	**2081-9272 6.2AH (2x)**				**0.7056**		
Battery Supplied	**2081-9272 6.2AH (2x)**						

Repeater Power Supply Battery Set:				Standby Total	Alarm Total
EPR-2				0.0884	**1.6800**
Additional Current Draw:					
IDNac Current Boost for 29vdc Regulated Output **				0.0000	0.9031
			Total	**0.0884**	**2.5831**
Standby Time =	**4**	Hrs	x 0.8306	= 0.3536	Standby Ah
Alarm Time =	**5**	Min	0.08333 x 2.5831	= 0.2159	Alarm Ah
				0.5689	
Additional Spare Capacity =	**20%**		+	0.1138	
				0.6826	
Additional Spare Battery Capacity =	**20%**		+	0.1365	
Minimum Battery Required	**2081-9272 6.2AH (2x)**			**0.8192**	
Battery Supplied	**2081-9272 6.2AH (2x)**				

⚠ ***EXISTING FIRE ALARM PANEL IS CONNECTED TO A DEDICATED CIRCUIT FROM THE GENERATOR. BUILDING IS NON-VOICE.***

IDNET CHANNEL N1:T4:M11	ADDRESSES IN USE: 139 (55.6%) | SPARE ADDRESSES: 111 (44.4%)			SWITCH SETTINGS								Yellow = Overwritten PID		
Address	Device Type	Point Type	Location Description	1									PID 1	PID 2
N1:T4:M11-1	*PHOTO*	*SMOKE*	*FLR 1W ELEC 1-CS16 1:M11-1*	X							ON		**4098-9714**	**4098-9792**
N1:T4:M11-2	*PHOTO*	*SMOKE*	*FLR 1W OR 11 1-SS100 SW 1:M11-2*		X						ON		**4098-9714**	**4098-9792**
N1:T4:M11-3	*PHOTO*	*SMOKE*	*FLR 1W OR 11 1-SS100 NE 1:M11-3*	X	X						ON		**4098-9714**	**4098-9792**
N1:T4:M11-4	*RIAM*	*DHOLDER*	*FLR 1W OR 11 1-SS100 1:M11-4*			X					ON		**4090-9002**	
N1:T4:M11-5	*HEAT*	*HEAT*	*FLR 1W TLT 1-CS15 1:M11-5*	X		X					ON		**4098-9733**	**4098-9792**
N1:T4:M11-6	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-CS14 @TLT 1:M11-6*		X	X					ON		**4098-9714**	**4098-9792**
N1:T4:M11-7	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-CS14 @STER STG 1:M11-7*	X	X	X					ON		**4098-9714**	**4098-9792**
N1:T4:M11-8	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 NORTH 1:M11-8*				X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-9	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 1:M11-9*	X			X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-10	*PHOTO*	*SMOKE*	*FLR 1W IJANI-CS13 1:M11-10*		X		X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-11	*PHOTO*	*SMOKE*	*FLR 1W JAN 1-SS038 1:M11-11*	X	X		X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-12	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 CTR 1:M11-12*			X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-13	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 CTR 1:M11-13*	X		X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-14	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 SOUTH 1:M11-14*		X	X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-15	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 SOUTH 1:M11-15*	X	X	X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-16	*PHOTO*	*SMOKE*	*FLR 1W MAKE UP 1-CS07 W 1:M11-16*				X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-17	*PHOTO*	*SMOKE*	*FLR 1W MAKE UP 1-CS07 E 1:M11-17*	X			X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-18	*PHOTO*	*SMOKE*	*FLR 1W MAKE UP 1-CS07 @CORR 1:M11-18*		X		X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-19	*PHOTO*	*SMOKE*	*FLR 1W STERILIZER 1-CS08 1:M11-19*	X	X		X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-20	*PHOTO*	*SMOKE*	*FLR 1W CLEAN STORAGE 1-CS06 1:M11-20*			X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-21	*PHOTO*	*SMOKE*	*FLR 1W DECON 1-CS03 NORTH 1:M11-21*	X		X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-22	*PHOTO*	*SMOKE*	*FLR 1W DECON 1-CS03 SOUTH 1:M11-22*		X	X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-23	*PHOTO*	*SMOKE*	*FLR 1W CART WASH 1-CS04 NORTH 1:M11-23*	X	X	X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-24	*PHOTO*	*SMOKE*	*FLR 1W CART WASH 1-CS04 SOUTH 1:M11-24*			X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-25	*PHOTO*	*SMOKE*	*FLR 1W CSS OFF 1-CS02 1:M11-25*	X		X	X				ON		**4098-9714**	**4098-9792**
N1:T4:M11-26	*PHOTO*	*SMOKE*	*FLR 1W DI WATER 1-CS09 1:M11-26*		X		X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-27	*PHOTO*	*SMOKE*	*FLR 1W SURGERY VENDOR 1-CS01 M1-27*	X	X		X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-28	*PHOTO*	*SMOKE*	*FLR 1W CLEAN STORAGE 1-CS05 M1-26*			X	X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-29	*RPHOTO*	*LSDUCT*	*FLR 1W PASS 1-CS14 SUP FSD 1:M11-29*	X		X	X	X			ON		**4098-9756**	
N1:T4:M11-30	*RPHOTO*	*LSDUCT*	*FLR 1W STER STG SUP FSD 1-CS10 1:M11-30*		X	X	X	X			ON		**4098-9756**	
N1:T4:M11-31	*RPHOTO*	*LSDUCT*	*FLR 1W CARTWASH 1-CS04 RET FSD 1:M11-31*	X	X	X	X	X			ON		**4098-9756**	
N1:T4:M11-32	*RPHOTO*	*LSDUCT*	*FLR 1W CSS OFF 1-CS02 RET FSD 1:M11-32*					X			ON		**4098-9756**	
N1:T4:M11-33	*RPHOTO*	*LSDUCT*	*FLR 1W SRG VEND 1-CS01 RET FSD 1:M11-33*	X				X			ON		**4098-9756**	
N1:T4:M11-34	*RPHOTO*	*LSDUCT*	*FLR 1W CSS OFF 1-CS02 RET FSD 1:M11-34*		X			X			ON		**4098-9756**	
N1:T4:M11-35	*RPHOTO*	*LSDUCT*	*FLR 1W DECON 1-CS03 SUP FSD 1:M11-35*	X	X			X			ON		**4098-9756**	
N1:T4:M11-36	*RPHOTO*	*LSDUCT*	*FLR 1W CL STG 1-CS05 RET FSD 1:M11-36*			X		X			ON		**4098-9756**	
N1:T4:M11-37	*RPHOTO*	*LSDUCT*	*FLR 1W CL STG 1-CS05 SUP FSD 1:M11-37*	X		X		X			ON		**4098-9756**	
N1:T4:M11-38	*RIAM*	*RELAY*	*ROOF RTU-2 OR 11 ALARM TO DDC 1:M11-38*		X	X		X			ON		**4090-9002**	
N1:T4:M11-39	*PHOTO*	*SMOKE*	*FLR 1W STER STG 1-CS10 SOUTH 1:M11-39*	X	X	X		X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-40			*SPARE*				X	X			ON			
N1:T4:M11-41			*SPARE*	X			X	X			ON			
N1:T4:M11-42			*SPARE*		X		X	X			ON			
N1:T4:M11-43			*SPARE*	X	X		X	X			ON			
N1:T4:M11-44			*SPARE*			X	X	X			ON			
N1:T4:M11-45	*PHOTO*	*SMOKE*	*FLR 1W OR 11-SS118 NE 1:M11-45*	X		X	X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-46	*PHOTO*	*SMOKE*	*FLR 1W OR 11-SS118 SW 1:M11-46*		X	X	X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-47	*RIAM*	*DHOLDER*	*FLR 1W OR 11-SS118 1:M11-47*	X	X	X	X	X			ON		**4090-9002**	
N1:T4:M11-48	*PHOTO*	*SMOKE*	*FLR 1W OR 2 1-SS119 NE 1:M11-48*					X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-49	*PHOTO*	*SMOKE*	*FLR 1W OR 2 1-SS119 SW 1:M11-49*	X				X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-50	*RIAM*	*DHOLDER*	*FLR 1W OR 2 1-SS119 1:M11-50*		X			X			ON		**4090-9002**	
N1:T4:M11-51	*PHOTO*	*SMOKE*	*FLR 1W CYSTO OR 3 1-SS129 NE 1:M11-51*	X	X			X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-52	*PHOTO*	*SMOKE*	*FLR 1W CYSTO OR 3 1-SS129 SW 1:M11-52*			X		X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-53	*RIAM*	*DHOLDER*	*FLR 1W CYSTO OR 3 1-SS129 1:M11-53*	X		X		X			ON		**4090-9002**	
N1:T4:M11-54	*PHOTO*	*SMOKE*	*FLR 1W EQ. STG. 1-SS131 1:M11-54*		X	X		X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-55	*PHOTO*	*SMOKE*	*FLR 1W WOMENS LCKR RM 1-SS135 1:M11-55*	X	X	X		X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-56	*HEAT*	*HEAT*	*FLR 1W WOMENS BATH 1-SS136 1:M11-56*				X	X			ON		**4098-9733**	**4098-9792**
N1:T4:M11-57	*PHOTO*	*SMOKE*	*FLR 1W MENS LOCKER RM 1-SS138 1:M11-57*	X			X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-58	*PHOTO*	*SMOKE*	*FLR 1W NURSE LOUNGE 1-SS139 1:M11-58*		X		X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-59	*RIAM*	*RELAY*	*ROOF RTU-2 OR 1 ALARM TO DDC 1:M11-59*	X	X		X	X			ON		**4090-9002**	
N1:T4:M11-60	*RIAM*	*RELAY*	*ROOF RTU-2 OR 2 ALARM TO DDC 1:M11-60*			X	X	X			ON		**4090-9002**	
N1:T4:M11-61	*RIAM*	*RELAY*	*ROOF RTU-2 OR 3 ALARM TO DDC 1:M11-61*	X		X	X	X			ON		**4090-9002**	
N1:T4:M11-62	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS122 @OR 6 1:M11-62*		X	X	X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-63	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS122 @OR 7 1:M11-63*	X	X	X	X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-64	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS122 @OR 2 1:M11-64*						X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-65	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS122 @OR 1 1:M11-65*	X					X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-66	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS029 @N CORR 1:M11-66*		X				X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-67	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS037 @E CORR 1:M11-67*	X	X				X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-68	*PHOTO*	*SMOKE*	*FLR 1W CORR 1-SS036 1:M11-68*			X			X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-69	*PHOTO*	*SMOKE*	*FLR 1W EQUIP STOR @ OR1 1:M11-69*	X		X			X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-70			*SPARE*		X	X			X		ON			
N1:T4:M11-71			*SPARE*	X	X	X			X		ON			
N1:T4:M11-72	*PHOTO*	*SMOKE*	*FLR 1W STOR 1-SS035 1:M11-72*				X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-73	*PHOTO*	*SMOKE*	*FLR 1W SOILED FLUIDS 1-SS032 1:M11-73*	X			X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-74			*SPARE*		X		X		X		ON			
N1:T4:M11-75	*PHOTO*	*SMOKE*	*FLR 1W NURSE STATION A 1-PA10 1:M11-75*	X	X		X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-76	*PHOTO*	*SMOKE*	*FLR 1W DAVINCI OR 4 1-SS031 NW 1:M11-76*			X	X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-77	*PHOTO*	*SMOKE*	*FLR 1W DAVINCI OR 4 1-SS031 SE 1:M11-77*	X		X	X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-78	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-PA11 1:M11-78*		X	X	X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-79	*PHOTO*	*SMOKE*	*FLR 1W CLEAN UTILITY 1-PA07 1:M11-79*	X	X	X	X		X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-80	*PHOTO*	*SMOKE*	*FLR 1W CNC OFFICE 1-PA09 1:M11-80*					X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-81	*PHOTO*	*SMOKE*	*FLR 1W PACU RECOVERY 1-PA01 N 1:M11-81*	X				X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-82	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-PA12 1:M11-82*		X			X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-83	*PHOTO*	*SMOKE*	*FLR 1W STF LNGE 1-PA14 1:M11-83*	X	X			X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-84	*HEAT*	*HEAT*	*FLR 1W TLT 1-PA15 1:M11-84*			X		X	X		ON		**4098-9733**	**4098-9792**
N1:T4:M11-85	*PHOTO*	*SMOKE*	*FLR 1W PACU RECOVERY 1-PA01 S 1:M11-85*	X		X		X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-86	*PHOTO*	*SMOKE*	*FLR 1W SOILED UTILITY 1-PA08 1:M11-86*		X	X		X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-87	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-PA06 1:M11-87*	X	X	X		X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-88	*PHOTO*	*SMOKE*	*FLR 1W ELEC 1-PA05 1:M11-88*				X	X	X		ON		**4098-9714**	**4098-9792**
N1:T4:M11-89	*ADRPUL*	*PULL*	*FLR 1W NURSE STATION A 1-PA10 1:M11-89*	X			X	X	X		ON		**4099-9004**	
N1:T4:M11-90	*RIAM*	*RRELAY*	*FLR 1W DAVINCI OR 4 1-SS029 1:M11-90*		X		X	X	X		ON		**4090-9002**	
N1:T4:M11-91	*RIAM*	*RELAY*	*ROOF RTU-2 OR 4 ALARM TO DDC 1:M11-91*	X	X		X	X	X		ON		**4090-9002**	
N1:T4:M11-92			*SPARE*			X	X	X	X		ON			
N1:T4:M11-93			*SPARE*	X		X	X	X	X		ON			
N1:T4:M11-94			*SPARE*		X	X	X	X	X		ON			
N1:T4:M11-95	*PHOTO*	*SMOKE*	*FLR 1W HALL 04 @PRE-OP HOLD 1:M11-95*	X	X	X	X	X			ON		**4098-9714**	**4098-9792**
N1:T4:M11-96	*PHOTO*	*SMOKE*	*FLR 1W HALL 04 @COMM 1-SS216 1:M11-96*						X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-97	*PHOTO*	*SMOKE*	*FLR 1W HALL 03 @RECPT/SCHED 1:M11-97*	X					X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-98	*PHOTO*	*SMOKE*	*FLR 1W HALL 03 @ OFFICES 1:M11-98*		X				X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-99	*PHOTO*	*SMOKE*	*FLR 1W HALL 03 @SAMEDAY SURG 1:M11-99*	X	X				X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-100	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-SS204 S 1:M11-100*			X			X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-101	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-SS204 CTR 1:M11-101*	X		X			X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-102	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-SS204 N 1:M11-102*		X	X			X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-103	*PHOTO*	*SMOKE*	*FLR 1W STORE RM 1-SS201 1:M11-103*	X	X	X			X	X	ON		**4098-9733**	**4098-9792**
N1:T4:M11-104	*PHOTO*	*SMOKE*	*FLR 1W EVS 1-SS202 1:M11-104*				X		X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-105	*HEAT*	*HEAT*	*FLR 1W TLT 1-SS203 1:M11-105*	X			X		X	X	ON		**4098-9733**	**4098-9792**
N1:T4:M11-106	*ADRPUL*	*PULL*	*FLR 1W NURSE STAT A 1-SS205 1:M11-106*		X		X		X	X	ON		**4099-9004**	
N1:T4:M11-107	*PHOTO*	*SMOKE*	*FLR 1W PASS E 1-SS212 1:M11-107*	X	X		X		X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-108	*HEAT*	*HEAT*	*FLR 1W TLT 1-SS206 1:M11-108*				X		X	X	ON		**4098-9733**	**4098-9792**
N1:T4:M11-109	*PHOTO*	*SMOKE*	*FLR 1W MEDS 1-SS207 1:M11-109*	X			X		X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-110	*PHOTO*	*SMOKE*	*FLR 1W SOIL UTIL 1-SS208 1:M11-110*		X		X		X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-111	*PHOTO*	*SMOKE*	*FLR 1W OFF 1-SS209 1:M11-111*	X	X		X		X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-112	*PHOTO*	*SMOKE*	*FLR 1W PASS 1-SS210 1:M11-112*					X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-113	*PHOTO*	*SMOKE*	*FLR 1W WK RM 1-SS215 1:M11-113*	X				X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-114	*PHOTO*	*SMOKE*	*FLR 1W LN UTIL 1-SS214 1:M11-114*		X			X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-115	*ADRPUL*	*PULL*	*FLR 1W NURSE STAT B 1-SS213 1:M11-115*	X	X			X	X	X	ON		**4099-9004**	
N1:T4:M11-116	*PHOTO*	*SMOKE*	*FLR 1W PASS W 1-SS212 1:M11-116*			X		X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-117	*HEAT*	*HEAT*	*FLR 1W TLT 1-SS221 1:M11-117*	X		X		X	X	X	ON		**4098-9733**	**4098-9792**
N1:T4:M11-118	*PHOTO*	*SMOKE*	*FLR 1W NOUR 1-SS222 1:M11-118*		X	X		X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-119	*PHOTO*	*SMOKE*	*FLR 1W PASS E 1-SS224 1:M11-119*	X	X	X		X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-120	*PHOTO*	*SMOKE*	*FLR 1W PASS N 1-SS224 1:M11-120*				X	X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-121	*PHOTO*	*SMOKE*	*FLR 1W PASS S 1-SS224 1:M11-121*	X			X	X	X	X	ON		**4098-9714**	**4098-9792**
N1:T4:M11-122	*ADRPUL*	*PULL*	*FLR 1W NURSE STAT C 1-SS223 1:M11-122*		X		X	X	X	X	ON		**4099-9004**	
N1:T4:M11-123	*HEAT*	*HEAT*	*FLR 1W TLT 1-SS219 1:M11-123*	X	X		X	X	X	X	ON		**4098-9733**	**4098-9792**
N1:T4:M11-124	*HEAT*	*HEAT*	*FLR 1W TLT 1-SS218 1:M11-124*			X	X	X	X	X	ON		**4098-9733**	**4098-9792**
N1:T4:M11-125	*PHOTO*	*SMOKE*	*FLR 1W NURSE LOUNGE 1-SS217 1:M11-125*	X		X	X	X	X	X	ON		**4098-9714**	**4098-9792**

NOTE: THE LABELS SHOWN ABOVE WILL BE USED FOR PROGRAMMING PURPOSES.
THE LABELS ARE BASED UPON INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS.
ANY CHANGES TO THESE LABELS MUST BE NOTED ON THE SUBMITTAL REVIEW, PRIOR TO PROGRAMMING.
POINTS SHOWN IN ITALIC TEXT REFER TO EXISTING DEVICES.

IDNET CHANNEL N1:T4:M11	ADDRESSES IN USE: 140 (56%) | SPARE ADDRESSES: 110 (44%)			SWITCH SETTINGS								PID 1	PID 2

GENERAL NOTES:

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

MEDICAL CENTER OF AURORA SOUTH TOWER TRANSPONDER 4 - EPS-1 CIRCUIT SUMMARY & VOLTAGE DROP

Channel	Description	Alarm Current	% Drop	Unit Load*	Wire Length	Spare Current	Spare VoltageDrop
N1:T4:A2:1	**FLR 1W OR 11, STERILE STG**	**2.747A**	**8.18%**	**37**	**855**	**8%**	**60%**
N1:T4:A2:2	*FLR 1W OR 1-4, PACU CORR*	*2.430A*	*4.88%*	*38*	*989*	*19%*	*76%*
N1:T4:A2:3	*FLR 1W OR RECOVERY*	*1.649A*	*5.24%*	*25*	*535*	*45%*	*75%*
EPR2	**FLR 1W MRI AREA BREAK RM 7300A**	**1.584A**	**4.97%**	**23**	**415**	**47%**	**76%**
EPR1	*PACU RECOVERY*	*1.128A*	*2.53%*	*17*	*357*	*62%*	*89%*

N1:T4:A2: ENHANCED POWER SUPPLY - CHANNEL 1

IDNac Address	Device Type	PID	Setting	Custom Label (Max 40 Characters)		SWITCH SETTINGS 1						
N1:T4:A2:1-1	*VO*	*49VO-WRF*	*15cd*	*FLR 1W ELEC 1-CS16 1:A2:1-1*		X						ON
N1:T4:A2:1-2	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W PASS 1-CS14 1:A2:1-2*			X					ON
N1:T4:A2:1-3	*VO*	*49VO-WRF*	*15cd*	*FLR 1W TLT 1-CS15 1:A2:1-3*		X	X					ON
N1:T4:A2:1-4	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W PASS 1-CS14 1:A2:1-4*				X				ON
N1:T4:A2:1-5	*STRB*	*4906-9202*	*75cd*	*FLR 1W CASE CARTS 1-CS11 1:A2:1-5*		X		X				ON
N1:T4:A2:1-6	*STRB*	*4906-9202*	*75cd*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-6*			X	X				ON
N1:T4:A2:1-7	*VO*	*49VO-APPLW*	*30cd*	*FLR 1W OR 11 1-SS1 1:A2:1-7*		X	X	X				ON
N1:T4:A2:1-8	*STRB*	*4906-9202*	*75cd*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-8*					X			ON
N1:T4:A2:1-9	*AV*	*49MTV-WRF*	*75cd*	*FLR 1W MAKE UP 1-CS7 1:A2:1-9*		X			X			ON
N1:T4:A2:1-10	*AV*	*49MTV-WRF*	*75cd*	*FLR 1W MAKE UP 1-CS7 1:A2:1-1*			X		X			ON
N1:T4:A2:1-11	*VO*	*49VO-WRF*	*15cd*	*FLR 1W MAKE UP 1-CS7 1:A2:1-11*		X	X		X			ON
N1:T4:A2:1-12	*VO*	*49VO-WRF*	*30cd*	*FLR 1W STERILIZER 1-CS8 1:A2:1-12*				X	X			ON
N1:T4:A2:1-13	*VO*	*49VO-WRF*	*30cd*	*FLR 1W CLEAN STG 1-CS5 1:A2:1-13*		X		X	X			ON
N1:T4:A2:1-14	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W DECON. 1-CS3 1:A2:1-14*			X	X	X			ON
N1:T4:A2:1-15	*AV*	*49MTV-WRF*	*75cd*	*FLR 1W CART WASH 1-CS4 1:A2:1-15*		X	X	X	X			ON
N1:T4:A2:1-16	*VO*	*49VO-WRF*	*15cd*	*FLR 1W DI WATER 1-CS9 1:A2:1-16*						X		ON
N1:T4:A2:1-17	*VO*	*49VO-WRF*	*15cd*	*FLR 1W SURG VEND 1-CS1 1:A2:1-17*		X				X		ON
N1:T4:A2:1-18	*VO*	*49VO-WRF*	*15cd*	*FLR 1W CLEAN STG 1-CS5 1:A2:1-18*			X			X		ON
N1:T4:A2:1-19	*STRB*	*4906-9202*	*75cd*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-6*		X	X			X		ON
N1:T4:A2:1-20	*STRB*	*4906-9202*	*75cd*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-6*				X		X		ON
N1:T4:A2:1-21	*AO*	*49MT-WRF*	*520 Hz*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-6*		X		X		X		ON
N1:T4:A2:1-22	*AO*	*49MT-WRF*	*520 Hz*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-6*			X	X		X		ON
N1:T4:A2:1-23	*AO*	*49MT-WRF*	*520 Hz*	*FLR 1W STERILE STG. 1-CS1 1:A2:1-6*			X	X		X		ON
N1:T4:A2:1-24	*VO*	*49VO-APPLW*	*15cd*	*FLR 1 RADIOLOGY 03 CHANGING AREA*					X	X		ON
N1:T4:A2:1-25	*REPEATER*	*4009-9601*		*FLR 1W MRI BREAK ROOM*	*1-T4:A2:1-25*	X			X	X		ON
N1:T4:A2:1-26	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W BREAK ROOM 7300A*	*1-T4:A2:1-26*		X		X	X		ON
N1:T4:A2:1-27	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W CHANGING AREA 7200A*	*1-T4:A2:1-27*	X	X		X	X		ON
N1:T4:A2:1-28	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W OS RADI. 05 7202A*	*1-T4:A2:1-28*			X	X	X		ON
N1:T4:A2:1-29	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W STAFF HALL 7203A*	*1-T4:A2:1-29*	X		X	X	X		ON
N1:T4:A2:1-30	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W EQUIPMENT ROOM 7203B*	*1-T4:A2:1-30*		X	X	X	X		ON
N1:T4:A2:1-31	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W TECH WORK AREA 7204A*	*1-T4:A2:1-31*	X	X	X	X	X		ON
N1:T4:A2:1-32	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W CONTROL AREA 7402B N*	*1-T4:A2:1-32*					X		ON
N1:T4:A2:1-33	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W TLT 7402C*	*1-T4:A2:1-33*	X				X		ON
N1:T4:A2:1-34	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W PATIENT HOLDING 7402D*	*1-T4:A2:1-34*		X			X		ON
N1:T4:A2:1-35	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W CONTROL AREA 7402B S*	*1-T4:A2:1-35*	X		X		X		ON
N1:T4:A2:1-36	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W CHANGING ROOM 7402E*	*1-T4:A2:1-36*		X			X		ON
N1:T4:A2:1-37	*VO*	*49VO-APPLC*	*15cd*	*FLR 1W STAFF TOILET 7414A*	*1-T4:A2:1-37*	X		X		X		ON
N1:T4:A2:1-38	**AV**	**49MTV-WRF**	**15cd**	**FLR 1W EQUIPMENT 1W-8902A**	**1-T4:A2:1-38**		X	X		X		ON
N1:T4:A2:1-39	**VO**	**49VO-APPLC**	**30cd**	**FLR 1W IR RM 03 1W-8113A N**	**1-T4:A2:1-39**	X	X	X		X		ON
N1:T4:A2:1-40	**VO**	**49VO-APPLC**	**30cd**	**FLR 1W IR RM 03 1W-8113A S**	**1-T4:A2:1-40**				X	X		ON
N1:T4:A2:1-41	**AV**	**49MTV-WRF**	**15cd**	**FLR 1W CONTROL RM 1W-8112A**	**1-T4:A2:1-41**	X			X	X		ON

N1:T4:A2:1 — Notification SLC Distributed Load Voltage Drop

Starting Voltage: 29vdc
Min. Device Voltage: 23.vdc
Allowable % Drop: 20.7%

Primary Wire Gauge: 14ga
Home Run Wire Gauge: 14ga

Wire Res. Per Ft. 0.003070 @ 75° Celsius
Wire Res. Per Ft. 0.003070 @ 75° Celsius

Branch	Device #	From	Distance (Feet)	PID	Setting	Device Draw	Class B Calculations Current at Device	Voltage Drop	Voltage at Device	% Vdrop Wire Length
1	*N1:T4:A2:1-1*	*PANEL*	*15*	*49VO-WRF*	*15cd*	*0.0470*	*2.747*	*0.253*	*28.747*	*Branch 1: 8.18%*
1	*N1:T4:A2:1-2*	*N1:T4:A2:1-1*	*25*	*49MTV-WRF*	*15cd*	*0.1450*	*2.643*	*0.406*	*28.341*	*Length: 855*
1	*N1:T4:A2:1-3*	*N1:T4:A2:1-2*	*22*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.006*	*28.335*	
1	*N1:T4:A2:1-4*	*N1:T4:A2:1-2*	*51*	*49MTV-WRF*	*15cd*	*0.1450*	*0.145*	*0.045*	*28.286*	
1	*TAP5*	*N1:T4:A2:1-2*	*18*	*JBOX*		*0.0000*	*2.306*	*0.255*	*28.086*	
1	*N1:T4:A2:1-5*	*TAP9*	*18*	*4906-9202*	*75cd*	*0.1800*	*0.459*	*0.051*	*28.036*	
1	*N1:T4:A2:1-6*	*N1:T4:A2:1-5*	*45*	*4906-9202*	*75cd*	*0.1800*	*0.180*	*0.050*	*27.986*	
1	*N1:T4:A2:1-7*	*N1:T4:A2:1-1*	*48*	*49VO-APPLW*	*30cd*	*0.0570*	*0.057*	*0.017*	*28.730*	
1	*N1:T4:A2:1-8*	*TAP9*	*89*	*4906-9202*	*75cd*	*0.1800*	*1.847*	*1.009*	*27.077*	
1	*N1:T4:A2:1-9*	*N1:T4:A2:1-8*	*18*	*49MTV-WRF*	*75cd*	*0.1980*	*1.109*	*0.123*	*26.954*	
1	*N1:T4:A2:1-10*	*N1:T4:A2:1-9*	*56*	*49MTV-WRF*	*75cd*	*0.1980*	*0.248*	*0.085*	*26.869*	
1	*TAP10*	*N1:T4:A2:1-9*	*29*	*JBOX*		*0.0000*	*0.663*	*0.118*	*26.836*	
1	*N1:T4:A2:1-11*	*TAP10*	*17*	*49VO-WRF*	*15cd*	*0.0470*	*0.104*	*0.011*	*26.825*	
1	*N1:T4:A2:1-12*	*TAP10*	*15*	*49VO-WRF*	*30cd*	*0.0570*	*0.057*	*0.005*	*26.831*	
1	*N1:T4:A2:1-13*	*N1:T4:A2:1-11*	*17*	*49VO-WRF*	*30cd*	*0.0570*	*0.057*	*0.006*	*26.820*	
1	*N1:T4:A2:1-14*	*TAP10*	*51*	*49MTV-WRF*	*30cd*	*0.1630*	*0.502*	*0.157*	*26.679*	
1	*TAP11*	*N1:T4:A2:1-14*	*10*	*JBOX*		*0.0000*	*0.292*	*0.018*	*26.661*	
1	*N1:T4:A2:1-15*	*TAP11*	*27*	*49MTV-WRF*	*75cd*	*0.1980*	*0.198*	*0.033*	*26.628*	
1	*N1:T4:A2:1-16*	*TAP11*	*26*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.008*	*26.654*	
1	*N1:T4:A2:1-17*	*TAP11*	*20*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.006*	*26.655*	
1	*N1:T4:A2:1-18*	*N1:T4:A2:1-14*	*28*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.008*	*26.671*	
1	*N1:T4:A2:1-19*	*N1:T4:A2:1-8*	*10*	*4906-9202*	*75cd*	*0.1800*	*0.279*	*0.017*	*27.060*	
1	*N1:T4:A2:1-20*	*N1:T4:A2:1-8*	*39*	*4906-9202*	*75cd*	*0.1800*	*0.180*	*0.043*	*27.034*	
1	*N1:T4:A2:1-21*	*N1:T4:A2:1-5*	*2*	*49MT-WRF*	*520 Hz*	*0.0990*	*0.099*	*0.001*	*28.034*	
1	*N1:T4:A2:1-22*	*N1:T4:A2:1-19*	*2*	*49MT-WRF*	*520 Hz*	*0.0990*	*0.099*	*0.001*	*27.059*	
1	*N1:T4:A2:1-23*	*N1:T4:A2:1-8*	*2*	*49MT-WRF*	*520 Hz*	*0.0990*	*0.099*	*0.001*	*27.076*	
1	*N1:T4:A2:1-24*	*N1:T4:A2:1-10*	*85*	*49VO-APPLW*	*15cd*	*0.0470*	*0.050*	*0.026*	*26.843*	
1	*N1:T4:A2:1-25*	*N1:T4:A2:1-24*	*70*	*4009-9601*		*0.0032*	*0.003*	*0.001*	*26.841*	
E2:1	*N1:T4:A2:1-26*	*EPR2*	*26*	*49MTV-WRF*	*30cd*	*0.1630*	*1.584*	*0.253*	*28.747*	*Branch E2:1: 4.97%*
E2:1	*N1:T4:A2:1-27*	*N1:T4:A2:1-26*	*28*	*49VO-APPLC*	*15cd*	*0.0550*	*1.421*	*0.244*	*28.503*	*Length: 415*
E2:1	*N1:T4:A2:1-28*	*N1:T4:A2:1-27*	*21*	*49VO-APPLC*	*15cd*	*0.0550*	*1.366*	*0.176*	*28.327*	
E2:1	*N1:T4:A2:1-29*	*N1:T4:A2:1-28*	*29*	*49MTV-WRF*	*15cd*	*0.1450*	*0.345*	*0.061*	*28.265*	
E2:1	*N1:T4:A2:1-30*	*N1:T4:A2:1-29*	*18*	*49MTV-WRF*	*15cd*	*0.1450*	*0.200*	*0.022*	*28.243*	
E2:1	*N1:T4:A2:1-31*	*N1:T4:A2:1-30*	*31*	*49VO-APPLC*	*15cd*	*0.0550*	*0.055*	*0.010*	*28.233*	
E2:1	*N1:T4:A2:1-32*	*N1:T4:A2:1-28*	*22*	*49MTV-WRF*	*15cd*	*0.1450*	*0.966*	*0.130*	*28.196*	
E2:1	*N1:T4:A2:1-33*	*N1:T4:A2:1-32*	*24*	*49VO-APPLC*	*15cd*	*0.0550*	*0.821*	*0.121*	*28.075*	
E2:1	*N1:T4:A2:1-34*	*N1:T4:A2:1-33*	*19*	*49VO-APPLC*	*15cd*	*0.0550*	*0.766*	*0.089*	*27.986*	
E2:1	*N1:T4:A2:1-35*	*N1:T4:A2:1-34*	*25*	*49MTV-WRF*	*15cd*	*0.1450*	*0.711*	*0.109*	*27.877*	
E2:1	*N1:T4:A2:1-36*	*N1:T4:A2:1-35*	*27*	*49VO-APPLC*	*15cd*	*0.0550*	*0.566*	*0.094*	*27.783*	
E2:1	*N1:T4:A2:1-37*	*N1:T4:A2:1-36*	*21*	*49VO-APPLC*	*15cd*	*0.0550*	*0.511*	*0.066*	*27.717*	
E2:1	**N1:T4:A2:1-38**	**N1:T4:A2:1-37**	**34**	**49MTV-WRF**	**15cd**	**0.1450**	**0.456**	**0.095**	**27.622**	
E2:1	**N1:T4:A2:1-39**	**N1:T4:A2:1-38**	**21**	**49VO-APPLC**	**30cd**	**0.0830**	**0.311**	**0.040**	**27.582**	
E2:1	**N1:T4:A2:1-40**	**N1:T4:A2:1-39**	**47**	**49VO-APPLC**	**30cd**	**0.0830**	**0.083**	**0.024**	**27.558**	
E2:1	**N1:T4:A2:1-41**	**N1:T4:A2:1-39**	**22**	**49MTV-WRF**	**15cd**	**0.1450**	**0.145**	**0.020**	**27.562**	

N1:T4:A2: ENHANCED POWER SUPPLY - CHANNEL 2

IDNac Address	Device Type	PID	Setting	Custom Label (Max 40 Characters)		SWITCH SETTINGS 1						
N1:T4:A2:2-1	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W EQ. STG 1-SS131 1:A2:2-1*		X						ON
N1:T4:A2:2-2	*VO*	*49VO-APPLW*	*75cd*	*FLR 1W CYSTO OR 3 1-SS129 1:A2:2-2*			X					ON
N1:T4:A2:2-3	*VO*	*49VO-APPLW*	*30cd*	*FLR 1W OR 2 1-SS119 1:A2:2-3*		X	X					ON
N1:T4:A2:2-4	*VO*	*49VO-APPLW*	*30cd*	*FLR 1W OR 1 1-SS118 1:A2:2-4*			X					ON
N1:T4:A2:2-5	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W WOMENS LCKR RM 1-SS135 1:A2:2-5*		X		X				ON
N1:T4:A2:2-6	*VO*	*49VO-WRF*	*15cd*	*FLR 1W WOMENS LCKR RM 1-SS135 1:A2:2-6*			X	X				ON
N1:T4:A2:2-7	*VO*	*49VO-WRF*	*15cd*	*FLR 1W WOMENS BATH 1-SS136 1:A2:2-7*		X	X	X				ON
N1:T4:A2:2-8	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W MENS LCKR RM 1-SS138 1:A2:2-8*					X			ON
N1:T4:A2:2-9	*VO*	*49VO-WRF*	*15cd*	*FLR 1W MENS LCKR RM 1-SS139 1:A2:2-9*		X			X			ON
N1:T4:A2:2-10	*AV*	*49MTV-WRF*	*75cd*	*FLR 1W NURSE LOUNGE 1-SS139 1:A2:2-10*			X		X			ON
N1:T4:A2:2-11	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W CORR 1-SS122 @OR 6 1:A2:2-11*		X	X		X			ON
N1:T4:A2:2-12	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W CORR 1-SS122 @OR 6 1:A2:2-12*				X	X			ON
N1:T4:A2:2-13	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W CORR 1-SS122 @OR 1 1:A2:2-13*		X		X	X			ON
N1:T4:A2:2-14	*VO*	*49VO-WRF*	*15cd*	*FLR 1W EQUIP STOR @OR 1 1:A2:2-13*			X	X	X			ON
N1:T4:A2:2-15				*SPARE*		X	X	X	X			ON
N1:T4:A2:2-16	*REPEATER*	*4009-9601*		*FLR 1W ELEC 1-PA05 1:A2:2-16*					X	X		ON
N1:T4:A2:2-17	*VO*	*49VO-WRF*	*15cd*	*FLR 1W ELEC 1-PA05 1:A2:2-17*		X				X		ON
N1:T4:A2:2-18	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W PASS 1-PA06 1:A2:2-18*			X			X		ON
N1:T4:A2:2-19	*VO*	*49VO-WRF*	*15cd*	*FLR 1W SOIL UTILITY 1-PA08 1:A2:2-19*		X	X			X		ON
N1:T4:A2:2-20	*VO*	*49VO-WRF*	*15cd*	*FLR 1W PACU RECOVERY 1-PA01 1:A2:2-20*				X		X		ON
N1:T4:A2:2-21	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W NURSE STAT A 1-PA10 1:A2:2-21*		X		X		X		ON
N1:T4:A2:2-22	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W PASS 1-PA11 1:A2:2-27*			X	X		X		ON
N1:T4:A2:2-23	*VO*	*49VO-WRF*	*15cd*	*FLR 1W CNC OFF 1-PA09 1:A2:2-28*		X	X	X		X		ON
N1:T4:A2:2-24	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W CL UTILITY 1-PA07 1:A2:2-29*					X	X		ON
N1:T4:A2:2-25	*VO*	*49VO-WRF*	*30cd*	*FLR 1W PASS 1-PA12 1:A2:2-30*		X			X	X		ON
N1:T4:A2:2-26	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W STAFF LOUNGE 1-PA14 1:A2:2-31*			X		X	X		ON
N1:T4:A2:2-27	*VO*	*49VO-WRF*	*15cd*	*FLR 1W TLT 1-PA15 1:A2:2-32*		X	X		X	X		ON
N1:T4:A2:2-28	*VO*	*49VO-APPLW*	*30cd*	*FLR 1W DAVINCI OR 4 1-SS031 1:A1:1-28*			X		X	X		ON
N1:T4:A2:2-29	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W HALL 4 1:A2:2-29*		X	X		X	X		ON
N1:T4:A2:2-30	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W HALL 4 1:A2:2-30*			X	X	X	X		ON
N1:T4:A2:2-31	*VO*	*49VO-WRF*	*15cd*	*FLR 1W COMM 1-SS216 1:A2:2-31*		X	X	X	X	X		ON
N1:T4:A2:2-32	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W NURSE LOUNGE 1-SS217 1:A2:2-32*						X		ON
N1:T4:A2:2-33	*VO*	*49VO-WRF*	*15cd*	*FLR 1W TLT 1-SS22 1:A2:2-33*		X				X		ON
N1:T4:A2:2-34	*VO*	*49VO-WRF*	*15cd*	*FLR 1W TLT 1-SS218 1:A2:2-34*			X			X		ON
N1:T4:A2:2-35	*VO*	*49VO-WRF*	*15cd*	*FLR 1W TLT 1-SS219 1:A2:2-35*		X	X			X		ON
N1:T4:A2:2-36	*VO*	*49VO-WRF*	*75cd*	*FLR 1W PASS. 1-SS224 1:A2:2-36*			X			X		ON
N1:T4:A2:2-37	*AV*	*49MTV-WRF*	*75cd*	*FLR 1W NURSE STAT C 1-SS223 1:A2:2-37*		X	X		X	X		ON

N1:T4:A2:2 — Distributed Load Voltage Drop

Starting Voltage: 29vdc
Min. Device Voltage: 23.vdc
Allowable % Drop: 20.7%

Primary Wire Gauge: 14ga
Home Run Wire Gauge: 14ga

Wire Res. Per Ft. 0.003070 @ 75° Celsius
Wire Res. Per Ft. 0.003070 @ 75° Celsius

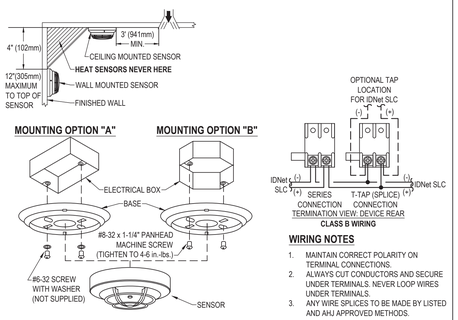
Branch	Device #	From	Distance (Feet)	PID	Setting	Device Draw	Class B Calculations Current at Device	Voltage Drop	Voltage at Device	% Vdrop Wire Length
1	*TAP12*	*PANEL*	*105*	*JBOX*		*0.0000*	*1.455*	*0.959*	*28.041*	*Branch 1: 4.88%*
1	*N1:T4:A2:2-11*	*TAP12*	*18*	*49MTV-WRF*	*15cd*	*0.1450*	*0.145*	*0.016*	*28.025*	*Length: 458*
1	*N1:T4:A2:2-1*	*TAP12*	*33*	*49MTV-WRF*	*15cd*	*0.1450*	*0.696*	*0.141*	*27.900*	
1	*N1:T4:A2:2-2*	*N1:T4:A2:2-1*	*31*	*49VO-APPLW*	*75cd*	*0.1000*	*0.551*	*0.105*	*27.795*	
1	*N1:T4:A2:2-3*	*N1:T4:A2:2-2*	*45*	*49VO-APPLW*	*30cd*	*0.0570*	*0.451*	*0.125*	*27.670*	
1	*N1:T4:A2:2-12*	*N1:T4:A2:2-3*	*27*	*49MTV-WRF*	*15cd*	*0.1450*	*0.145*	*0.024*	*27.646*	
1	*N1:T4:A2:2-4*	*N1:T4:A2:2-3*	*37*	*49VO-APPLW*	*30cd*	*0.0570*	*0.249*	*0.057*	*27.614*	
1	*N1:T4:A2:2-14*	*N1:T4:A2:2-4*	*16*	*49VO-WRF*	*15cd*	*0.0470*	*0.192*	*0.019*	*27.595*	
1	*N1:T4:A2:2-13*	*N1:T4:A2:2-14*	*11*	*49MTV-WRF*	*15cd*	*0.1450*	*0.145*	*0.010*	*27.585*	
1	*N1:T4:A2:2-5*	*TAP12*	*19*	*49MTV-WRF*	*15cd*	*0.1450*	*0.647*	*0.075*	*27.965*	
1	*TAP13*	*N1:T4:A2:2-5*	*11*	*JBOX*		*0.0000*	*0.502*	*0.034*	*27.931*	
1	*N1:T4:A2:2-6*	*TAP13*	*19*	*49VO-WRF*	*15cd*	*0.0470*	*0.282*	*0.034*	*27.897*	
1	*N1:T4:A2:2-7*	*N1:T4:A2:2-6*	*25*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.007*	*27.890*	
1	*N1:T4:A2:2-8*	*TAP13*	*19*	*49MTV-WRF*	*30cd*	*0.1630*	*0.210*	*0.024*	*27.907*	
1	*N1:T4:A2:2-9*	*N1:T4:A2:2-8*	*23*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.007*	*27.900*	
1	*N1:T4:A2:2-10*	*N1:T4:A2:2-6*	*19*	*49MTV-WRF*	*75cd*	*0.1980*	*0.198*	*0.023*	*27.874*	
2	*N1:T4:A2:2-16*	*PANEL*	*232*	*4009-9601*		*0.0032*	*0.003*	*0.005*	*28.995*	*Branch 2: 0.02%*
E1:1	*N1:T4:A2:2-17*	*EPR1*	*18*	*49VO-WRF*	*15cd*	*0.0470*	*1.128*	*0.125*	*28.875*	*Branch E1:1: 2.53%*
E1:1	*N1:T4:A2:2-18*	*N1:T4:A2:2-17*	*25*	*49MTV-WRF*	*15cd*	*0.1450*	*1.081*	*0.166*	*28.709*	*Length: 357*
E1:1	*N1:T4:A2:2-19*	*N1:T4:A2:2-18*	*21*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.006*	*28.703*	
E1:1	*TAP14*	*N1:T4:A2:2-18*	*25*	*JBOX*		*0.0000*	*0.889*	*0.136*	*28.573*	
E1:1	*N1:T4:A2:2-20*	*TAP14*	*23*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.007*	*28.566*	
E1:1	*N1:T4:A2:2-21*	*TAP14*	*29*	*49MTV-WRF*	*30cd*	*0.1630*	*0.842*	*0.150*	*28.423*	
E1:1	*TAP15*	*N1:T4:A2:2-21*	*9*	*JBOX*		*0.0000*	*0.679*	*0.038*	*28.385*	
E1:1	*N1:T4:A2:2-22*	*TAP15*	*17*	*49MTV-WRF*	*15cd*	*0.1450*	*0.412*	*0.043*	*28.342*	
E1:1	*N1:T4:A2:2-23*	*N1:T4:A2:2-22*	*14*	*49VO-WRF*	*15cd*	*0.0470*	*0.267*	*0.023*	*28.320*	
E1:1	*N1:T4:A2:2-24*	*N1:T4:A2:2-23*	*25*	*49MTV-WRF*	*30cd*	*0.1630*	*0.220*	*0.034*	*28.286*	
E1:1	*N1:T4:A2:2-28*	*N1:T4:A2:2-24*	*52*	*49VO-APPLW*	*30cd*	*0.0570*	*0.057*	*0.018*	*28.268*	
E1:1	*N1:T4:A2:2-25*	*TAP15*	*55*	*49VO-WRF*	*30cd*	*0.0570*	*0.267*	*0.090*	*28.295*	
E1:1	*N1:T4:A2:2-26*	*N1:T4:A2:2-25*	*13*	*49MTV-WRF*	*30cd*	*0.1630*	*0.210*	*0.017*	*28.279*	
E1:1	*N1:T4:A2:2-27*	*N1:T4:A2:2-26*	*31*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.009*	*28.270*	
3	*TAP16*	*PANEL*	*104*	*JBOX*		*0.0000*	*0.939*	*0.600*	*28.400*	*Branch 3: 2.74%*
3	*N1:T4:A2:2-29*	*TAP16*	*13*	*49MTV-WRF*	*15cd*	*0.1450*	*0.547*	*0.044*	*28.357*	*Length: 299*
3	*N1:T4:A2:2-30*	*N1:T4:A2:2-29*	*36*	*49MTV-WRF*	*15cd*	*0.1450*	*0.402*	*0.089*	*28.268*	
3	*N1:T4:A2:2-31*	*N1:T4:A2:2-30*	*14*	*49VO-WRF*	*15cd*	*0.0470*	*0.257*	*0.022*	*28.246*	
3	*N1:T4:A2:2-32*	*N1:T4:A2:2-31*	*24*	*49MTV-WRF*	*30cd*	*0.1630*	*0.210*	*0.031*	*28.215*	
3	*N1:T4:A2:2-33*	*N1:T4:A2:2-32*	*28*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.008*	*28.207*	
3	*N1:T4:A2:2-34*	*TAP16*	*33*	*49VO-WRF*	*15cd*	*0.0470*	*0.392*	*0.079*	*28.321*	
3	*N1:T4:A2:2-35*	*N1:T4:A2:2-34*	*13*	*49VO-WRF*	*15cd*	*0.0470*	*0.345*	*0.028*	*28.293*	
3	*N1:T4:A2:2-36*	*N1:T4:A2:2-35*	*21*	*49VO-WRF*	*75cd*	*0.1000*	*0.298*	*0.038*	*28.255*	
3	*N1:T4:A2:2-37*	*N1:T4:A2:2-36*	*13*	*49MTV-WRF*	*75cd*	*0.1980*	*0.198*	*0.016*	*28.239*	

N1:T4:A2: ENHANCED POWER SUPPLY - CHANNEL 3

IDNac Address	Device Type	PID	Setting	Custom Label (Max 40 Characters)		SWITCH SETTINGS 1						
N1:T4:A2:3-1				*SPARE*		X						ON
N1:T4:A2:3-2				*SPARE*			X					ON
N1:T4:A2:3-3				*SPARE*		X	X					ON
N1:T4:A2:3-4				*SPARE*				X				ON
N1:T4:A2:3-5				*SPARE*		X		X				ON
N1:T4:A2:3-6				*SPARE*			X	X				ON
N1:T4:A2:3-7				*SPARE*		X	X					ON
N1:T4:A2:3-8				*SPARE*					X			ON
N1:T4:A2:3-9				*SPARE*		X			X			ON
N1:T4:A2:3-10	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W HALL 3 1:A2:3-1*			X		X			ON
N1:T4:A2:3-11	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W HALL 3 1:A2:3-11*		X	X		X			ON
N1:T4:A2:3-12	*VO*	*49VO-WRF*	*15cd*	*FLR 1W PASS. 1-SS24 1:A2:3-12*			X		X			ON
N1:T4:A2:3-13	*VO*	*49VO-WRF*	*15cd*	*FLR 1W STORE RM 1-SS21 1:A2:3-13*		X	X		X			ON
N1:T4:A2:3-14	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W PASS. 1-SS204 1:A2:3-14*			X	X	X			ON
N1:T4:A2:3-15	*VO*	*49VO-WRF*	*15cd*	*FLR 1W TLT 1-SS203 1:A2:3-15*		X	X	X				ON
N1:T4:A2:3-16	*VO*	*49VO-WRF*	*30cd*	*FLR 1W PASS 1-SS212 1:A2:3-16*					X			ON
N1:T4:A2:3-17	*VO*	*49VO-WRF*	*15cd*	*FLR 1W PASS. 1-SS204 1:A2:3-17*		X			X			ON
N1:T4:A2:3-18	*AV*	*49MTV-WRF*	*15cd*	*FLR 1W PASS. 1-SS201 1:A2:3-18*			X		X			ON
N1:T4:A2:3-19	*AV*	*49MTV-WRF*	*30cd*	*FLR 1W WK. RM 1-SS215 1:A2:3-19*		X	X		X			ON
N1:T4:A2:3-20	*VO*	*49VO-WRF*	*15cd*	*FLR 1W LN. UTIL. 1-SS214 1:A2:3-2*				X	X			ON
N1:T4:A2:3-21	*VO*	*49VO-WRF*	*

STANDARD SENSOR BASE

SIMPLEX 4098-9792



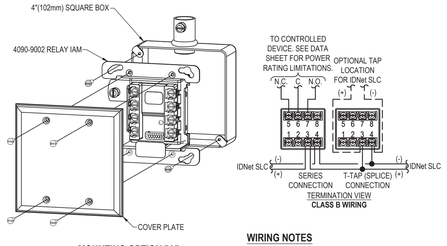
MOUNTING OPTIONS

OPTION [1]	DESCRIPTION	NOTE
A	SINGLE GANG BOX, 2-1/8" (54mm) DEEP - FLUSH MOUNT	BY OTHERS
B	4" (102mm) OCTAGONAL BOX, 1-1/2" (38mm) DEEP, MINIMUM - FLUSH MOUNT	BY OTHERS
C	4" (102mm) SQUARE BOX, 1-1/2" DEEP (MIN) W/ SIMPLEX 4098-9832 ADAPTER KIT	BOX BY OTHERS, 4098-9832 ORDERED SEPARATELY
D	4" (102mm) SQUARE BOX, 1-1/2" DEEP (MIN) W/ SINGLE GANG COVER PLATE 3/4" (19mm) EXTENSION	BY OTHERS

1. FOR ADDITIONAL MOUNTING OPTIONS, DOWNLOAD DATA SHEET 4098-0019 FROM HTTP://WWW.SIMPLEX-FIRE.COM

ADDRESSABLE RELAY MODULE

SIMPLEX 4090-9002



WIRING NOTES

1. MAINTAIN CORRECT POLARITY ON TERMINAL CONNECTIONS.
2. ALWAYS CUT CONDUCTORS AND SECURE UNDER TERMINALS. NEVER LOOP WIRES UNDER TERMINALS.
3. ANY WIRE SPLICES TO BE MADE BY LISTED AND AHJ APPROVED METHODS.

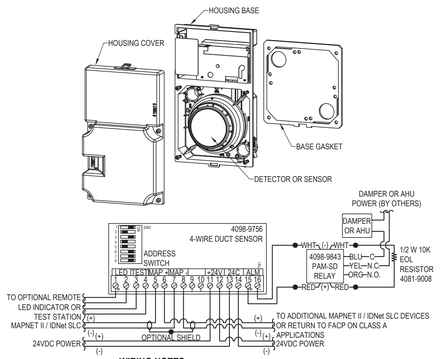
MOUNTING OPTIONS

OPTION [1]	DESCRIPTION	NOTE
A	4" (102mm) SQUARE BOX, 2-1/8" MINIMUM DEPTH WITH DOUBLE GANG COVER PLATE	BY OTHERS
B	4" (102mm) SQUARE BOX, 2-1/8" MINIMUM DEPTH WITH SIMPLEX 4090-9801 TRIM PLATE FOR SEMI-FLUSH MOUNTED BOX	BOX BY OTHERS, PLATES ORDERED SEPARATELY
C	4" (102mm) SQUARE BOX, 2-1/8" MINIMUM DEPTH WITH SIMPLEX 4090-9802 TRIM PLATE FOR SURFACE MOUNTED BOX	BOX BY OTHERS, PLATES ORDERED SEPARATELY

1. FOR ADDITIONAL MOUNTING OPTIONS, DOWNLOAD DATA SHEET 4090-0002 FROM HTTP://WWW.SIMPLEX-FIRE.COM

DUCT SMOKE DETECTOR

SIMPLEX 4098-9756 ANALOG 4-WIRE DUCT SENSOR WITH 24VDC RELAY

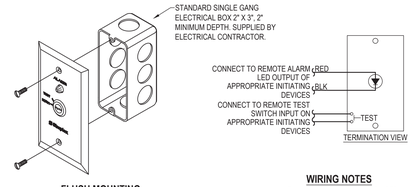


WIRING NOTES

1. MAINTAIN CORRECT POLARITY ON TERMINAL CONNECTIONS.
2. ALWAYS CUT CONDUCTORS AND SECURE UNDER TERMINALS. NEVER LOOP WIRES UNDER TERMINALS.
3. ANY WIRE SPLICES TO BE MADE BY LISTED AND AHJ APPROVED METHODS. CLASS B APPLICATIONS ONLY.

REMOTE ALARM INDICATOR / KEY SWITCH

SIMPLEX 2098-9806

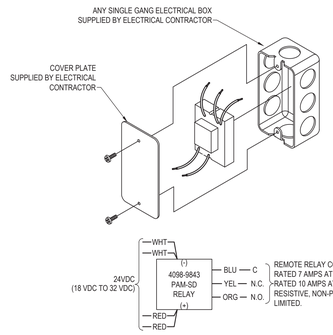


WIRING NOTES

1. MAINTAIN CORRECT POLARITY ON TERMINAL CONNECTIONS.
2. ALWAYS CUT CONDUCTORS AND SECURE UNDER TERMINALS. NEVER LOOP WIRES UNDER TERMINALS.
3. ONE INDICATOR MAY BE INSTALLED PER DETECTOR.

24VDC POLARIZED RELAY

SIMPLEX 4098-9843 / APOLLO AMERICA PAM-SD



WIRING NOTES

1. MAINTAIN CORRECT POLARITY ON CONNECTIONS.
2. ANY WIRE SPLICES TO BE MADE BY LISTED AND AHJ APPROVED METHODS. CLASS B APPLICATIONS ONLY.

FOR ADDITIONAL DETAILS SEE DATA SHEET 2088-0010 ON HTTP://WWW.SIMPLEX-FIRE.COM

DUCT SMOKE DETECTOR INSTALLATION GUIDE

PRE-INSTALLATION ROUTINES

DUCT DETECTORS/SENSORS SHOULD BE INSTALLED IN A LOCATION OF RELATIVELY NON-TURBULENT AIR FLOW AND WITHIN THE INTENDED OPERATING VELOCITY RANGE OF 300-4000 FEET-PER-MINUTE (91 TO 1220 M/MIN.)

MEASUREMENTS OF AIR FLOW AND EXAMINATION OF ENGINEERING SPECIFICATIONS THAT DEFINE EXPECTED DUCT AIR VELOCITIES UNDER ALL CONDITIONS IS RECOMMENDED. THIS IS DONE TO DETERMINE IF A LOCATION IS SUITABLE FOR DUCT DETECTOR/SENSOR OPERATION. AN ALNOR INSTRUMENT CO. (CHICAGO) MODEL 6000P VELOMETER OR EQUIVALENT (NOT SUPPLIED) MAY BE USED TO CHECK THE DUCT AIR VELOCITY.

INSTALLATION GUIDELINES

1. LOCATE DUCT HOUSINGS SO THAT DAMPERS DO NOT RESTRICT AIR FLOW AT THE DETECTOR/SENSOR LOCATION. SEE FIGURE 1.
2. LOCATE AIR DUCT DETECTORS/SENSORS ON THE RETURN OR SUPPLY DUCT OF THE EQUIPMENT'S AIR HANDLING SYSTEM. HOWEVER, DETECTORS/SENSORS SHOULD NOT BE INSTALLED IN THE RETURN AIR DAMPER BRANCH. SEE FIGURE 1.
3. LOCATE AIR DUCT DETECTORS/SENSORS ON BRANCH LINES IF CLOSE IDENTIFICATION OF THE ALARM SOURCE IS REQUIRED.
4. LOCATE AIR DUCT DETECTORS/SENSORS ON THE DOWNSTREAM SIDE OF FILTERS TO SENSE FIRE IN FILTERS. HOWEVER, SHOULD THE FILTERS BLOCK, SUFFICIENT AIR FLOW MAY NOT BE AVAILABLE FOR PROPER AIR DUCT DETECTOR/SENSOR OPERATION. SEE FIGURE 1.
5. WHENEVER POSSIBLE, LOCATE AIR DUCT DETECTORS/SENSORS WHERE THEY CAN BE CONVENIENTLY OBSERVED AND READILY SERVICED.
6. LOCATE THE AIR DUCT DETECTORS/SENSORS IN RETURN AIR DUCTS AHEAD OF MIXING AREAS.
7. DO NOT LOCATE AIR DUCT DETECTORS/SENSORS NEXT TO OUTSIDE AIR INLETS UNLESS YOU WANT TO MONITOR SMOKE ENTRY TO THE HANDLING SYSTEM FROM AN ADJACENT AREA.
8. LOCATE AIR DUCT DETECTORS/SENSORS UPSTREAM OF AIR HUMIDIFIERS AND COOLING COILS.
9. DO NOT INSTALL THE DUCT DETECTOR HOUSING OR DUCT TUBES IN LOCATIONS THAT EXCEED THE LISTED TEMPERATURE RATINGS FOR THE DEVICE.
10. DO NOT MOUNT THE DUCT HOUSING ON BOTTOM OF DUCT.

DUCT DETECTOR/SENSOR INSTALLATION

1. TAPE THE TEMPLATE (SUPPLIED) ON THE DUCT SURFACE. DO NOT POSITION THE TEMPLATE WITH EDGES ANGLED WITH RESPECT TO AIR FLOW DIRECTION. SEE FIGURE 2.
2. DRILL TWO 1 1/4 INCH (31.75 MM) HOLES (MARKED "A") AS LOCATED BY THE TEMPLATE. REMOVE TEMPLATE AFTER HOLES HAVE BEEN DRILLED.
3. IF THE DUCT IS MORE THAN 3 FEET (0.9 M) WIDE, THEN PUNCH A 1-INCH (25.4 MM) HOLE IN THE DUCT WALL DIRECTLY OPPOSITE THE UPSTREAM 1-1/4 INCH (31.75 MM) HOLE. SEE FIGURE 3. THIS HOLE IS USED TO SUPPORT THE INLET TUBE.
4. INLET TUBES SHOULD BE SELECTED AND CUT TO LENGTH AS SPECIFIED IN TABLE 1. AFTER TRIMMING THE INLET TUBE OPPOSITE THE SLOT, TAP RUBBER PLUG (SUPPLIED) INTO THE TRIMMED END. SEE FIGURE 3.

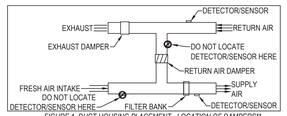


*FIGURE 1. DUCT HOUSING PLACEMENT - LOCATION OF DAMPERS***

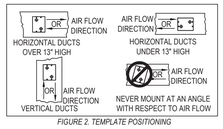


FIGURE 2. TEMPLATE POSITIONING

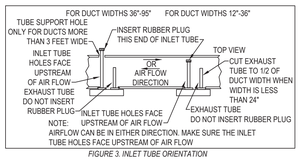


FIGURE 3. INLET TUBE ORIENTATION

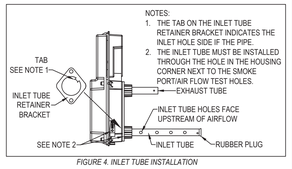


FIGURE 4. INLET TUBE INSTALLATION

INLET TUBE SELECTION

OVERALL DUCT WIDTH	TUBE REQUIRED	TUBE TYPE	SUGGESTED TOTAL LENGTH
12" (30cm)	4098-9854	13" (33.02cm)	1/2" (1.27cm) LONGER THAN DUCT WIDTH
13" (33.02cm) TO 23" (58cm)	4098-9855	24" (60.96cm)	1/2" (1.27cm) LONGER THAN DUCT WIDTH
24" (60cm) TO 46" (116cm)	4098-9856	49" (125.46cm)	2" (5.8cm) LONGER THAN DUCT WIDTH
46" (116cm) TO 71" (180cm)	4098-9857	73" (185cm)	2" (5.8cm) LONGER THAN DUCT WIDTH
71" (180cm) TO 95" (240cm)	4098-9858	97" (245cm)	2" (5.9CM) LONGER THAN DUCT WIDTH

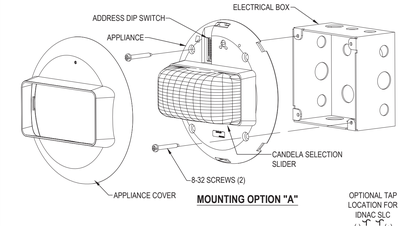
TABLE 1. INLET TUBE SELECTION

* REFER TO INSTALLATION INSTRUCTION DOCUMENT 574-776 FOR MORE DETAILED INFORMATION.

** WHEN PROVIDING CONTROL FOR A SMOKE DAMPER INSTALLED WITHIN AN AIR TRANSFER OPENING IN A WALL, THE DUCT DETECTOR SHALL BE INSTALLED WITHIN 5 FEET HORIZONTALLY OF THE DAMPER.

TrueAlarm ES ADDRESSABLE APPLIANCES

SIMPLEX 49VO / 49VOH SERIES CEILING MOUNTED VISUAL ONLY



WIRING NOTES

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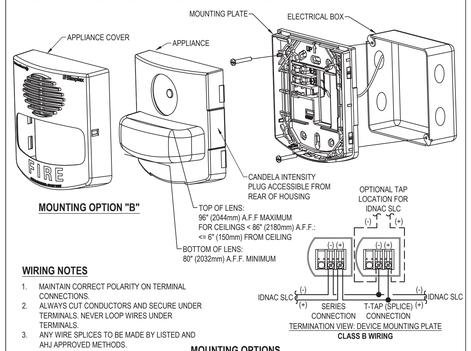
MOUNTING OPTIONS

OPTION [1]	DESCRIPTION	NOTE
A	4" SQUARE ELECTRICAL BOX, 1-1/2" (39mm) MINIMUM DEPTH	BY OTHERS
B	SINGLE GANG ELECTRICAL BOX, 1-1/2" (39mm) MINIMUM DEPTH, WITH 49VO-APCS ADAPTER PLATE	BOX BY OTHERS, SIMPLEX ADAPTER PLATE

1. FOR ADDITIONAL MOUNTING OPTIONS, DOWNLOAD DATA SHEET S49VOC-0001 FROM HTTP://WWW.SIMPLEX-FIRE.COM

TrueAlarm ES ADDRESSABLE APPLIANCES

SIMPLEX 49MTV SERIES WALL MOUNTED MULTI-TONE AUDIBLE / VISUAL



WIRING NOTES

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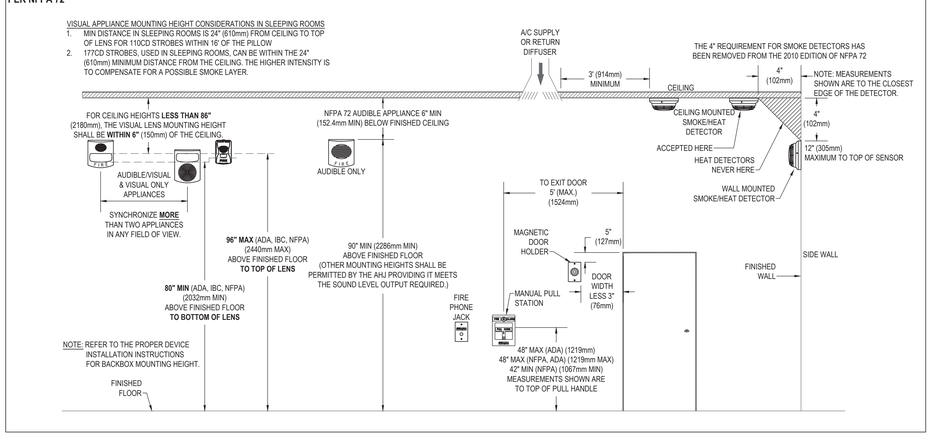
MOUNTING OPTIONS

OPTION [1]	DESCRIPTION	NOTE
A	SINGLE GANG OR DOUBLE GANG BOX, 1-1/2" (38mm) MINIMUM DEPTH	BY OTHERS
B	4" (102mm) SQUARE BOX, 1-1/2" (38mm) MINIMUM DEPTH	BY OTHERS
C	SIMPLEX 2975-9145, 7-7/8"H x 5-1/8"W x 2-3/4"D (127mm x 98mm x 56mm) REQUIRES 4905-9931 PLATE	ORDERED SEPARATELY

1. FOR ADDITIONAL MOUNTING OPTIONS, DOWNLOAD DATA SHEET S49MTV-0001 FROM HTTP://WWW.SIMPLEX-FIRE.COM

DEVICE MOUNTING HEIGHT REFERENCE

PER NFPA 72



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Johnson Controls
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PHONE: 813-884-7168
FAX: 813-882-0794

NICET CERTIFICATION INFORMATION

NANCY S. WILTSIE
NICET Fire Alarm, III
Certification #93727
Valid Through: 03/01/24

March 24, 2021

THE MEDICAL CENTER OF AURORA INTERVENTIONAL RADIOLOGY 3 RENOVATION

THE MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, COLORADO 80012

Revisions shown with A symbol

ISSUE/ MARK	DATE	CAD	CHK	DESCRIPTION
1	03/24/2021	CBR	NSW	CHANGES PER INTERNAL PEER REVIEW DATED 03/24/2021.

FOR PERMIT

DRAWN BY:	CBR
CHECKED BY:	NSW
ISSUE DATE:	3/19/21
JOB #:	
PROJECT #:	419-619975503
JOHNSON CONTROLS © 2021	
SYSTEM:	FIRE ALARM SYSTEM
SHEET:	TYPICAL DEVICE WIRING

FA-701

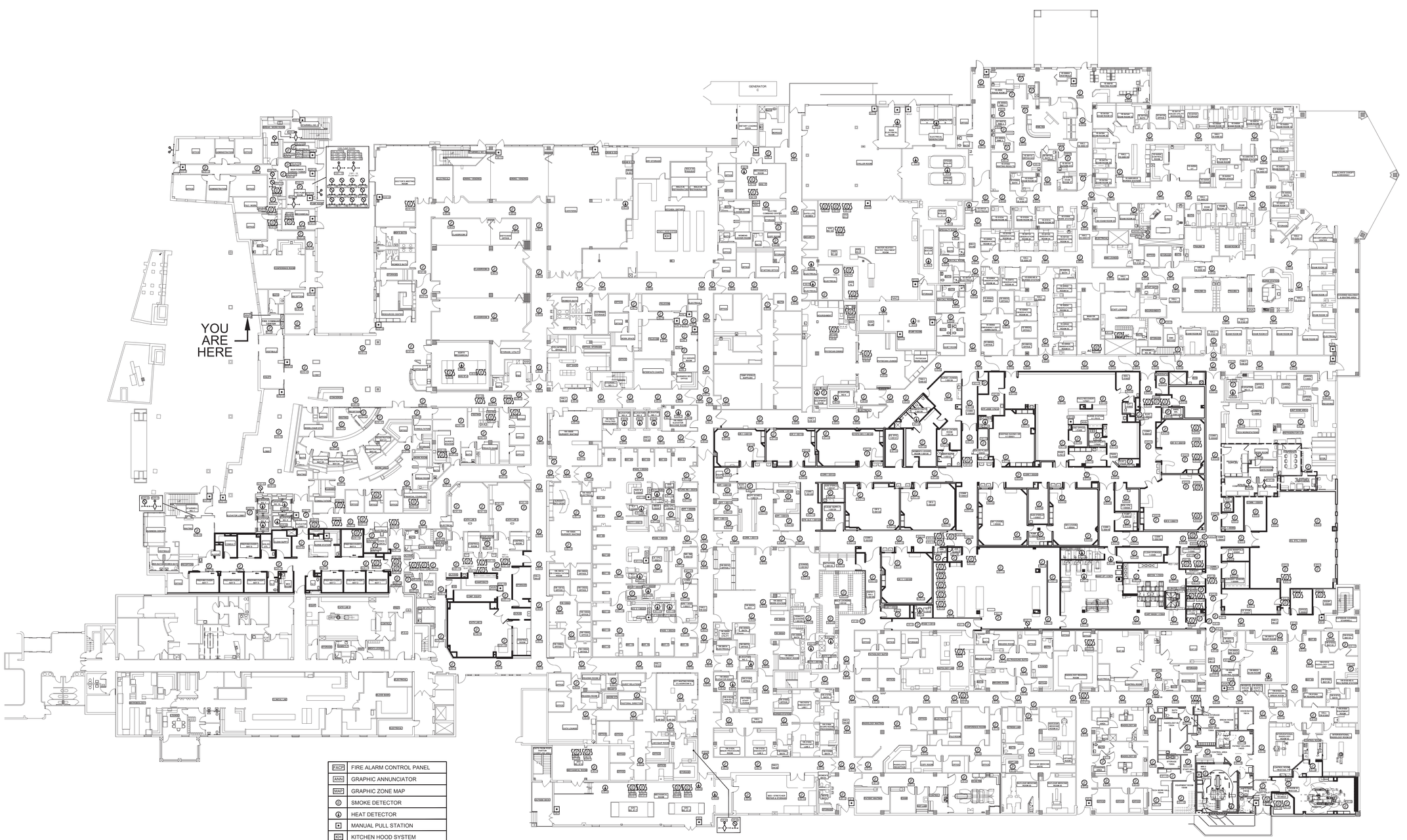
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LAST PRINTED: 3/24/2021 11:59:57 AM
30" x 42" - Arch E1 Size

GENERAL NOTES:

1. THIS 36"X48" STATIC GRAPHIC MAP IS NOT SHOWN TO SCALE.

AS OF: 03/20/2021

THE MEDICAL CENTER OF AURORA
1501 S. POTOMAC ST
AURORA, COLORADO 80012



FACP	FIRE ALARM CONTROL PANEL
ANN	GRAPHIC ANNUNCIATOR
MAP	GRAPHIC ZONE MAP
	SMOKE DETECTOR
	HEAT DETECTOR
	MANUAL PULL STATION
KH	KITCHEN HOOD SYSTEM
	SPRINKLER WATERFLOW VALVE
	SPRINKLER TAMPER SWITCH
	DUCT DETECTOR
	FIRE DEPARTMENT CONNECTION
	FIRE HYDRANT

Johnson Controls
AURORA (303) 355-0500

The Medical Center of Aurora
HealthONE

Johnson Controls
DISTRICT 1-415
14000 E EXPOSITION AVE
AURORA, CO 80017
SERVICE: 303-355-0500
PHONE: 303-355-0500
FAX: 303-355-0515

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NICET Fire Alarm, III
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March 24, 2021

THE MEDICAL CENTER OF AURORA
INTERVENTIONAL RADIOLOGY 3 RENOVATION

THE MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, COLORADO 80012

Revisions shown with ▲ symbol

ISSUE LOC	DATE	CAD	CHK	DESCRIPTION
MARK				
1	10/24/2021	CBR	NSW	CHANGES PER INTERNAL PEER REVIEW DATED 10/24/2021.

FOR PERMIT

DRAWN BY:	CBR
CHECKED BY:	NSW
ISSUE DATE:	3/19/21
JOB #:	
PROJECT #:	419-619975503

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SYSTEM:
FIRE ALARM SYSTEM

SHEET:
GRAPHIC MAP AT FIRE COMMAND CENTER 1C-1013A

FA-801

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LAST PRINTED: 3/24/2021 12:00:07 PM
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Johnson Controls
14200 E. Exposition Avenue
Aurora, Colorado 80012

www.simplexgrinnell.com

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

Fire Alarm
Product Data Submittal for:

THE MEDICAL CENTER OF AURORA
INTERVENTIONAL RADIOLOGY 3
1501 SOUTH POTOMAC STREET
DENVER, COLORADO 80012

Prepared for:

E LIGHT ELECTRIC SERVICES, INC.
361 INVERNES DRIVE, SUITE B
ENGLEWOOD, COLORADO 80112

Johnson Controls
14200 E. Exposition Avenue
Aurora, Colorado 80012
Sales: (303) 355-0500
Service: (303) 355-0500
Fax: (303) 355-0615

PROJECT:	THE MEDICAL CENTER OF AURORA INTERVENTIONAL RADIOLOGY 3
PREPARED FOR:	E LIGHT ELECTRIC SERVICES, INCORPORATED

TYPE:	***DESCRIPTION:***
4098-9714	TRUEALARM PHOTO SMOKE SENSOR
4098-9733	TRUEALARM HEAT SENSOR
4098-9792	TRUEALARM SENSOR BASE
4098-9756	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT
2098-9806	REMOTE TEST STATION W/ LED AND KEY SWITCH
4098-9856	SAMPLING TUBES 49", PLASTIC
4098-9843	ENCAPSULATED RELAY PAM-SD
4081-9008	EOL, 10K 1/2W
4090-9002	IDNET RELAY IAM
49MTV-WRF	MULTI-TONE A/V, RED, WALL MOUNT
49VO-APPLC	VO APPLIANCE ONLY CEIL MT
49VOC-CWF	VO COVER, CEIL MT, WHITE, FIRE
49VO-APCS	VO CEIL MT ADAPTER PLATE
SSU00660	CAB TERMINAL 32PT TOOLLESS

Simplex

*UL, ULC, CSFM Listed;FM Approved**

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:

- 4007ES, 4010, 4010ES, 4100ES, and 4100U 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:

- Sensitivity levels from 0.2% to 3.1%. See TrueAlarm Sensors for more information.

Heat sensors provide:

- Three fixed temperature sensing thresholds: 135° F, 155° F and 190° F
- Rate-of-rise temperature sensing
- Utility temperature sensing
- Listed to UL 521 and ULC-S530

General features:

- Operation is for ceiling or wall mounting
- Listed to UL 268 and ULC-S529
- NEMA 1 rated. See TrueAlarm Analog Sensing Product Selection Chart for more information.
- 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
- Different bases are available to support a supervised or unsupervised output relay, and/or a remote LED alarm indicator

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)

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.

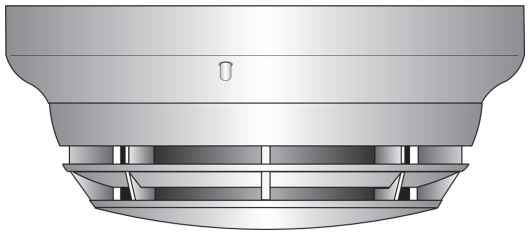


Figure 1: 4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

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.

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

* 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. 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.

RSN: 1528622
Permit # 202[illegible]
Sheet 13 of 37

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 (relay is unsupervised and requires separate 24 VDC)

Supervised Relay Bases (not compatible with 2120 CDT):

- **4098-9791, 4-Wire Sensor Base,** use with remote or locally mounted 2098-9737 relay, requires separate 24 VDC
- **4098-9780, 2-Wire Sensor Base,** use with remote or locally mounted 4098-9860 relay, no separate power required
- Supervised relay operation is programmable and can be manually operated from control panel
- Includes wired connections for remote LED alarm indicator **or** 4098-9822 relay (relay is unsupervised and requires separate 24 VDC)

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)

4098-9860, Remote or local mount supervised relay:

- SPDT dry contacts, power limited rating of 2 A @ 30 VDC, resistive; non-power limited rating of 0.5 A @ 125 VAC, resistive

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)



Figure 2: Remote red LED Alarm Indicator

Description

TrueAlarm sensor bases contain integral addressable electronics that constantly monitor the status of the detachable photoelectric 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 in the box: 4" octagonal or 4" square, 1-1/2" deep; single gang, 2" deep

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

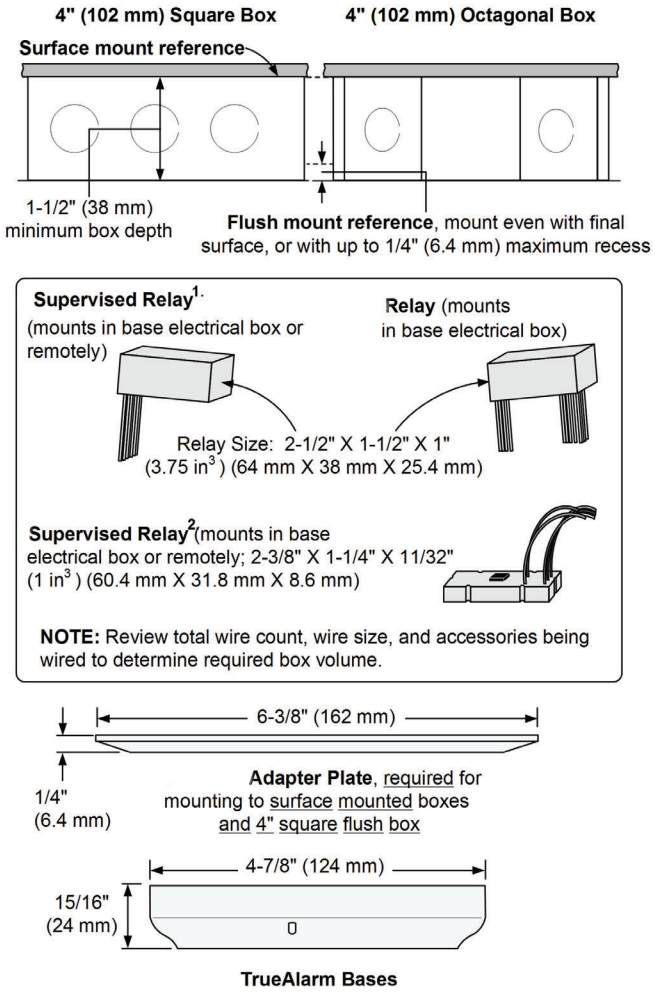


Figure 3: Mounting Reference

Table 1: Product mounting - SKU reference

Product	SKU
Relay	4098-9822
Supervised Relay	1. 2098-9739 2. 4098-9860
Adapter plate	4098-9832
TrueAlarm Bases	4098-9780, 4098-9789, 4098-9791, 4098-9792

RSN: 1528622
Permit # 202[illegible]
Sheet 14 of 37

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) 190° F (88° 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**

Note: *190° F (88° C) ratings apply only to the 4098-9734 sensor.

Smoke Sensors:

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

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed LED light source and a silicon photodiode receiver to deliver consistent and accurate low power smoke sensing. Three user selectable sensitivities for special applications are available for each individual sensor, 0.2%, 0.5%, and 1% per foot. Standard sensitivity is 1.25% to 3.1% per foot. The fire alarm control panel runs an algorithm that can vary the sensitivity for normal applications between 1.25% and 3.1% per foot.

Note: Fixed sensitivity settings higher than 1.0% per foot are not UL268 7th Edition compliant.

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.

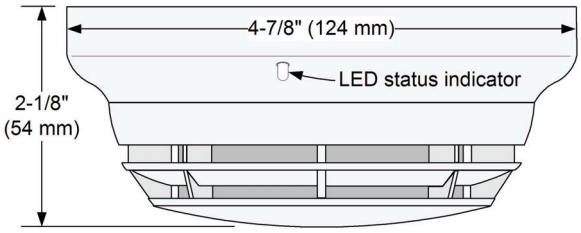


Figure 4: 4098-9714 Photoelectric Sensor with Base

4098-9733 and 4098-9734 Heat Sensors

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). The 4098-9734 sensor provides an additional 190° F (88° C) set point.

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.***

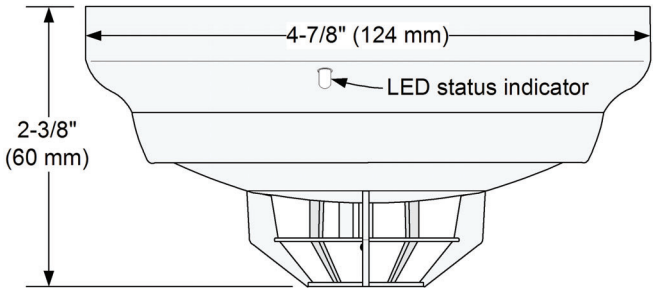


Figure 5: 4098-9733 Heat Sensor with Base

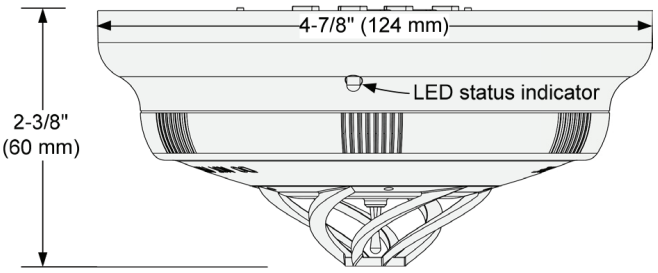


Figure 6: 4098-9734 High Temperature Heat Sensor with Base

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.

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 including sensitivity selection, refer to Installation Instructions 574-709.

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TrueAlarm Analog Sensing Product Selection Chart

Table 2: TrueAlarm Sensor Bases (for use with Sensors 4098-9714 and 4098-9733)

SKU	Color	Description	Compatibility	Mounting Requirements
4098-9792	White	Standard Sensor Base	No options	4 in. octagonal or 4 in. square box, 1 1/2 in. min. depth; or single gang box, 2 in. min. depth
4098-9776	Black			
4098-9789	White	Sensor Base with connections for Remote LED Alarm Indicator **or** Unsupervised Relay	2098-9808 Remote Alarm Indicator **or** 4098-9822 Unsupervised Relay	4 in. octagonal or 4 in. square box **Note:** Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference. ** 4098-9791 and 4098-9780 are NOT compatible with the 2120 CDT
4098-9789 4098-9789IND 4098-9789IND	White			
4098-9775	Black			
4098-9791 **	White	4-Wire Sensor Supervised Relay Base with connections for LED Indicator **or** Unsupervised Relay	2098-9737 Supervised Remote Relay	
			2098-9808 Remote Alarm Indicator **or** 4098-9822 Unsupervised Relay	
4098-9780**	White	2-Wire Sensor Supervised Relay Base with connections for LED Indicator **or** Unsupervised Relay	4098-9860 Supervised Remote Relay	
			2098-9808 Remote Alarm Indicator or 4098-9822 Unsupervised Relay	

Note: * SKU numbers ending in IND are assembled in India.

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

Table 3: TrueAlarm Sensors

SKU	Color	Description	Compatibility	Mounting Requirements
4098-9714 [1]	White	Photoelectric Smoke Sensor	Bases 4098-9775, 4098-9776, 4098-9792, 4098-9789, 4098-9791, and 4098-9780	Refer to base requirements
4098-9714 IND [1]				
4098-9774 [1]	Black			
4098-9733 [1]	White	Heat Sensor		
4098-9778 [1]	Black			
4098-9734 [1]	White	High Temperature Heat Sensor		

[1]NEMA 1 rated.

Table 4: TrueAlarm Sensor/Base Accessories

SKU	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 in. octagonal or 4 in. square box, 1 1/2 in. minimum depth **Base Mounting** requires 4 in. octagonal box, 2 1/8 in. deep with 1 1/2 in. extension ring
4098-9860	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9780 base	
2098-9808 [1]	Remote Red LED Alarm Indicator on single gang stainless steel plate	Bases 4098-9789, 4098-9791, and 4098-9780	Single gang box, 1 1/2 in. minimum depth
4098-9822	Unsupervised Relay, tracks base led status; Note: Mounts only in base electrical box	Bases 4098-9789, 4098-9791, and 4098-9780	4 in. octagonal box, 2 1/8 in. deep with 1 1/2 in. extension ring
4098-9832	Adapter Plate	Bases 4098-9792, 4098-9789, 4098-9791, and 4098-9780	**Required** for surface or semi-flush mounted 4 in. square box and for surface mounted 4 in. octagonal box

[1] NEMA 1 rated.

Specifications

Table 5: General operating specifications

Specification		Rating
Communications and sensor supervisory power		IDNet or MAPNET II communications, auto-selected, 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 operating temperature range		32°F to 100°F (0°C to 38°C)
Operating temperature range	with 4098-9733 Heat Sensor	32°F to 122°F (0°C to 50°C)
	with 4098-9714 Smoke Sensor	15°F to 122°F (-9°C to 50°C)
	with 4098-9734 Heat Sensor	32°F to 150°F (0°C to 66°C)

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Table 5: General operating specifications

Specification	Rating
Storage temperature range	0°F to 140°F (-18°C to 60°C)
Humidity range	10% to 95% RH
4098-9714 smoke sensor air velocity rating	0-4000 ft/min (0-1220 m/min)
Housing color	Frost white or black

Table 6: 4098-9791 Base with Supervised Remote Relay 2098-9737

Specification	Rating
Externally supplied relay coil voltage	18 VDC to 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
Note: See Sensor Base Options for contact ratings.	

Table 7: 4098-9780 Base with Supervised Remote Relay 4098-9860

Specification	Rating
Power	Supplied from communications

Table 8: 4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789, 4098-9791, and 4098-9780

Specification	Rating
Externally supplied relay coil voltage	18 VDC to 32 VDC (nominal 24 VDC)
Supervisory current	Supplied from communications
Alarm current	13 mA from separate 24 VDC supply
Note: See Sensor Base Options for contact ratings.	

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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)

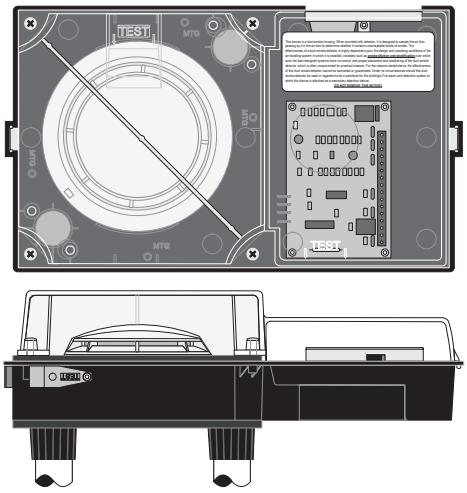
Sampling tubes (ordered separately):

- 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 3240-0026.241 for allowable values and/or conditions concerning material presented in this document. 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.



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 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)	4007ES, 4008, 4010, 4010ES, 4020, 4100, 4100ES, 4100E, 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 on single-gang stainless steel plate	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, on single-gang stainless steel plate; (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

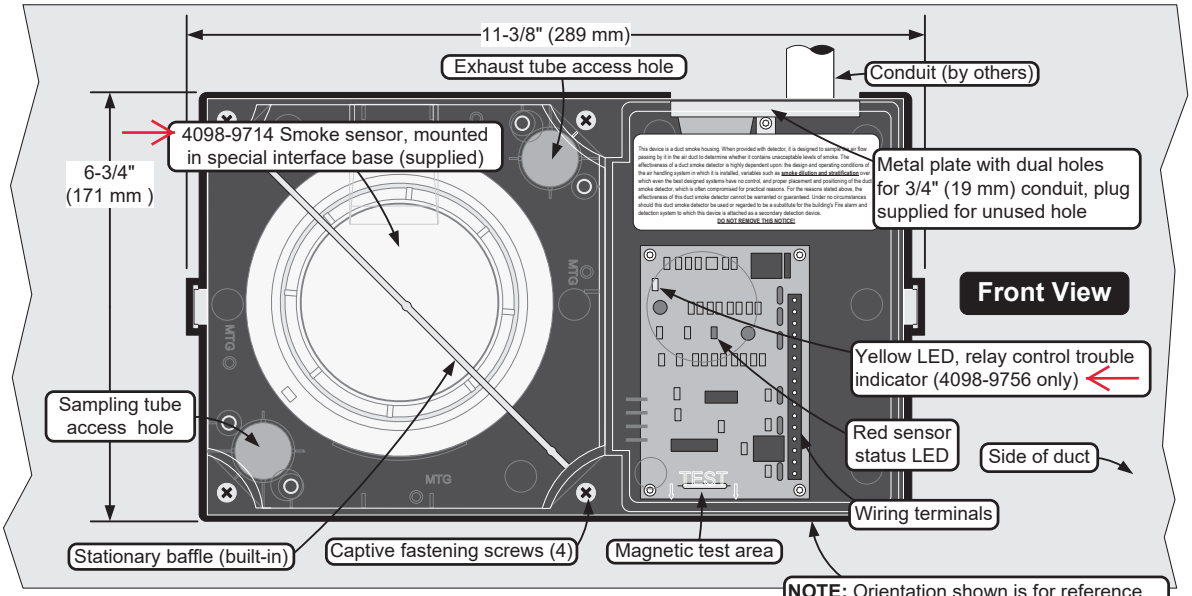
* Each duct housing includes an internally mounted model 4098-9714 TrueAlarm photoelectric sensor and an exhaust tube. A correctly sized sampling tube (ordered per application) is required, refer to chart below.

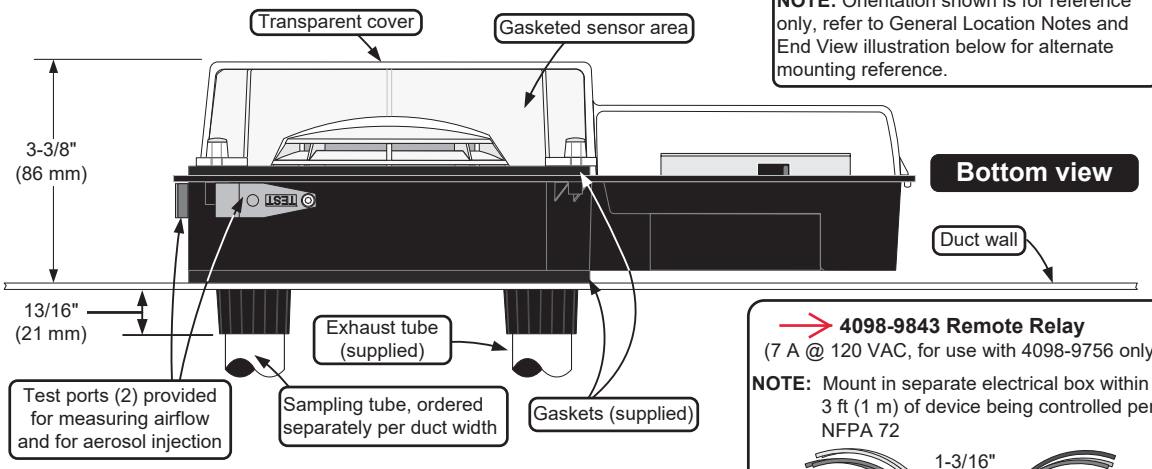
Sampling Tube Selection Chart, Ordered Separately Per Duct Width, Select One

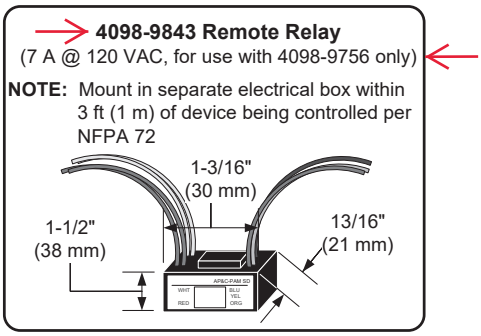
Overall Duct Width	Tube Required	Suggested Cut Length
12" (305 mm)	**4098-9854**	1/2" (12.7 mm) longer than duct width
13" to 23" (330 mm to 584 mm)	**4098-9855**	1/2" (12.7 mm) longer than duct width
24" to 46" (610 mm to 1168 mm)	**4098-9856**	3 in" (76 mm) longer than duct width
46" to 71" (1168 mm to 1803 mm)	**4098-9857**	3 in" (76 mm) longer than duct width
71" to 95" (1803 mm to 2413 mm)	**4098-9858**	3 in" (76 mm) longer than duct width

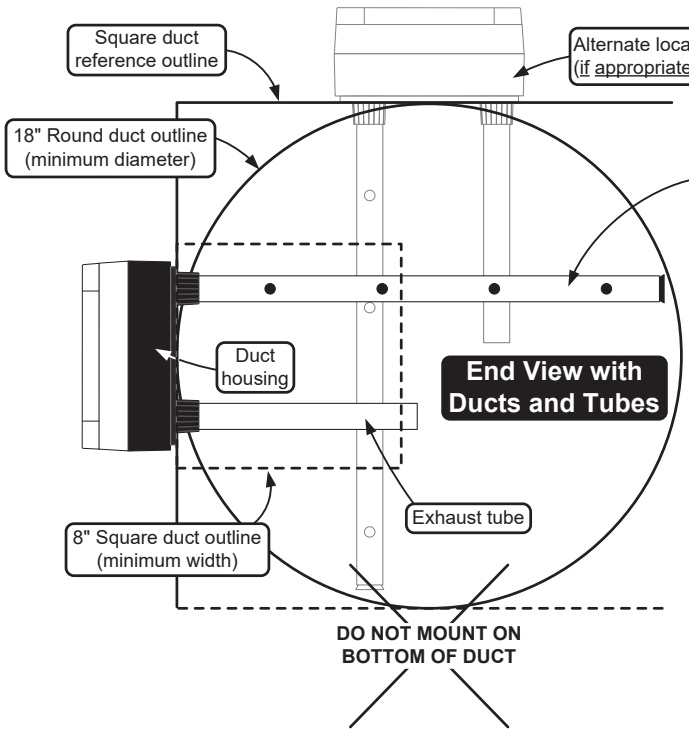
Duct Sensor Housing Detail Reference

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





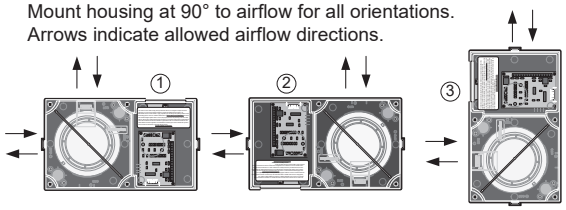




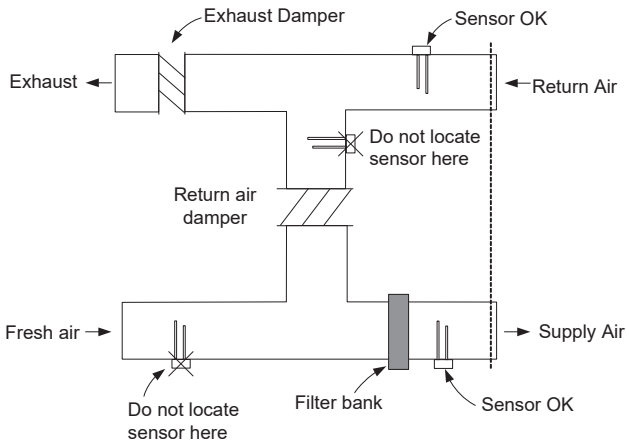
Sampling tube, keyed for proper hole alignment **with holes facing into airflow** (template is provided for proper tube installation). (Housing is shown as position 2 per note 2 below.)

General Location Notes:

1. Testing performed under the auspices of the Fire Detection Institute (FDI) recommended when sampling tubes are not located vertically, that they be positioned horizontally in the upper half of the duct to account for possible stratification.
2. Three duct side mounting options are available as shown below. Mount housing at 90° to airflow for all orientations. Arrows indicate allowed airflow directions.



Duct Sensor Location Reference



Additional Information. Refer to NFPA 90A, *Standard for the Installation of Air Conditioning and Ventilating Systems*; NFPA 72, the *National Fire Alarm and Signaling Code*; and the *NEMA Guide for Proper Use of Smoke Detectors in Duct Applications*, and Installation Instructions 574-776.

Duct Sensor Location Considerations:

1. Proper duct smoke detection location must ensure adequate airflow within the duct housing.
2. Duct air velocity rating is 300 to 4000 ft/min (91 to 1220 m/min). Pressure differential between intake and exhaust tubes is required to be between 0.015 to 1.55 inches of water (0.381 to 39.37 mm).
3. Ensure accessibility for test and service.
4. Proper Locations: downstream side of filters to detect fires in the filters; in return ducts, ahead of mixing areas; upstream of air humidifier and cooling coil.
5. Other locations and orientations may be required for proper duct smoke detection depending on duct access, system design, and duct airflow testing. Contact your local Simplex product supplier for assistance.

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.

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 and Material	Black ABS base with clear polycarbonate cover
Sampling and Exhaust Tube Material	Black CPVC, custom extrusion; sampling tubes are pre-drilled
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	15 mA @ 24 VDC; add 15 mA for each 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; locate relays within 3 ft (1 m) of device being controlled per NFPA 72

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Simplex

System Accessories

UL, CSFM Listed;
*MEA (NYC) Acceptance**

Fire Alarm Control Relays, Track Mount and Encapsulated; Model 4098-9843 and 2088 Series

Features

UL listed under Standard 864 as Control Unit Accessory (UOXX)

Track mount package availability:

- Single relay module or four relay module, with or without cover, with SPDT or DPDT contacts
- LED indicates relay module status
- Cover provide status LED viewing ports
- Multiple coil voltage inputs, diode polarized for DC
- Modules are track mounted with snap-apart feature design allowing the four relay module to be separated

Single encapsulated SPDT relay package with color coded 18 AWG wire leads, available in two versions:

- 2088-9021 (PAM-1) Provides diode polarized multiple input voltage ability and LED indication
- 4098-9843 (PAM-SD) Provides a diode polarized 24 VDC coil with in/out wiring

Description

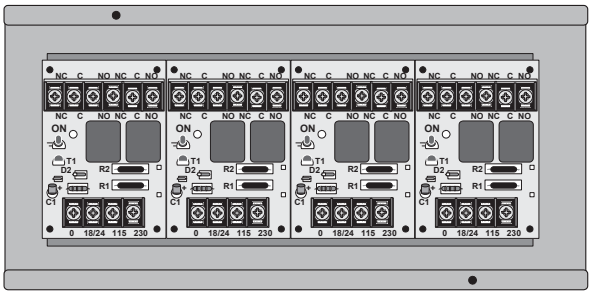
These multi-purpose control relays offer SPDT or DPDT, 10 A (or 7 A) contacts in a variety of mechanical packages. Models are available for coil operation by one of four input voltages allowing a single relay to be energized from a voltage source of 18-35 VDC or VAC, 120 VAC, or 230 VAC (not available with 4098-9843). Voltage selection is made by wiring to the appropriate input terminals or wire leads.

Each relay model (except model 4098-9843) contains a red LED which indicates that the relay is energized.

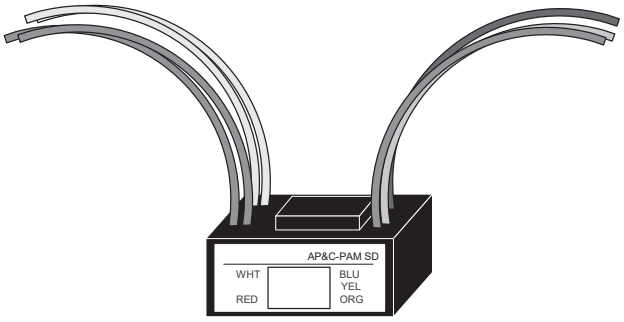
Mounting options are varied for application flexibility. Track mounted relays may be "snapped apart" from a standard four-module assembly and used independently if desired.

Specifications

Track Mount Relays, see page 2 for dimensions	
Coil Voltage	18-35 VAC/VDC, 120, or 230 VAC
Coil Current	SPDT models = 18 mA DPDT models = 40 mA
Terminal Blocks	Up to 14 AWG (2.08 mm^2)
Contact Ratings	10 A @ 120 VAC
	N.O. rated 1/6 HP, N.C. rated 1/8 HP
	7A @ 28 VDC and @ 230 VAC
Temperature Ratings	
UL Listed Range	32° F to 120° F (0° C to 49° C)
Humidity	85% RH Non-condensing



2088-9020, MR204/C, Four DPDT Relay Package with Enclosure (shown with cover removed)



Encapsulated Relay Package
(typical of 2088-9021, PAM-1 and 4098-9843, PAM-SD)

Specifications *Continued*

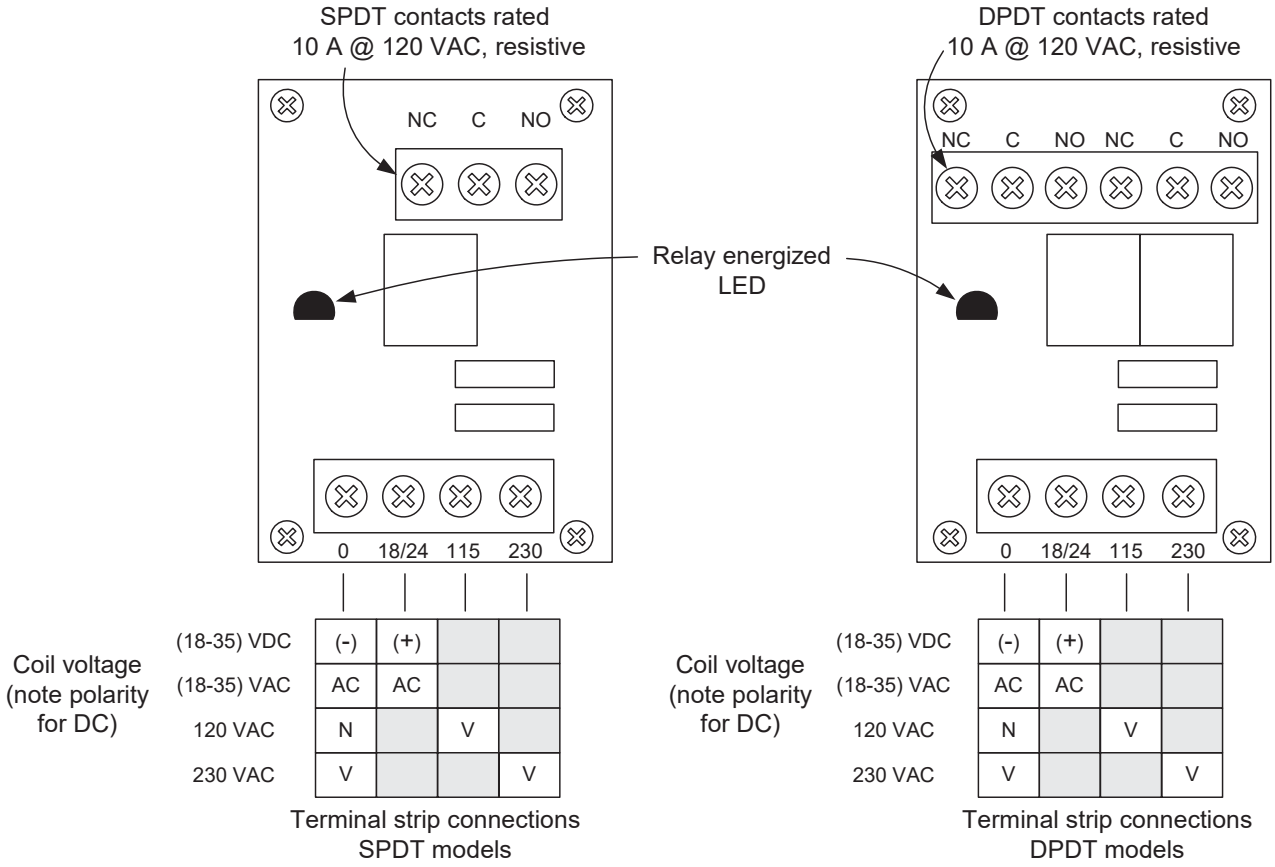
Encapsulated Relays, see page 2 for dimensions		
Connections		18 AWG (0.82 mm^2) color-coded wire leads
Relay 2088-9021		
Contact Ratings		10 A @ 120 VAC, resistive
Coil Ratings	Voltage	18-35 VAC/VDC, 120, or 240 VAC
	Current	15 mA @ 24 VAC/VDC, & @ 120 or 230 VAC
Relay 4098-9843		
Coil Ratings		18-32 VDC input, polarized, 15 mA @ 24 VDC
Contact Ratings		7 A at 0.35 p.f @ 28 VDC & 120 VAC
		250 µA @ 5 VDC
Temperature Ratings		
UL Listed Range		32° F to 120° F (0° C to 49° C)
Humidity		100% RH, condensing

* Listings are under Apollo America Inc. per model numbers shown on page 2. See CSFM Listing 7300-1004:0101 for allowable values and/or conditions concerning material presented in this document.

Relay Selection Chart

Module Positions	Reference Number	Model Number	Relay Type	Packaging	Dimensions
One	2088-9007	MR-101/T	SPDT	Track mount, without cover	3-1/4" H x 2-1/8" W x 1-1/2" D (83 mm x 54 mm x 38 mm)
	2088-9009	MR-201/T	DPDT		
	2088-9008	MR-101/C	SPDT	Track mount with cover	5-1/8" H x 3-1/8" W x 2-1/2" D (131 mm x 79 mm x 64 mm)
	2088-9010	MR-201/C	DPDT		
Four	2088-9017	MR-104/T	SPDT	Track mount, without cover	3-1/4" H x 8-1/2" W x 1-1/2" D (83 mm x 216 mm x 38 mm)
	2088-9019	MR-204/T	DPDT		
	2088-9018	MR-104/C	SPDT	Track mount with cover	5-1/8" H x 9-1/2" W x 2-1/2" D (131 mm x 241 mm x 64 mm)
	2088-9020	MR-204/C	DPDT		
NA	2088-9021	PAM-1	SPDT	Encapsulated, multi-voltage coil, color coded 18 AWG (0.82 mm^2) wire leads, with coil status LED	1-1/2" H x 1" W x 7/8" D (38 mm x 25.4 mm x 22 mm)
→	4098-9843	PAM-SD		Encapsulated, 24 VDC coil, color coded 18 AWG (0.82 mm^2) wire leads (no LED)	1-1/2" H x 1-3/16" W x 13/16" D (38 mm x 30 mm x 21 mm)

Track Mount Relay Wiring Reference



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Simplex®

*UL Listed**

System Accessories

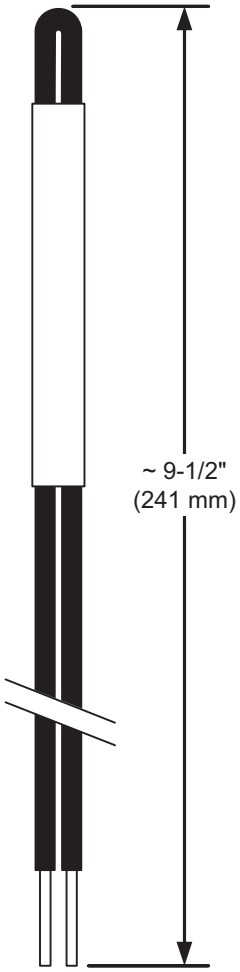
4081 Series End-of-Line Resistor Harnesses

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



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

* This product was not approved by ULC, FM, MEA (NYC), or CSFM as of document revision date. 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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Simplex®

Multi-Application Peripherals

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

IDNet Communicating Devices
→ Model 4090-9002 Relay IAM

Features

Individual Addressable Relay Module (Relay IAM):

- IDNet addressable control for use with Simplex® fire alarm control panel models 4007ES, 4008, 4010, 4010ES, 4100ES, and 4100U
- 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
- Relay is set to OFF on initial power up and upon loss of IDNet communications

Compact, sealed construction:

- Enclosed design minimizes dust infiltration
- Mounts in standard 4" (102 mm) square electrical box, optional adapter bracket is available to mount in a 4 $^{11}/_{16}$" (119 mm) 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.

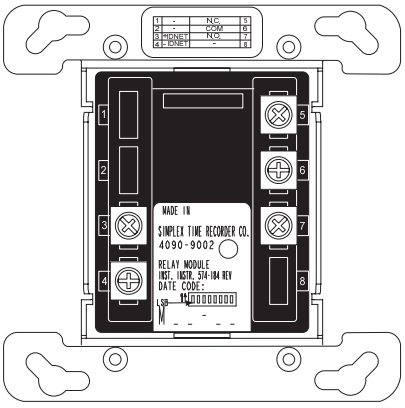
Product Selection

Model	Description
→ 4090-9002	Relay IAM

Optional Adapter and Trim Plates

Model	Description	
4090-9813	Adapter plate to fit 4 $^{11}/_{16}$" (119 mm) square electrical box	
4090-9801	For semi-flush mounted box	Trim Plate, galvanized steel, with LED viewing window; includes mounting screws
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. 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.

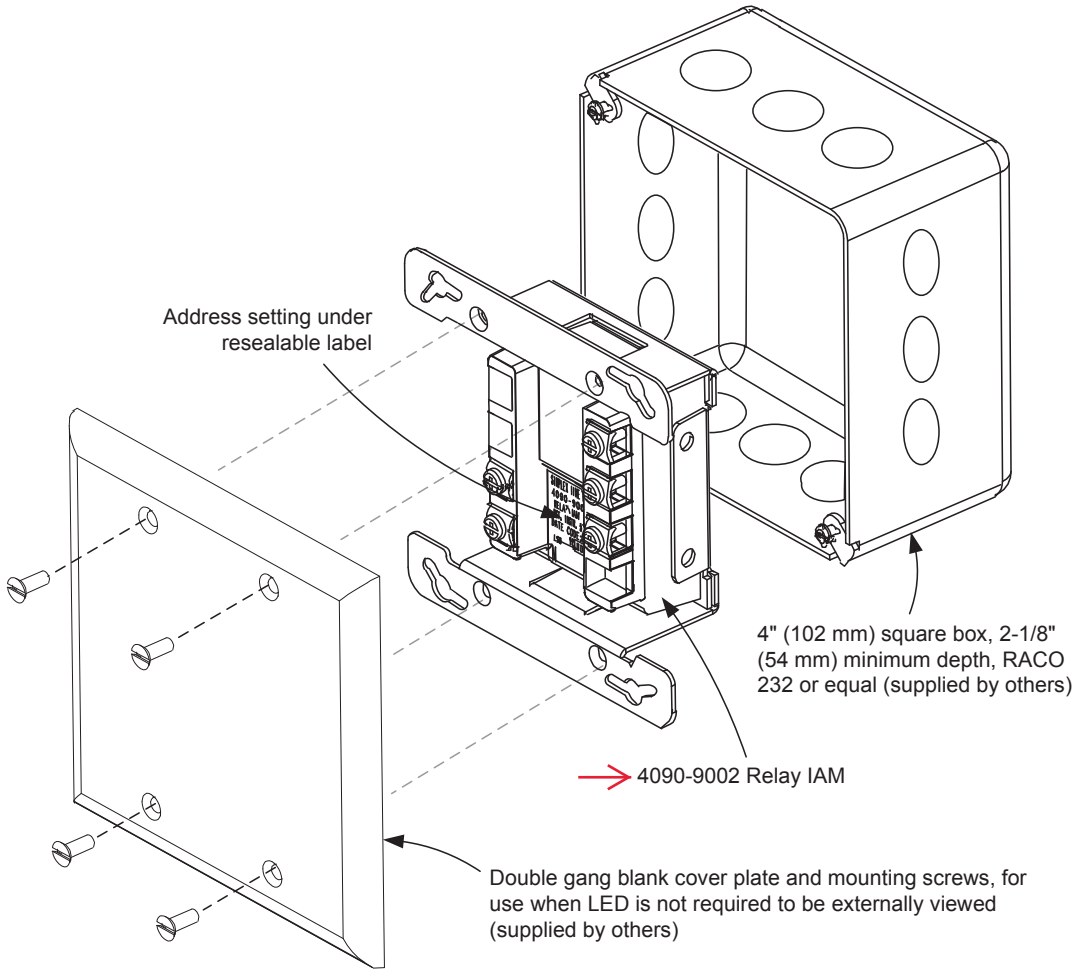


→ 4090-9002 IDNet Relay IAM Package
(shown approximately 1/2 size)

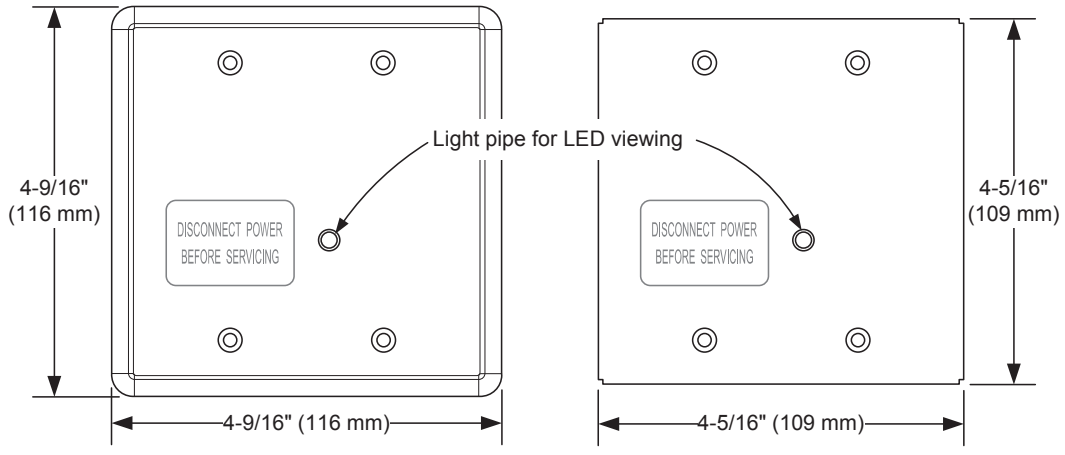
→ Specifications

Communications	IDNet communications, 1 address per device	
Relay IAM Power	Supplied by IDNet communications	
Contact Ratings* (not rated for incandescent switching)		
Type	Form C, SPDT	
Power-Limited	2 A @ 24 VDC, resistive	from listed fire alarm supply
	1 A @ 24 VDC, inductive	
Nonpower-Limited	0.5 A @ 120 VAC, resistive	
* Provide circuit fusing and transient suppression as required per application. DC inductive loads can typically be diode suppressed; 120 VAC loads may require RC networks or varistors, depending on device type. Refer to the installation instructions for additional information.		
Wire Connections	Screw terminals for in/out wiring, 18 to 14 AWG wire (0.82 to 2.08 mm^2)	
IDNet Communications Wiring Reference	Up to 2500 ft (762 m) from control panel	
	Up to 10,000 ft (3048 m) total wiring distance (including T-Taps)	
	Compatible with Simplex 2081-9044 Overvoltage Protectors	
Dimensions	4 ⅛" H x 4 ⅛" W x 1 ⅜" D (105 mm x 105 mm x 35 mm)	
Housing Material	Black thermoplastic	
Mounting Plate	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)	
Installation Instructions	574-184	

Relay IAM Mounting Information



Mounting Reference, Double Gang Blank Cover Plate



Optional Trim Plates for Visible LED

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Simplex

TrueAlert ES Addressable Notification Appliances

*UL, ULC, CSFM Listed**
*FM Approved**

Audible/Visible Notification Appliances;
Multi-Tone Horn/Strobe with 520 Hz Output

Features

Individually addressed and controlled multi-tone and multi-candela TrueAlert ES A/V (audible/visible) notification appliances provide:

- Multi-candela xenon strobe with synchronized 1 Hz flash rate and with intensity ***programmable from the control panel*** or jumper selected as 15, 30, 75, 110, 135, or 185 cd
- Advanced addressable notification controlled by ***IDNAC SLCs*** providing ***regulated 29 VDC*** allowing strobes to operate with lower current even under battery backup
- Wiring supervision to each appliance allowing "T-tapped" connections for Class B circuits to simplify wiring (Class A circuits require in/out wiring)
- ***Self-Test Mode*** allows on-board sensors to detect the strobe and horn output and then report their status to the control panel
- Per appliance tone selection of: 520 Hz Horn, Broadband Horn, Bell, Chime, High/Low, Slow Whoop, or Siren; *programmable from the control panel*, or selected using an on-board DIP Switch (refer to sound output details on page 4)
- 520 Hz tone is compliant with NFPA 72 Low Frequency Signal Requirements for Sleeping Areas
- Horn, Bell, and High/Low tones can be controlled as: Temporal Code 3, Temporal Code 4, March Time (selectable as 20, 60, or 120 bpm), or Continuous
- Slow Whoop, Siren, and Chime tone selections are controlled as synchronized continuous operation
- Output of "high" or "low" (~6 dBA difference) selectable at the appliance or from the controller with FACP mode selected at the appliance
- ***TrueAlert Device Reports*** at the control panel detailing appliance point ID, custom label, type, and candela setting (see sample on page 3)
- ***Magnet Test diagnostics*** to assist checkout and testing of appliances and wiring
- ***Electrical test point access*** without removing cover
- Compatibility with ADA requirements; (refer to important installation information on page 3)
- Strobe operation is listed to UL Standard 1971 and ULC Standard S526; Horn operation is listed to UL Standard 464 and ULC Standard S525

LED Indicator and Magnet Test feature:

- Appliance LED can be selected to display each polling cycle to indicate appliance supervision
- When the controller is in diagnostic mode, the Magnet Test pulses the LED to indicate appliance address and can be set to also briefly flash the strobe and sound the horn



TrueAlert ES Multi-Tone Addressable A/Vs are Available in Red with White Lettering and White with Red Lettering

Features *(Continued)*

Mechanical design features include:

- Rugged, high impact, flame retardant thermoplastic housing in red with white letters or white with red letters, with clear lens, available with FIRE, FEU, ALERT, FEU/FIRE, or blank lettering
- Separate covers are available to change application type on-site or for replacement; covers can be easily removed without disturbing the connected housing and avoiding trouble conditions
- A separate mounting plate allows wiring to be completed before appliance is mounted; use with single gang, double gang, or 4-inch square box, flush or surface mount
- In/out wiring terminals for 18 AWG to 12 AWG
- Optional mounting adapters are available to cover surface mounted electrical boxes and to adapt to Simplex 2975-9145 boxes

Description

TrueAlert ES addressable multi-tone A/Vs are individually addressed audible/visible notification appliances that receive power, supervision, and control signals from a Simplex fire alarm control panel providing **IDNAC** Signaling Line Circuits (SLCs). (See compatibility list on page 4.)

Strobe Application Reference

Proper selection of visible notification is dependent on occupancy, location, local codes, and proper applications of: the *National Fire Alarm Code* (NFPA 72), ANSI A117.1; the appropriate model building code: BOCA, ICBO, or SBCCI; and the application guidelines of the Americans with Disabilities Act (ADA).

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TrueAlert ES Operation Advantage

TrueAlert ES addressable appliances on IDNAC SLCs provide separate visible and audible notification using a single two-wire circuit that also *confirms connection to the individual notification appliance's electronic circuit*. This operation increases circuit supervision integrity by providing supervision that extends beyond the appliance wiring connections.

Reduced current allows efficient IDNAC SLC operation. With ***IDNAC SLCs***, a ***constant*** 29 VDC source voltage is maintained, even during battery standby, allowing strobes to operate at higher voltage with lower current and ensuring a consistent current draw and voltage drop margin under both primary power and secondary battery standby. Efficiencies include wiring distances up to 2 to 3 times farther than with conventional notification, or support for more appliances per IDNAC SLC, or use of smaller gauge wiring, or combinations of these benefits, all providing installation and maintenance savings with high assurance that appliances that operate during normal system testing will operate during worst case alarm conditions.

Reducing Installation and Testing Time. With separate controls on the same two-wire SLC, installation time and expense for both retrofit and new construction can be significantly reduced. When Class B wiring is used, *wiring can be "T" tapped*, allowing more savings in distance, wire, conduit (size and utilization), and overall installation efficiency. Use of Self-Test and Magnet Test features improve installation efficiency. TrueAlert device reports conveniently identify information about each connected appliance.

TrueAlert ES Diagnostics

Test Features. When IDNAC SLCs are in diagnostic mode, *Self-Test* and *Magnet Test* features provide individual appliance testing. With the *Self-Test* feature, *appliance operation can be confirmed without leaving the control panel.* Additionally, each appliance's LED can be selected to pulse when it receives a supervision poll during normal operation.

***Self-Test* Details.** Selecting Self-Test Mode from the control panel allows on-board sensors, depending on the device type, to detect its own strobe and/or horn output and then report their status to the control panel. Operation is by selected VNAC appliance groups and is either automatic (all briefly simultaneously activated) or individually activated by applying a magnet. (Refer to control panel data sheet for more Self-Test information, see list on page 4.)

Silent Appliance Magnet Test. In this test mode, in response to application of a magnet, the appliance LED pulses sequentially to conveniently indicate the appliance's address.

Operational Appliance Magnet Test. In this test mode, after the address is indicated by pulsing the appliance LED, the strobe will briefly flash and the horn will briefly sound to indicate proper operation.

TrueStart Instrument Two (TSIT). The 2nd generation of the Simplex TrueStart Test Instrument adds testing of IDNAC SLC wiring and TrueAlert ES appliances to its ability to test IDCs, NACs, and IDNet communications *before connection to the control panel*. Please contact your local Simplex representative for additional information.

TrueAlert Addressable Wiring Isolator

Isolator Model 4905-9929 is available for remote mounting on TrueAlert addressable circuits to isolate short circuited wiring from functioning wiring. (See data sheet S4905-0001.)

Product Selection

TrueAlert ES Wall Mount Multi-Tone Addressable Audible/Visible Appliances

TrueAlert ES multi-tone addressable A/V appliances include cover and matching mounting plate except as noted;
Dimensions with Cover = 5 ⅛" H x 5" W x 2 ⅝" D (130 mm x 127 mm x 67 mm)

Model*	Cover Color	Wording	Lens Color	Model*	Cover Color	Wording	Lens Color
49MTV-WRF(-BA)	Red	FIRE	Clear	49MTV-WRS-BA	Red	Blank	Clear
49MTV-WWF(-BA)	White			49MTV-WWS-BA	White		
49MTV-APPLW(-BA)	Select cover and mounting plate separately						

Separate Mounting Plate (Required when ordering model 49MTV-APPLW(-BA))

Model*	Color	Model	Color	Note
49MP-AVVOWR	Red	49MP-AVVOWW	White	Mounting Plate, select color to match cover

*** Note:** (-BA) indicates model is available either with or without the -BA suffix. Model numbers ending in -BA, APPLW models, and separate mounting plates are assembled in the USA.

Separate Covers (Required when ordering model 49MTV-APPLW(-BA), uses same covers as 49AV Series fixed tone A/Vs)

Model	Color	Wording	Model	Color	Wording
49AVC-WRFIRE	Red	FIRE	49AVC-WRFEU	Red	FEU
49AVC-WWFIRE	White		49AVC-WWFEU	White	
49AVC-WRALT	Red	ALERT	49AVC-WRBLNG	Red	FEU/FIRE
49AVC-WWALT	White		49AVC-WWBLNG	White	
49AVC-WRS	Red	Logos Only	49AVC-WWS	White	Logos Only

Mounting Adapters

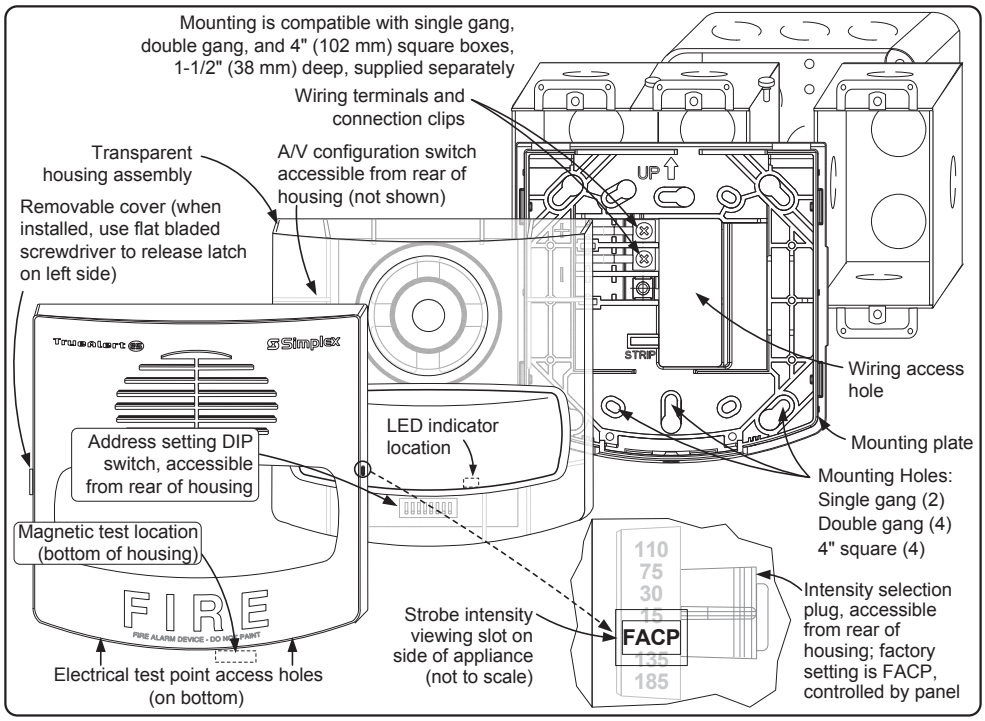
Model	Color	Description	Dimensions
4905-9937	Red	Surface Mount Adapter Skirt	5 ⅜" H x 5 ¼" W x 1 ⅝" D (136 mm x 133 mm x 41 mm) Total depth with strobe = 4 ⅜" (111 mm)
4905-9940	White		
4905-9931	Red Adapter Plate for mounting to Simplex 2975-9145 Box (typically for retrofit, mount vertical or horizontal)		8 $\frac{5}{16}$" x 5 ¾" x 0.060" Thick (211 mm x 146 mm x 1.5 mm)
2975-9145	Red Mounting Box, requires 4905-9931 Adapter Plate		7 ⅞" x 5 ⅛" x 2 ¾" D (200 mm x 130 mm x 70 mm)

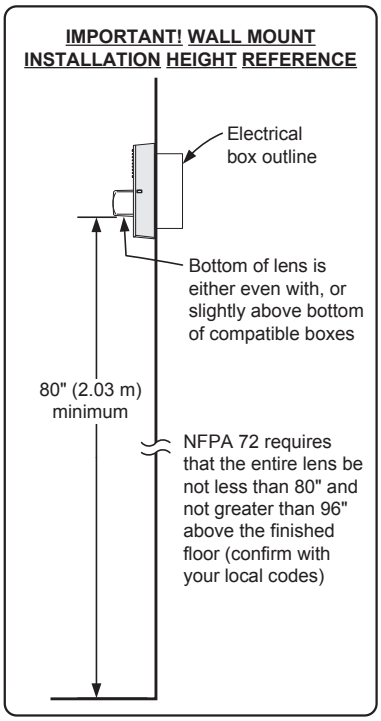
TrueAlert Device Reports Reference

Service Port — Page 1
REPORT 5 : TrueAlert Device Report — 12:34:56am TUE 10-Mar-15

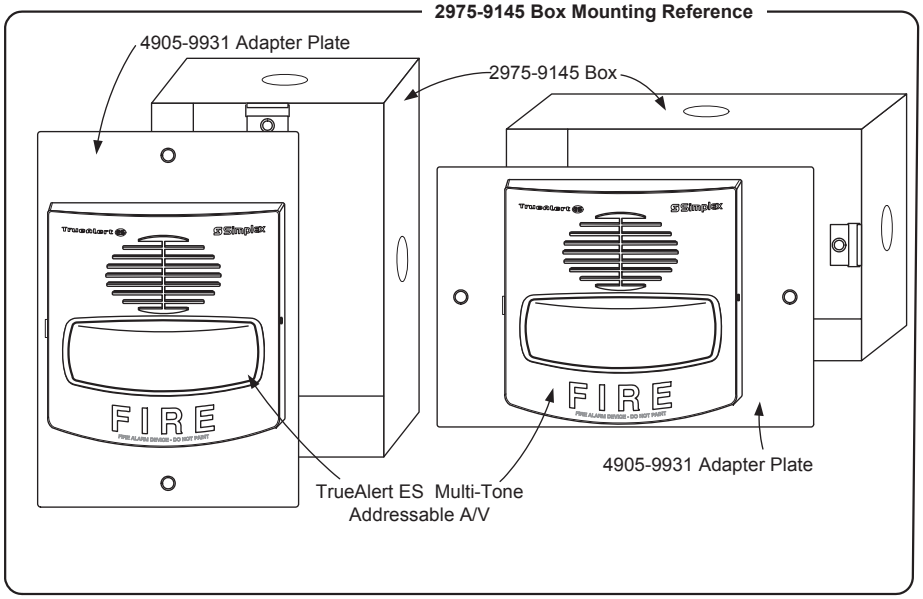
POINT ID	CUSTOM LABEL	DEVICE TYPE	CANDELA
T14-1-1	Location Label . . . up to 40 characters	MT AV	15
T14-1-2	Break Room 5	MT AV	110
T14-1-3	Boiler Room	VO	75
T14-1-4	Elec. Room 7	AV	135

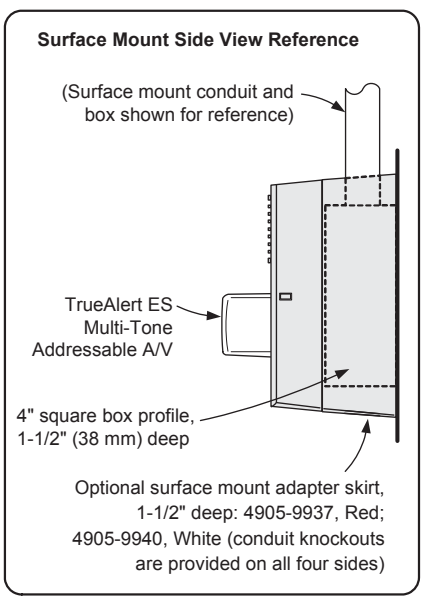
Installation Reference





Adapter Plate and Surface Mount Installation Reference





IDNAC SLC Controller Compatibility Reference

Compatible Controllers	Data Sheet Reference	Controller Output	IDNAC SLC Output Voltage	Appliance Voltage Design Reference
4100ES with EPS+ or EPS Power Supply	S4100-0100	IDNAC SLC	29 VDC (regulated)	23 VDC (with 6 VDC drop)
4009 IDNAC Repeater	S4009-0004			
4007ES with IDNAC Notification	S4007-0002			
4010ES with ESS Enhanced System Supply	S4010-0011			

TrueAlert ES A/V Specifications

Electrical Ratings	Typical Operating Voltage Range	23 VDC to 29.5 VDC, Special Application
	Supervisory Requirements	2 unit loads (1 unit load = 0.8 mA control panel current)
	49MTV Series SLC Loading	Up to 21 appliances can connect directly to the panel IDNAC SLC or to a 4009 IDNAC Repeater output, to a maximum of 127 addresses and 139 unit loads per SLC
IDNAC SLC Wiring Specifications (refer to control panel or power supply installation instructions for more information)		UTP, unshielded twisted pair recommended
		Maximum wire length allowed with "T-Taps" for Class B wiring per SLC = 10,000 ft (3048 m)
		Maximum wire length to any appliance = 4000 ft (1219 m)

Tone Characteristics

520 Hz Horn	520 Hz tone	These tones are compatible with control panel IDNAC commands for operation as Temporal Code 3, Temporal Code 4, March Time at 20, 60, or 120 bpm, or Continuous operation
Broadband Horn	Combination 600/3000 Hz signal	
Bell	Synthesized Bell tone	
High/Low	Alternating modulated tones with fundamentals of 1000 Hz and 800 Hz, 250 ms duration each	
Slow Whoop	Modulated 520 Hz to 1200 Hz sweep with 2 s duration	These tones operate as Continuous with synchronization
Siren	Modulated 600 Hz to 1200 Hz to 600 Hz sweep, with 2 s duration	
Chime	Multi-phase signal with a peak and decay time of 1 s	

TrueAlert ES Multi-Tone Horn/Strobe Current Ratings

	RMS Current Ratings @ 23 VDC, in mA											
	15 cd		30 cd		75 cd		110 cd		135 cd		185 cd	
Tone	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**
520 Hz Horn and High/Low	145	108	163	125	198	158	230	195	262	214	299	257
Broadband Horn, Bell, Chime, Slow Whoop, and Siren	135	99	152	111	185	139	212	172	247	203	284	243

TrueAlert ES Multi-Tone Horn/Strobe Horn Output

		UL 464 Output Ratings @ 23 VDC and 29.5 VDC (dBA)*								ULC S525 Output Ratings @ 23 VDC and 29.5 VDC (dBA)*							
		Steady High		Steady Low		Coded High		Coded Low		Steady High		Steady Low		Coded High		Coded Low	
Tone	**Voltage**	**23**	**29.5**	**23**	**29.5**	**23**	**29.5**	**23**	**29.5**	**23**	**29.5**	**23**	**29.5**	**23**	**29.5**	**23**	**29.5**
520 Hz Horn		80	80	74**	75	76	76	70**	71**	83†		79†		83†		78†	
High/Low		81	82	77	77	75	76	70**	71**	87		82†		86†		82†	
Broadband Horn		84	84	79	79	81	81	74**	75	88		84†		87†		83†	
Bell		80	80	75	75	76	76	71**	71**	85		80†		85†		80†	
Slow Whoop		79	80	74**	75	these tones are not used for coded operation				85		80†		these tones are not used for coded operation			
Siren		79	80	74**	75					85		80†					
Chime**		67**	67**	62**	62**					82†		77†					

* Output ratings are at 10 ft (3 m); UL 464 ratings are per UL Reverberant Chamber testing; ULC S525 ratings are per ULC Anechoic Chamber testing. The tone generator circuit is DC-DC converter powered and provides essentially constant output over the rated voltage range.

** UL output ratings below 75 dBA are for NFPA 72 Private Mode applications.

† ULC output ratings below 85 dBA are for use in applications per applicable local codes.

Sound Output Dispersion per ULC S541 Anechoic Testing	Horizontal	-3 dBA @ ±37°	-6 dBA @ ±40°	-9.4 dBA @ ±90°
	Vertical	-3 dBA @ -24°, +42°	-6 dBA @ -59°, +50°	-8.6 dBA @ ±90°

General Specifications

Temperature Range	32° to 122° F (0° to 50° C)
Humidity Range	10% to 93%, non-condensing @ 104° F (40° C)
Connections	Terminal blocks on mounting plate for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires per terminal for in/out wiring
Installation Instructions	579-1156 for 49MTV Series A/V appliances 579-1100 for 49MP Series mounting plates

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Simplex

*UL, ULC, CSFM Listed; FM Approved**

TrueAlert ES Addressable Notification Appliances

Visual Only Notification Appliances, Indoor Ceiling Mount Strobe, Model Series 49VO

Description

Ceiling Mount Addressable Visible (V/O) Notification Appliances are individually powered, addressed, and controlled from a Simplex fire alarm control panel IDNAC Signaling Line Circuit (SLC). V/O notification appliances use a multi-candela strobe with synchronized 1 Hz flash rate and selectable candela rating. Xenon tube strobes devices are interoperable on the same IDNAC channel. Separate appliance and cover selection greatly simplifies the ordering and installation process.

Features

Individually addressed Visible Only (V/O) notification appliances

- Multi-candela Xenon strobe available in low (15 cd, 30 cd, 75 cd and 110 cd) and high (110 cd , 135 cd and 185 cd) range candela models
- Small compact design and low current draw due to energy efficient Xenon tube strobes, with LED indicators
- Advanced addressable notification controlled by ***IDNAC SLCs***.
- ***IDNAC SLCs*** provide ***regulated 29 VDC*** allowing horns to operate with lower current
- Electrical test point access by removing the cover
- Strobe intensity can be programmed from the control panel or the device
- Wiring supervision to each appliance allows T-tapped connections for Class B circuits to simplify wiring (Class A circuits require in/out wiring)
- Self-Test Mode allows on-board sensors to detect the strobe output and then report their status to the control panel
- TrueAlert Device Reports at the control panel detail appliance point ID, custom label, type, and candela setting
- Magnet test diagnostics assist checkout and testing of appliances and wiring
- Compatibility with ADA requirements
- Strobe operation is listed to UL Standard 1971 and ULC Standard S526
- Synchronized strobe operation on its IDNAC channel

LED Indicator and Magnet Test feature:

- Indicator LED indicates magnet test acknowledgment, 3 digit IDNAC address, and candela rating
- Indicator LED can be configured to blink every polling cycle to indicate appliance supervision
- When the controller is in diagnostic mode, the magnet test pulses the Indicator LED to indicate appliance address and can be set to also briefly flash the strobe LEDs

Mechanical design features

- Rugged, high impact, flame retardant thermoplastic housing in red and white colors
- Various covers and lettering options available – Red with white letters or white with red letters
- Covers can be easily removed without disturbing the connected housing and avoiding trouble conditions
- In/out wiring terminals for 18 AWG to 12 AWG
- Mounts on 4 in. square or single gang USA electrical boxes. Adapter plate required for mounting on single gang electrical boxes
- Optional wire guards
- Weatherproof back boxes are required for surface mounting



Figure 1: Indoor Ceiling Mount Strobe

Strobe application reference

Proper selection of visible notification is dependent on occupancy, location, local codes, and proper applications of: the National Fire Alarm and Signaling Code (NFPA 72), ANSI A117.1; the appropriate model building code: BOCA, ICBO, or SBCCI; and the application guidelines of the Americans with Disabilities Act (ADA).

TrueAlert Addressable Wiring Isolator

Isolator Model 4905-9929

Isolator Model 4905-9929 is available for remote mounting on TrueAlert addressable circuits to isolate short circuited wiring from functioning wiring. Refer to data sheet S4905-0001 for additional information.

TrueAlert ES Diagnostics

Test Features

Controllers can be selected to pulse each appliance's LED when it receives a supervision poll. When the controller is selected for diagnostic mode, the appliance magnet test feature provides a response at the individual appliance being tested.

Silent Appliance Magnet Test

The appliance LED pulses sequentially to conveniently indicate the appliance's address when a magnet is applied.

Operational Appliance Magnet Test

In this test mode, after the address is indicated by pulsing the appliance LED, the strobe will briefly flash to indicate proper operation.

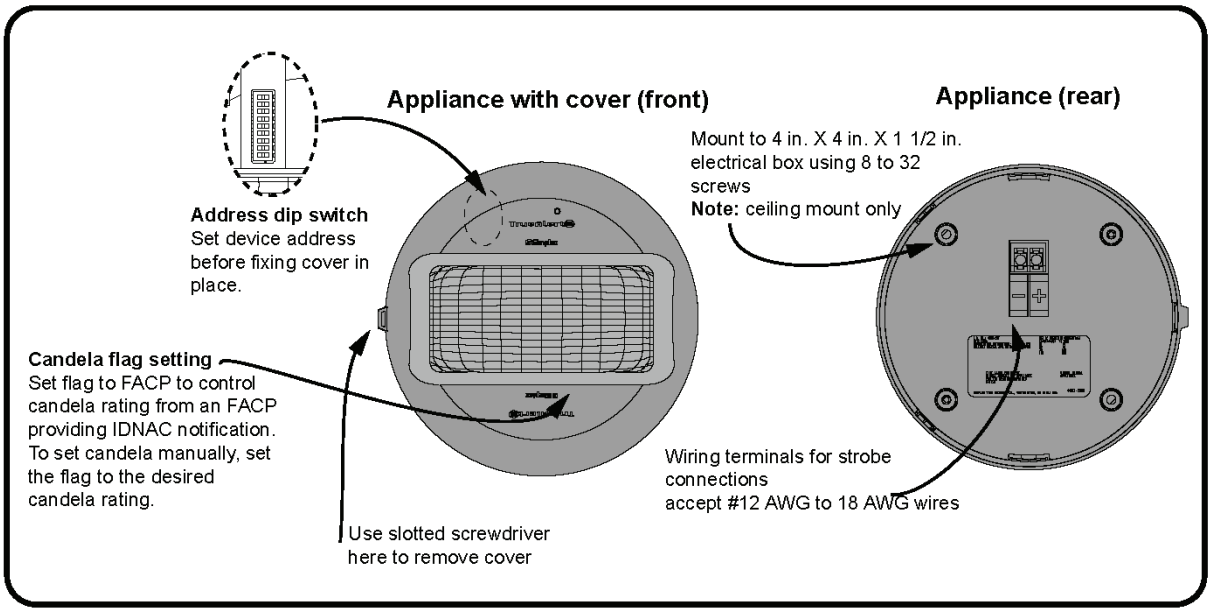
TrueStart Instrument Two (TSIT)

The 2nd generation of the Simplex TrueStart Test Instrument adds testing of IDNAC SLC wiring and TrueAlert ES appliances to its ability to test IDCs, NACs, and IDNet communications *before connection to the control panel*. Contact your local Simplex representative for additional information.

* Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co.

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Installation reference



IDNAC SLC Operation Advantage

TrueAlert Addressable visible appliances on IDNAC SLCs

TrueAlert Addressable visible appliances on IDNAC SLCs provide visible notification using one two-wire circuit that also confirms connection to the individual notification appliance's electronic circuit. This operation increases circuit supervision integrity by providing supervision that extends beyond the appliance wiring connections.

Reduced current usage on IDNAC SLCs

A constant 29 VDC source voltage is maintained, even during battery standby. This allows appliances to operate at higher voltage with lower current and ensuring a consistent current draw and voltage drop margin under both primary power and secondary battery standby. Efficiencies include wiring distances up to 2 to 3 times farther than with conventional notification, support for more appliances per IDNAC SLC, use of smaller gauge wiring, or combinations of these benefits.

Reducing Installation and Testing Time

With separate controls on the same two-wire SLC, installation time and expense for both retrofit and new construction can be significantly reduced. When Class B wiring is used, wiring can be T-tapped, allowing more savings in distance, wire, conduit (size and utilization), and overall installation efficiency. Use of the magnet test feature improves installation efficiency. TrueAlert device reports conveniently identify information about each connected appliance.

Product Selection

Table 1: Ceiling mount addressable visual only V/O appliances

Model*	Lens color	Description	Installation Instructions
49VO-APPLC 49VO-APPLC-BA	Clear	VO appliance only. Select cover separately.	579-1227
49VOH-APPLC 49VOH-APPLC-BA			
49VOH-APPLCA	Amber		
49VOH-APPLCB	Blue		
49VOH-APPLCG	Green		579-1280
49VOH-APPLCR	Red		

Table 2: Surface/WP back boxes

Model	Color	Description	Installation instructions
49WPBB-VOCR	Red	Surface/WP back box in red	579-1270
49WPBB-VOCW	White	Surface/WP back box in white	

Note: Use WP back boxes for surface mounting only. Using weatherproof back boxes does not make an appliance weatherproof.

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Table 3: Adapter plates

Model	Description	Installation Instructions
49VO-APCS	VO Ceiling Mount Adapter Plate. Required for mounting on a single gang electrical box.	579-1227

Table 4: V/O covers (required when ordering APPLC models)

Model*	Color	Wording
49VOC-CRALT	Red	ALERT
49VOC-CRBF		FEU/FIRE
49VOC-CRFEU		FEU
49VOC-CRF		FIRE
49VOC-CRS		Simplex logo only
49VOC-CRBAA		إنذار/ALERT
49VOC-CRBCF		火警/FIRE
49VOC-CRBAF		حريق/FIRE
49VOC-CK	Black	Blank
49VOC-CWALT	White	ALERT
49VOC-CWBF		FEU/FIRE
49VOC-CWFEU		FEU
49VOC-CWF		FIRE
49VOC-CWS		Simplex logo only
49VOC-CWBAA		إنذار/ALERT
49VOC-CWBCF		火警/FIRE
49VOC-CWBAF		حريق/FIRE

Table 5: Wire guards

Model	Description
49WG-VOCR	VO Ceiling Mount Red Wire Guard
49WGBB-VOCR	VO Ceiling Mount Wire Guard Back Box

Note: * (-BA) indicates model is available either with or without the -BA suffix. Model numbers ending in –BA are assembled in the USA

IDNAC SLC Controller Compatibility Reference

Table 6: Compatibility reference

Compatible Controllers	Data Sheet Reference	Controller Output	IDNAC SLC Output Voltage	Appliance Voltage Design Reference
4100ES with EPS+ or EPS Power Supply	S4100-0100	IDNAC SLC	29 VDC (regulated)	23 VDC (with 6 VDC drop)
4009 IDNAC Repeater	S4009-0004			
4100ES Flex 35, 50, and 100 Amplifiers	S4100-0034			
4100ES Constant Supervision and Signal Cards				

TrueAlert ES V/O LEGACY Compatibility Reference

Table 7: Compatibility reference

Compatible Controller	Data Sheet Reference	Controller Output	Available Strobe Intensity	Appliance Voltage Minimum
4100ES or 4100U with TrueAlert Power Supply	S4100-0031	TrueAlert Addressable SLC	15, 30, 75, and 110 cd	17 VDC
4009 TPS, Remote TrueAlert 17 VDC Power Supply*	S4100-0037			
TrueAlert Addressable Controller (4009T)	S4009-0003			
Electrical Ratings Differences for Legacy Applications (refer to above specifications for other ratings)				
Voltage Range		17 VDC to 31 VDC, Special Application		
Candela Setting	**15 cd**	**30 cd**	**75 cd**	**110 cd**
17 VDC RMS Current Ratings, with horn on continuousat high setting, use when connected to TrueAlertAddressable SLCs per above	73 mA	114 mA	210 mA	269 mA

* For connection to legacy fire panel models Simplex 4009T and 4100/TPS. High candela (49VOH) appliances are not compatible with Simplex models 4009T and TPS, see the fire panel compatibility charts.

Ceiling Mount V/O Specifications

Table 8: Specifications

Specification	Rating
Environmental	32°F to 120°F (0°C to 49°C); 10% to 93%, non-condensing at 104°F (40°C)
Connections	Terminal blocks for 18 AWG to 12 AWG (0.82 mm^2 to 3.31 mm^2); two wires per terminal for in/out wiring. Use Unshielded Twisted Pair (UTP) for IDNAC.
IDNAC SLC Loading	Maximum of 127 addresses per SLC, 139 unit loads. See device and compatible Fire Panel Installation Instructions for circuit current load limits.

Table 9: Percentage of rated light output at room temperature

Angle	On-Axis	Vertical, Below Axis		Horizontal, Left/Right of Axis	
	0°	**45°**	**90°**	**45°**	**90°**
UL required output	100%	45%	25%	45%	25%
Typical output	327%	134%	83%	129%	47%

Table 10: Appliance specifications

Specification		Rating						
Operating Voltage Range		23 VDC to 30 VDC, Special Application						
Supervisory Requirements		1 unit load (= 0.8 mA control panel current)						
Flash Rate and Synchronized SLC Loading		1 Hz; with up to 63 synchronized strobes maximum per powered circuit, max 127 S/V appliances per IDNAC channel						
Current consumption**	**Candela Setting**	**15 cd**	**30 cd**	**75 cd**	**90/95 cd**	**110 cd**	**135 cd**	**185 cd**
	49VO model	55 mA	83 mA	153 mA	N/A	199 mA	N/A	N/A
	49VOH model	N/A	N/A	N/A	N/A	253 mA	296 mA	377 mA
	49VOH amber lens	N/A	N/A	N/A	253 mA (90 cd)	296 mA	377 mA	N/A
	49VOH blue lens	N/A	N/A	253 mA	296 mA (95 cd)	377 mA	N/A	N/A
** Measured at 23 VDC on IDNAC Addressable SLC								

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NO EXCUSES!

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IF2



32 Point TTS Terminal Cabinet

The IF2 32 point “FIRE ALARM TERMINAL CABINET” is designed to enhance your fire alarm systems. Ideally suited for trouble shooting and maintenance with easy identification of system wiring.

This surface mount cabinet is fabricated from 16 gauge steel with a durable, baked on, red textured powder coat finish. White 2” highly visible lettering and a “lift-a-way” hinged door contribute to fast cabinet location and access. The door incorporates a high security CAT 30 keyed door lock.

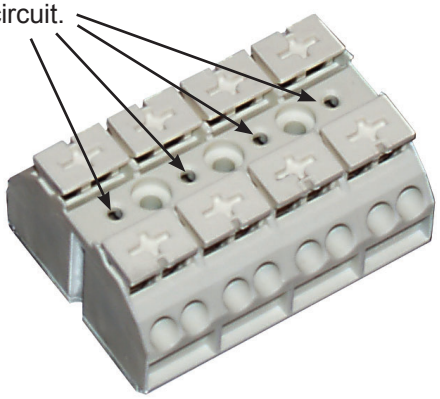
The IF2 is UL listed for life safety under UL 864 Rev.9

The IF1 is supplied with the SAE Tool-Less terminal blocks, saving you time and effort in your installation. Testing the circuits can be accomplished with the use of the TTS Test Probe in the individual test ports.

Standard Features:

- Dimensions: 14” wide x 14” high x 3 1/4” deep
- NEMA 1 Rated Construction
- 16 Gauge Steel Construction
- Removable Back Plate
- Durable Red Textured Finish
- White 2” Indelible Lettering
  “FIRE ALARM TERMINAL CABINET”
- Lift-A-Way Hinge with CAT 30 Keyed Lock
- Terminals have “Built-in Test Point” w/o removing wires
- Field Identification Label Inside Cover
- 1/2”, 3/4”, 1”, 1 1/2” and 2” EMT knockout clusters
- 8 - 4 Circuit TTS (tool less) Terminal Strips
- Terminal Points Rated for 12 Gauge Wire
- Terminal Strips Rated for 20 Amp Max
- 250V (Class B/UL) 300V (CSA)

When properly installed, there will be no conductors exposed. All circuit testing can be performed via the individual test ports per circuit.



NEMA

- Uses UL Recognized Components

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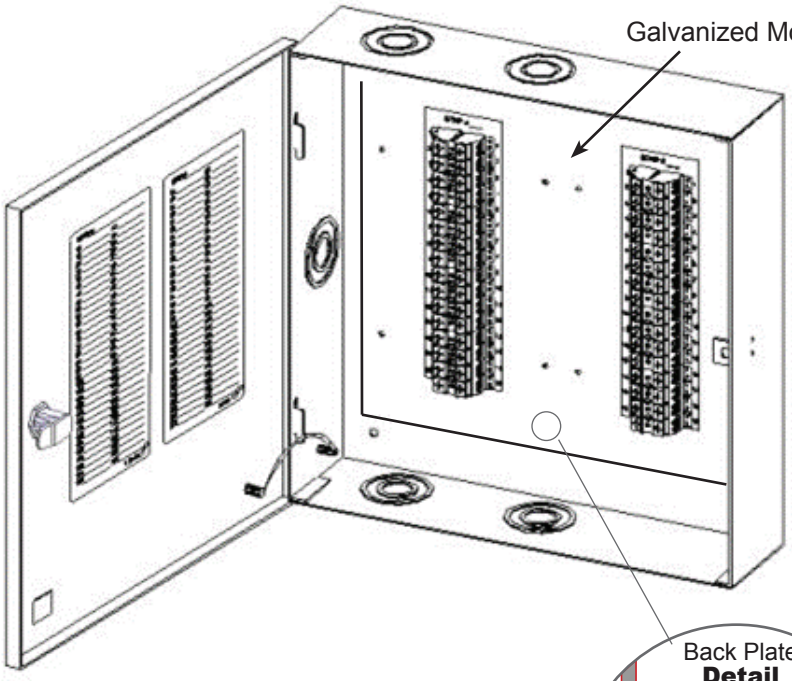
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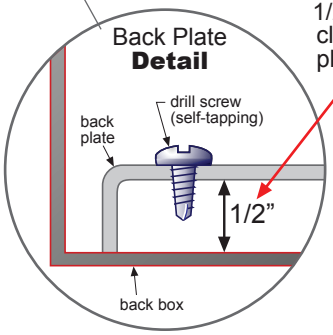
No Excuses, Just Solutions!

SPACE AGE ELECTRONICS, INC.

Specification:

The **IF2 32 Point Terminal Cabinet** is constructed of 16 gauge (.062 thick) cold rolled steel and finished with a durable red textured, heat-resistant baked-on enamel finish. The front cover is engineered with a removable formed lift-a-way hinge and displays “FIRE ALARM TERMINAL CABINET” in 2” white screened indelible lettering. A CAT 30 keyed door lock secures the front cover. The interior of the box has field identification labels on the inside cover corresponding to the terminal strip’s labeling inside the back box. Overall dimensions measure 14” wide by 14” high by 3 1/4” deep. The cabinet includes 1/2”, 3/4”, 1”, 1 1/2” and 2” EMT knockout clusters on the top, bottom and left side. Eight - 4 circuit TTS terminal strips are rated for 12 gauge wire and 20 Amp max 250V (Class B/ UL) 300V (CSA). The use of copper conductors is suggested.





Ordering Information:

Part #	Description
SSU00660	IF2 32 Point Integration Cabinet

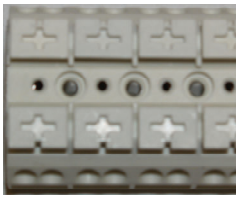
Agency Approvals:

UOXX.S2580 UL Listed Control Unit Accessories

Optional Accessories:

SAE ‘s Tooless Terminal Strip

PN	Description
SSU00470	TTS Black
SSU00471	TTS White
Sold Separately	
SSU00472	TTS Test Probe





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