Permit: 2019-1605392-CT
RSN: 1359688
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THE MEDICAL CENTER OF AURORA
X-RAY EQUIPMENT UPGRADE
MODIFICATION TO EXISTING FIRE ALARM SYSTEM

Johnson Controls

Johnson Controls
DISTRICT - 419
14200 E. EXPOSITION AVE
AURORA, CO 80012
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AURORA FIRE DEPARTMENT GENERAL NOTES

- FIRE ALARM SYSTEMS CANNOT BE COMBINED WITH BURGLAR ALARM SYSTEMS.
- THE INSTALLER IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE INSTALLATION OF SMOKE DETECTORS OR SENSORS (I.E., NOT CLOSER THAN 3 FEET FROM ANY SUPPLY/RETURN DIFFUSER AND THAT ADDITIONAL DETECTION MAY BE REQUIRED DUE TO THE RELOCATION OR SPACING ADJUSTMENT OF DETECTORS, AS A RESULT).
- FIRE ALARM DEVICES MUST BE PLACED IN PROTECTED AREAS WITH AMBIENT TEMPERATURE RANGING FROM 32 DEGREES TO 120 DEGREES F.
- DO NOT PLACE SMOKE DETECTORS WITHIN 3 FEET OF AIR SUPPLY REGISTERS AND DIFFUSERS.
- FIRE ALARM SYSTEM SHALL BE MONITORED BY A CLASS 1 CENTRAL STATION.
- FIRE ALARM CONTROL PANEL WILL BE PLACED IN THE LOCATION SPECIFIED WITHIN THE PLAN SUBMITTAL UNLESS APPROVED BY THE LIFE SAFETY FIELD INSPECTOR.
- CITY OF AURORA BUILDING CODES DIVISION DOES NOT GRANT APPROVAL FOR ANY VIOLATIONS OF ADOPTED FIRE CODE. CODE VIOLATIONS UNCOVERED DURING FIELD INSPECTIONS MUST BE CORRECTED.
- PER THE 2015 IFC AND THE 2017 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.

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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LEGENDS

FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION	BRAND	MODEL	BOX CODE	WIRE TYPE
PANELS & ANNUNCIATORS					
TPR#	4100ES TRANSPONDER FIRE ALARM LOCAL MODE TRANSPONDER PANEL, 120 VAC	SIMPLEX (EXISTING)	4100-9601	MFG	
INITIATING DEVICES					
?	ADDRESSABLE PHOTOELECTRIC SMOKE SENSOR WITH STANDARD BASE	SIMPLEX	4098-9714 HEAD 4098-9792 BASE	4K 1C	M
NOTIFICATION APPLIANCES					
#	ADDRESSABLE MULTI-TONE HORN/STROBE, WALL MOUNT, RED, FIRE, CLEAR LENS	SIMPLEX (EXISTING)	49MTV-WRF	4A 1B	A
#	ADDRESSABLE STROBE, WALL MOUNT, APPLIANCE ONLY, CLEAR LENS	SIMPLEX	49VO-APPLW	1A 4A	A
	STROBE, WALL MOUNT, RED, FIRE, CLEAR LENS	SIMPLEX (EXISTING)	4904-9137		
BACKBOX CODES					

CODE	BOX SPECIFICATIONS	CODE	BOX SPECIFICATIONS
1A	SINGLE GANG BOX 1 1/2" DEEP	4A	4" SQ, BOX 1 1/2" DEEP
1B	SINGLE GANG BOX 2" DEEP	4K	4" OCT, BOX 1 1/2" DEEP
1C	SINGLE GANG BOX 2 1/8" DEEP	MFG	SUPPLIED BY MANUFACTURER

FOR ADDITIONAL BACK BOX OPTIONS, REFER TO THE FA-700 SERIES DRAWINGS OR PRODUCT DATA SHEETS AND INSTALLATION INSTRUCTIONS.

FIRE ALARM WIRE LIST

	CIRCUIT DESCRIPTION	CONSTRUCTION	GAUGE	CIRCUIT PROPERTIES	ACCEPTABLE CABLE TYPES: FPLR	FPLP	THHN	TFFN	OUTDOOR	C.I.
A	ADDRESSABLE NOTIFICATION	UTP SOLID	14 AWG	60pf/ft. MAX CAPACITANCE; 3 twists/ft. RECOMMENDED	X	X	X			
M	MAPNET/IDNET	TSP SOLID	18 AWG		X	X	X			

CONDUIT SIZE	MAX CONDUCTOR AREA	CONDUIT SIZE	MAX CONDUCTOR AREA	NOTES
1/2"	0.12 SQ INCH *	1-1/4"	0.60 SQ INCH *	*80% FILL PER N.E.C.
3/4"	0.21 SQ INCH *	1-1/2"	0.82 SQ INCH *	SUBSCRIPT "u": UNSHIELDED CABLES MIXED WITH
1"	0.34 SQ INCH *	2"	1.34 SQ INCH *	SHIELDED CABLES OF SAME CIRCUIT DESIGNATION.

City of Aurora Building Division
Counter Permit intake by: TAC
Date: Apr 17, 2019
RSN: 1359688
Permit: 2019-1605392-CT
2015 INTERNATIONAL CODES & 2017 NEC Scope of permit to be field verified.

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL 3
CERTIFICATE #: 93727
VALID THROUGH: 03/21/2021

THIS DRAWING SET WAS PREPARED UNDER THE SUPERVISION OF A NICET III PROFESSIONAL. THE DRAWINGS WERE REVIEWED FOR THE INFORMATION CONTAINED UNDER THE SCOPE OF WORK. ALL EQUIPMENT HAS BEEN VERIFIED TO BE COMPATIBLE AND WILL OPERATE AS REQUIRED PER NFPA GUIDELINES.

NANCY S. WILTSIE — 03/28/19 DATE

FIRE DEPT./BLDG DEPT. PLAN REVIEW #:

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

APPLICABLE CODES & STANDARDS

INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION

INTERNATIONAL FIRE CODE (IFC), 2015 EDITION

LIFE SAFETY CODE (NFPA 101), 2012 EDITION

NATIONAL ELECTRIC CODE (NFPA 70), 2017 EDITION

NATIONAL FIRE ALARM AND SIGNALING CODE (NFPA 72) 2013 EDITION

ICC/ANSI A117.1 ACCESSIBLE USABLE BUILDINGS & FACILITIES, 2009 EDITION

OCCUPANCY TYPE(S):
I-2 Institutional Group

SPRINKLER PROTECTION:
BUILDING IS FULLY SPRINKLED

STORIES:
4 STORIES IN TOTAL
PARTIAL 1ST FLOOR IN SCOPE OF WORK

SQUARE FOOTAGE:
APPROX. 450,396 SQ. FT. IN TOTAL
APPROX. 562 SQ. FT. IN SCOPE OF WORK

SCOPE OF WORK

THIS IS A MODIFICATION TO THE EXISTING FIRE ALARM SYSTEM LOCATED AT THE MEDICAL CENTER OF AURORA, SOUTH CAMPUS, 1501 SOUTH POTOMAC STREET, AURORA, CO 80012.

THE EXISTING FIRE ALARM SYSTEM IS A NETWORK OF 4100ES FIRE ALARM CONTROL PANELS AND TRANSPONDERS SUPPORTING SLCs FOR ADDRESSABLE INITIATING DEVICES, ADDRESSABLE NOTIFICATION APPLIANCES, AND NACs FOR CONVENTIONAL NOTIFICATION APPLIANCES (WITHOUT VOICE).

NEW NOTIFICATION APPLIANCE WILL BE INSTALLED IN NEW COMMON USE AREA. NEW NOTIFICATION APPLIANCE WILL TIE TO EXISTING SLC "N1:T4:A2:1(1)" IN AREA.

SMOKE DETECTION WILL BE INSTALLED PER LOCATION ON SHOP DRAWINGS. NEW INITIATING DEVICE WILL TIE TO EXISTING SLC "1:M1" IN AREA.

NO INTERIM LIFE SAFETY MEASUREMENTS ARE NECESSARY PERTAINING TO THE SCOPE OF WORK.

ALL FIRE ALARM EQUIPMENT WILL FOLLOW THE EXISTING SEQUENCE OF OPERATION WHICH WILL REMAIN UNCHANGED.

ALL NEW WIRING IS TO BE STYLE Z FOR NOTIFICATION APPLIANCE CIRCUITS, STYLE B FOR INITIATING DEVICE CIRCUITS, AND STYLE 4 FOR SIGNAL LINE CIRCUITS.

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 WORK COORDINATE WITH THE OWNER THE TIMING OF ANY EXISTING FIRE ALARM SYSTEM DEMOLITION WORK.

JOHNSON CONTROLS CONTACTS

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1501 SOUTH POTOMAC STREET
AURORA, CO 80012

Johnson Controls District - 419
14200 E. EXPOSITION AVE
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PHONE: 303-355-0500
FAX: 303-355-0615
SERVICE: 303-355-0500

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

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MC2 ELECTRICAL
88 LIPAN STREET
DENVER, CO 80223

General Contractor
BRYAN CONSTRUCTION
5575 DTC PARKWAY, #240
GREENWOOD VILLAGE, CO 80111

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
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/A = NOT APPLICABLE
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 WITH NEW
SCC = STATUS COMMAND CENTER
SLC = SIGNALING LINE CIRCUIT
SMK = SMOKE
SUPV = SUPERVISORY
TAC = TRUEALERT ADDRESSABLE CONTROLLER
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

DEVICE TAG LEGEND

1:T2:A2:1-1(E1:1)

PANEL DESIGNATOR
- FA: = FACP (NON-NETWORK)
- #: = NODE NUMBER
- T#: = TRANSPONDER NUMBER
- #:T# = NODE:TRANSPONDER NUMBER
- N#: = NAC EXTENDER NUMBER

CIRCUIT DESIGNATOR
- A#:# = EPS[1] NUMBER:IDNAC[2] CHANNEL NUMBER
- D# = DOOR HOLDER CIRCUIT NUMBER
- F# = FIRE PHONE CIRCUIT
- H# = AUDIBLE (HORN) CIRCUIT NUMBER
- M# = IDNET LOOP NUMBER
- P# = POWER CIRCUIT NUMBER
- S# = SPEAKER CIRCUIT NUMBER
- V# = VISUAL CIRCUIT NUMBER
- Z# = ZONE NUMBER

DEVICE NUMBER

BRANCH / ISOLATED LOOP DESIGNATOR:
- (L#) = IDNET ISOLATED LOOP NUMBER
- (#) = IDNAC BRANCH NUMBER
- (E#:#) = EPR[3] NUMBER:BRANCH NUMBER

1. EPS = ENHANCED POWER SUPPLY
2. IDNAC = ADDRESSABLE NOTIFICATION CIRCUIT
3. EPR = ENHANCED POWER REPEATER

SYSTEM SEQUENCE OF OPERATIONS

	SYSTEM INPUTS	SYSTEM OUTPUTS: 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 TROUBLE SIGNAL	ACTUATE APPROPRIATE LOCATION INDICATOR	ACTUATE ALL AUDIBLE EVACUATION SIGNALS	ACTUATE ALL VISIBLE EVACUATION SIGNALS	DISPLAY CHANGE OF STATUS	TRANSMIT ALARM SIGNAL TO SUPERVISING STATION	TRANSMIT SUPV. SIGNAL TO SUPERVISING STATION	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION	RELEASE MAGNETICALLY HELD SMOKE DOORS	RELEASING ELEVATOR DOORS	ELEVATOR SHUNT TRIP	MAIN FLOOR ELEVATOR RECALL	ALTERNATE FLOOR ELEVATOR RECALL	ELEVATOR HAT FLASH	FAN SHUT DOWN	DAMPER SHUT DOWN	REMOTELY DISPLAY ACTIVE STATUS	REMARKS
1	SMOKE SENSOR/DETECTOR	•	•					•	•	•		•										•	•	1
2	MANUAL PULL STATION	•	•					•	•	•		•										•	•	2
3	HEAT SENSOR/DETECTOR	•	•					•	•	•		•										•	•	3
4	DUCT SENSOR/DETECTOR			•	•			•		•		•										•	•	4
5	MAIN FLR. ELEV. LOBBY SMOKE DETECTOR	•	•					•	•	•		•										•	•	5
6	ELEVATOR LOBBY SMOKE DETECTORS (EXC. MAIN FLR.)	•	•					•	•	•		•										•	•	6
7	ELEVATOR MECH. ROOM HEAT DETECTOR	•	•					•	•	•			•											7
8	ELEVATOR MECH. ROOM SMOKE DETECTOR	•	•					•	•	•		•										•	•	8
9	ELEVATOR SHAFT HEAT DETECTOR	•	•					•	•	•			•											9
10	ELEVATOR SHAFT SMOKE DETECTOR	•	•					•	•	•		•										•	•	10
11	ELEVATOR POWER MONITOR			•	•			•		•														11
12	WATERFLOW SWITCH	•	•					•	•	•		•												12
13	TAMPER SWITCH			•	•			•		•														13
14	FIRE ALARM AC POWER FAILURE					•	•	•		•		•												14
15	FIRE ALARM SYSTEM LOW BATTERY					•	•	•		•														15
16	OPEN CIRCUIT OR GROUND FAULT					•	•	•		•														16
17	CLASS B NOTIFICATION CIRCUIT (NAC) – SHORT					•	•	•		•														17
18																								18
19																								19
20																								20

THE EXISTING SEQUENCE OF OPERATION WILL NOT CHANGE.

ISSUE LOG

MARK	DATE	CAD	CHK	DESCRIPTION
				Revisions shown with Δ symbol

FOR PERMIT

DRAWN BY:	DRF
CHECKED BY:	NSW
ISSUE DATE:	3/28/19
JOB #:	
PROJECT #:	419:610759706

JOHNSON CONTROLS © 2019

SYSTEM: FIRE ALARM SYSTEM

SHEET: COVER SHEET

FA-001

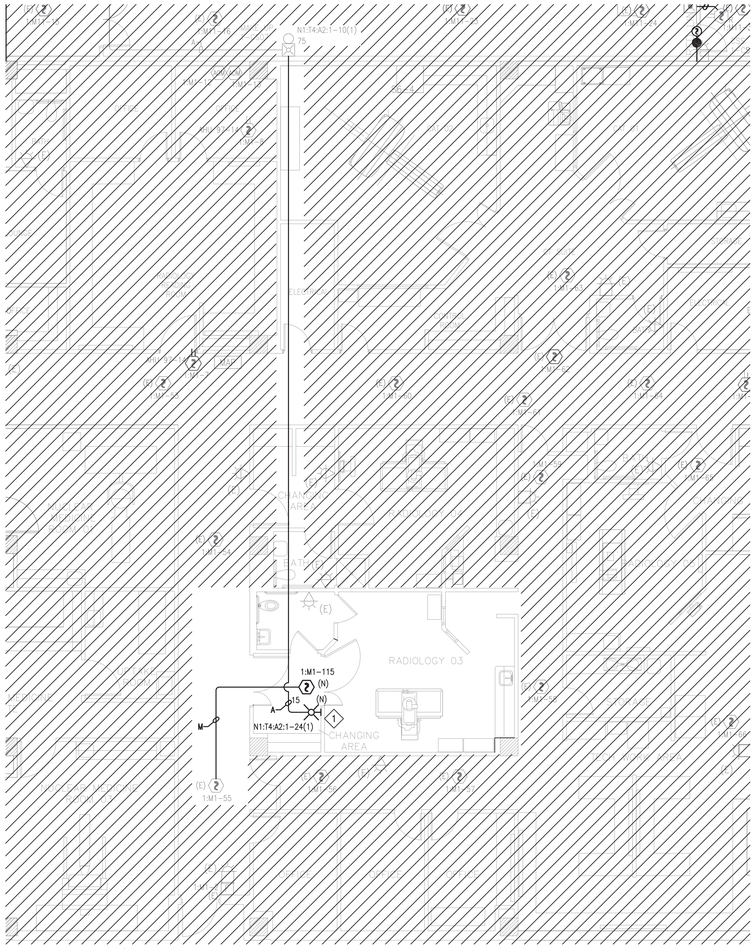
THE MEDICAL CENTER OF AURORA
X-RAY EQUIPMENT UPGRADE
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

FILE PATH: C:\Users\jfriedo\Johnson Controls\Project Electronics - 419-Denver\Medical Center of Aurora\1501 S Potomac - Aurora South\South Tower - Node 1\2dx X-Ray Equip. - 2019 - 610759706\Fire Alarm\FA-001.dwg
LAST SAVED BY: JFRIEDO
LAST PRINTED: 3/28/2019 7:56:32 AM
24" x 36" - Arch D Size

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LAST PRINTED: 3/28/2019 7:56:50 AM
24" x 36" - Arch D Size

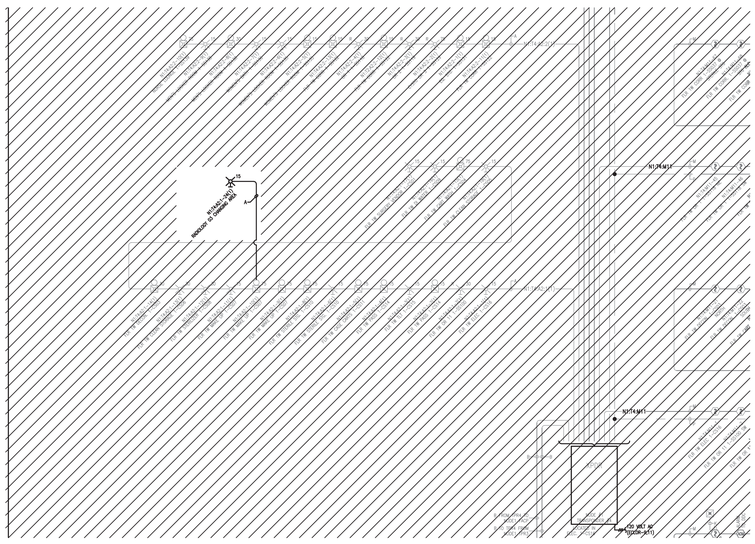


DEVICE PLACEMENT PLAN - PARTIAL 1ST FLOOR
SCALE: 1/8" = 1'-0"

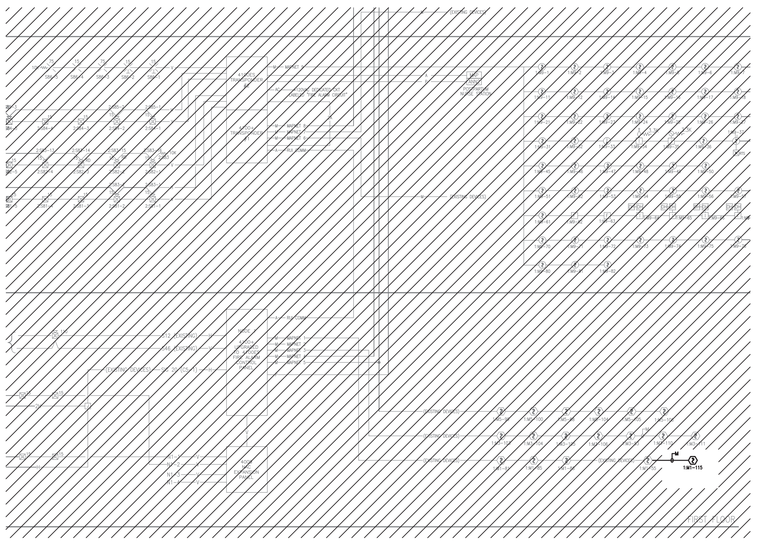
SCALE:1/8" = 1'-0" IN FEET
0 4' 8' 16'



KEY PLAN - 1ST FLOOR
SCALE: N.T.S.



RISER DIAGRAM - PARTIAL 1ST FLOOR - NODE 1 TPR4
SCALE: N.T.S.



RISER DIAGRAM - PARTIAL 1ST FLOOR - NODE 1
SCALE: N.T.S.

GENERAL NOTES:

1. INFORMATION AND SYMBOLS SHOWN IN BOLD LINETYPE ARE NEW.
2. INFORMATION AND SYMBOLS SHOWN IN LIGHT LINETYPE ARE EXISTING.
3. HATCHED INFORMATION IS NOT WITHIN SCOPE OF CONTRACT.
4. REFER TO SHEET FA-001 FOR ABBREVIATIONS WITHIN ().

KEYNOTES:

1 NEW NOTIFICATION APPLIANCE TO TIE TO EXISTING ADDRESSABLE CIRCUIT IN AREA.

FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION	BRAND	MODEL	BOX CODE	WIRE TYPE
PANELS & ANNUNCIATORS					
TPR#	4100ES TRANSPONDER FIRE ALARM LOCAL MODE TRANSPONDER PANEL, 120 VAC	SIMPLEX (EXISTING)	4100-9601	MFG	
INITIATING DEVICES					
2	ADDRESSABLE PHOTOELECTRIC SMOKE SENSOR WITH STANDARD BASE	SIMPLEX	4098-9714 HEAD 4098-9792 BASE	4K 1C	M
NOTIFICATION APPLIANCES					
#	ADDRESSABLE MULTI-TONE HORN/STROBE, WALL MOUNT, RED, FIRE, CLEAR LENS	SIMPLEX (EXISTING)	49MTV-WRF	4A 1B	A
#	ADDRESSABLE STROBE, WALL MOUNT, APPLIANCE ONLY, CLEAR LENS	SIMPLEX	49VO-APPLW	1A 4A	A
	STROBE, WALL MOUNT, RED, FIRE, CLEAR LENS	SIMPLEX (EXISTING)	4904-9137		

BACKBOX CODES

CODE	BOX SPECIFICATIONS	CODE	BOX SPECIFICATIONS
1A	SINGLE GANG BOX 1 1/2" DEEP	4A	4" SQ. BOX 1 1/2" DEEP
1B	SINGLE GANG BOX 2" DEEP	4K	4" OCT. BOX 1 1/2" DEEP
1C	SINGLE GANG BOX 2 1/8" DEEP	MFG	SUPPLIED BY MANUFACTURER

FOR ADDITIONAL BACK BOX OPTIONS, REFER TO THE FA-700 SERIES DRAWINGS OR PRODUCT DATA SHEETS AND INSTALLATION INSTRUCTIONS.

FIRE ALARM WIRE LIST

	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. RECOMMENDED		X	X	X		
M	MAPNET/IDNET	TSP SOLID	18 AWG		X	X	X			

CONDUIT SIZE	MAX CONDUCTOR AREA	CONDUIT SIZE	MAX CONDUCTOR AREA	NOTES
1/2"	0.12 SQ INCH *	1-1/4"	0.60 SQ INCH *	*40% FILL PER N.E.C.
3/4"	0.21 SQ INCH *	1-1/2"	0.82 SQ INCH *	SUBSCRIPT "u": UNSHIELDED CABLES MIXED WITH
1"	0.34 SQ INCH *	2"	1.34 SQ INCH *	SHIELDED CABLES OF SAME CIRCUIT DESIGNATION.

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL 3
CERTIFICATE #: 93727
VALID THROUGH: 03/21/21

Nancy S. Wiltsie — 03/28/19
NANCY S. WILTSIE — DATE

Johnson Controls
DISTRICT - 419
14200 E. EXPOSITION AVE
AURORA, COLORADO
SERVICE: 303-355-0500
PHONE: 303-355-0500
FAX: 303-355-0915

THE MEDICAL CENTER OF AURORA
X-RAY EQUIPMENT UPGRADE

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

ISSUE LOG — Revisions shown with Δ symbol

MARK	DATE	CAD	CHK	DESCRIPTION

FOR PERMIT

DRAWN BY:	DRF
CHECKED BY:	NSW
ISSUE DATE:	3/28/19
JOB #:	
PROJECT #:	419:610759706

JOHNSON CONTROLS © 2019

SYSTEM: FIRE ALARM SYSTEM

SHEET: DEVICE PLACEMENT PLAN & RISER DIAGRAM - PARTIAL 1ST FLOOR

FA-101

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Permit: 2019-1605392-CT
RSN: 1359688
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FILE PATH: - C:\Users\fjrdad\Johnson Controls\Project Electronics - 419-Denver\Medical Center of Aurora\1501 S Potomac - Aurora South\South Tower - Node 1\2dx X-Ray Equip. - 2019 - 610759706\Fire Alarm\FA-601.dwg
LAST SAVED BY: FJRDAD
LAST PRINTED: 3/28/2019 7:56:59 AM
24" x 36" - Arch D Size

MAPNET CHANNEL 1:M1

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

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
4100-0153	1	DIGITAL ALARM COMM TRANSMITTER		0.0350	0.0350	0.0500	0.0500
4100-5005	9	ZONE MODULE, 8 IDC, CLASS B		0.0750	0.6750	0.1950	1.7550
4100-3003	1	8 PT AUX RELAY MODULE 3 AMP		0.0250	0.0250	0.2800	0.2800
4100-0110	5	MAPNET II ADDRESSABLE MODULE	*	0.2700	1.3500	0.2900	1.4500
4100-4321	8	6 CIRCUIT, CLASS B (STYLE Y)		0.0250	0.2000	0.0700	0.5600
4100-7402	1	64/64 LED/SW CONTROLLER MODULE		0.0670	0.0670	0.2850	0.2850
4100-7404	1	32 POINT SWITCH INPUT MODULE		0.0000	0.0000	0.0000	0.0000
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
4100-9111	1	4100 CONFIG, DOMESTIC 120V		0.3730	0.3730	0.4300	0.4300
		Panel Totals			**3.1290**		**5.2610**
Mapnet Addressable Devices (SLC)							
4099-9006	1	ADDRESSABLE DOUBLE ACTION MANUAL STATION, PUSH	*	*Device Current Draw on the IDNet Addressable Channel(s) is included in the Battery Selection Set below.*			
4098-9792	**4**	**TRUEALARM SENSOR BASE**	**•**				
Mapnet Addressable Devices (SLC)							
2190-9155	1	MAPNET CLASS B MONITOR ZAM	*				
2190-9161	6	MAPNET CLASS B SIGNAL ZAM	*				
2190-9163	46	MAPNET UNSUPERVISED CONTROL ZAM	*				
2190-9172	42	MAPNET SUPERVISED IAM	*				
2099-9795	19	MAPNET SINGLE ACTION PULL STATION	*				
4098-9714	**321**	**TRUEALARM PHOTO SMOKE SENSOR**					
4098-9733	22	TRUEALARM HEAT SENSOR					
4098-9756	31	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT.	*				
4098-9789	317	TRUEALARM SENSOR BASE W/ LED. OUTPUT.	*				
4098-9788	10	2 WIRE DETECTOR BASE	†				
Miscellaneous Peripheral Devices That May Require System Power							
4098-9843	31	ENCAPSULATED RELAY PAM-SD		0.0000	0.0000	0.0150	0.4650
4098-9756	31	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT.		0.0030	0.0930	0.0150	0.4650
4603-9101	11	SERIAL LCD ANNUNCIATOR		0.0650	0.7150	0.1400	1.5400
Notification Appliances							
4903-9219	10	HORN/STROBE NON-SYNC, RED	15	0.0000	0.0000	0.1330	1.3300
4903-9262	98	CHITO-2415W-FR 15CD CHIME/STROBE	15	0.0000	0.0000	0.0700	6.8600
4904-9137	125	15CD VISIBLE ONLY RED	15	0.0000	0.0000	0.0900	11.2500
CHTO-24MCW-FR	2	MULTI CD CHIME STROBE, WALL MNT, RED	15	0.0000	0.0000	0.0600	0.1200
RSS-24MCW-FR	1	MULTI CD STROBE, WALL MNT, RED	15	0.0000	0.0000	0.0600	0.0600
		Peripheral Totals			**0.8080**		**22.0900**
		RUI Totals	**11**		**0.0385**		**0.8278**
		Address Totals	**489 Addresses**		**0.8268**		**0.8278**
		System Totals*:		**Standby**	**4.8023**	**Alarm**	**28.2173**

*** 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)
Select ALL Power Supplies on this battery set:

			Standby Current	Standby Total	Alarm Current	Alarm Total
SPS-1				3.9370		27.3510
		Sub Total		**3.9370**		**27.3510**
Additional Current Draws:						
RUI Connected Peripheral Devices	11	x 0.0035		= 0.0385	x 0.0035	= 0.0385
MAPNET/IDNet Device Address Communication Current	489	x 0.001691		= 0.8268	x 0.001693	= 0.8278
		Sub Total		**4.8023**		**28.2173**
Spare addressable point capacity	**20%**	98 x 0.001691		= 0.1657	x 0.001693	= 0.1659
		Total		**4.9680**		**28.3832**
Standby Time = 4 Hrs		x 4.9680		= 19.8720	Standby Ah	
Alarm Time = 15 Min		0.25 x 28.3832		= 7.0958	Alarm Ah	
				26.9678		
Additional Spare Battery Capacity = **20%**				+ 5.3936		
				32.3614		
Battery Discharge Factor = **20%**				+ 6.4723		
Minimum Battery Required				**38.8336**		
Battery Supplied		**2081-9296 50AH (2x)**				

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, IDNAC, 120V		0.2250	0.2250	0.4500	0.4500
4009-9601	1	IDNAC REPEATER 120V PLATINUM UL/ULC		0.0700	0.0700	0.0960	0.0960
		Panel Totals			**0.3820**		**0.6730**
IDNet Addressable Devices (SLC)							
4099-9004	4	ADDRESSABLE SINGLE ACTION MANUAL STATION	*				
4090-9002	5	IDNET RELAY IAM	*				
4098-9714	84	TRUEALARM PHOTO SMOKE SENSOR					
4098-9733	9	TRUEALARM HEAT SENSOR		*Device Current Draw on the IDNet Addressable Channel(s) is included in the Battery Selection Set below.*			
4098-9755	2	TRUEALARM DUCT SMOKE SENSOR W/O RELAY OUTPUT	*				
4098-9756	9	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT	*				
4098-9792	93	TRUEALARM SENSOR BASE	*				
4090-9008	10	ADDRESSABLE DUAL CONTACT RELAY IAM	*				
Miscellaneous Peripheral Devices That May Require System Power							
4098-9843	9	ENCAPSULATED RELAY PAM-SD		0.0000	0.0000	0.0150	0.1350
4098-9756	9	TRUEALARM DUCT SMOKE SENSOR W/ RELAY OUTPUT		0.0030	0.0270	0.0150	0.1350
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
Notification Appliances							
4009-9601	1	IDNAC REPEATER 120V PLATINUM UL/ULC	*	0.0032	0.0032	0.0032	0.0032
4906-9202	5	ADDRESSABLE CEILING MNT. MC V/O. 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	0.0990	0.2970
49MTV-WRF	14	MULTI-TONE A/V, RED, WALL MOUNT	15	0.0016	0.0224	0.1450	2.0300
49MTV-WRF	9	MULTI-TONE A/V, RED, WALL MOUNT	30	0.0016	0.0144	0.1630	1.4670
49MTV-WRS	6	MULTI-TONE A/V, RED, WALL MOUNT	75	0.0016	0.0096	0.1980	1.1880
49VO-APPLW	**1**	**VO APPLIANCE ONLY WALL MT**		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
		Peripheral Totals			**0.2774**		**8.8562**
		Added Current for EPS Conversion of 24 to 29 Volt IDNac Devices			**0.0000**		**4.5331**
		RUI Totals	**4**		**0.0140**		**0.0140**
		Address Totals	**123 Addresses**		**0.0984**		**0.1230**
		System Totals*:		**Standby**	**0.8718**	**Alarm**	**14.1993**

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

Battery Set #1 (Cabinet/Charger #1)
Select ALL Power Supplies on this battery set:

			Standby Current	Standby Total	Alarm Current	Alarm Total
EPS-1				0.6758		8.3052
		Sub Total		**0.6758**		**8.3052**
Additional Current Draws:						
IDNac Current Boost for 29vdc Regulated Output **				0.0000		3.8900
RUI Connected Peripheral Devices	4	x 0.0035		= 0.0140	x 0.0035	= 0.0140
MAPNET/IDNet Device Address Communication Current	123	x 0.000800		= 0.0984	x 0.0001000	= 0.1230
		Sub Total		**0.7882**		**12.3322**
Spare addressable point capacity	**20%**	25 x 0.0008		= 0.0200	x 0.001	= 0.0250
		Total		**0.8082**		**12.3572**
Standby Time = 4 Hrs		x 0.8082		= 3.2328	Standby Ah	
Alarm Time = 5 Min		0.08333 x 12.3572		= 1.0298	Alarm Ah	
				4.2626		
Additional Spare Battery Capacity = **20%**				+ 0.8525		
				5.1151		
Battery Discharge Factor = **20%**				+ 1.0230		
Minimum Battery Required				**6.1381**		
Battery Supplied		**2081-9272 6.2AH (2x)**				
		2081-9287 25AH (2x)				

Repeater Power Supply Battery Set:

			Standby Current	Standby Total	Alarm Current	Alarm Total
EPS-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 0.0836		= 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				**0.7056**		
Battery Supplied		**2081-9274 10AH (2x)**				

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**	**2.744A**	**8.17%**	**33**	**785**	**9%**	**61%**
N1:T4:A2:2	*FLR 1W OR 1-4, FACU CORR*	*2.435A*	*4.80%*	*30*	*999*	*19%*	*70%*
N1:T4:A2:3	*FLR 1W OR RECOVERY*	*1.649A*	*5.24%*	*25*	*535*	*45%*	*75%*
EPR1	*PACU RECOVERY*	*1.128A*	*2.53%*	*17*	*357*	*62%*	*88%*

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

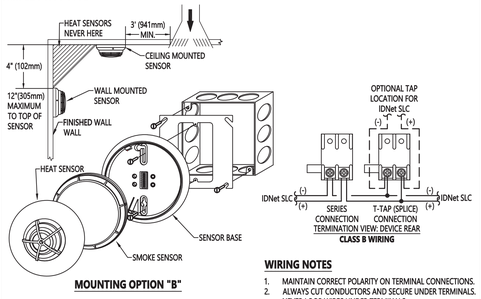
Allowable % Drop: 20.7%
Wire Gauge: 14ga
Starting Voltage: 29vdc
Wire Res. Per Ft. 0.0031 **@ 75° Celsius**
Min. Device Voltage: 23.vdc

Branch	Device #	From	Distance (Feet)	PID	Candela	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*	*2.744*	*0.253*	*28.747*	*Branch 1: 8.17%*
1	*N1:T4:A2:1-2*	*N1:T4:A2:1-1*	*25*	*49MTV-WRF*	*15cd*	*0.1450*	*2.640*	*0.405*	*28.342*	*Length: 785*
1	*N1:T4:A2:1-3*	*N1:T4:A2:1-2*	*22*	*49VO-WRF*	*15cd*	*0.0470*	*0.047*	*0.006*	*28.336*	
1	*N1:T4:A2:1-4*	*N1:T4:A2:1-2*	*51*	*49MTV-WRF*	*15cd*	*0.1450*	*0.145*	*0.045*	*28.297*	
1	*TAP9*	*N1:T4:A2:1-2*	*18*	*JBOX*		*0.0000*	*2.303*	*0.255*	*28.088*	
1	*N1:T4:A2:1-5*	*TAP9*	*18*	*4906-9202*	*75cd*	*0.1800*	*0.459*	*0.051*	*28.037*	
1	*N1:T4:A2:1-6*	*N1:T4:A2:1-5*	*45*	*4906-9202*	*75cd*	*0.1800*	*0.180*	*0.050*	*27.987*	
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*	*1.844*	*1.008*	*27.080*	
1	*N1:T4:A2:1-9*	*N1:T4:A2:1-8*	*18*	*49MTV-WRF*	*75cd*	*0.1580*	*1.106*	*0.122*	*26.958*	
1	*N1:T4:A2:1-10*	*N1:T4:A2:1-9*	*56*	*49MTV-WRF*	*75cd*	*0.1580*	*0.245*	*0.066*	*26.873*	
1	*TAP10*	*N1:T4:A2:1-9*	*29*	*JBOX*		*0.0000*	*0.663*	*0.118*	*26.840*	
1	*N1:T4:A2:1-11*	*TAP10*	*17*	*49VO-WRF*	*15cd*	*0.0470*	*0.104*	*0.011*	*26.829*	

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RSN: 1359688
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STANDARD SENSOR BASE

SIMPLEX 4098-9792



MOUNTING OPTION "B"

TERMINATION VIEW: DEVICE REAR
CLASS B WIRING

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.

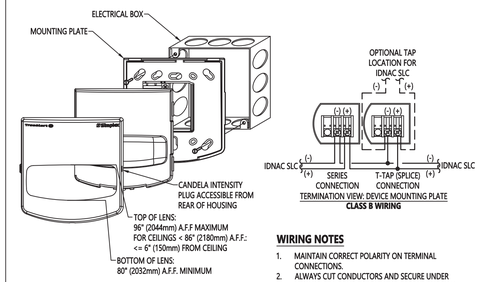
MOUNTING OPTIONS

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

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

TrueAlert ES ADDRESSABLE APPLIANCES

SIMPLEX 49VO SERIES WALL MOUNTED VISUAL ONLY



MOUNTING OPTION "B"

TERMINATION VIEW: DEVICE MOUNTING PLATE
CLASS B WIRING

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	SINGLE GANG OR DOUBLE GANG BOX, 1-1/2" (38mm) DEEP (MIN)	BY OTHERS
B	4" (102mm) SQUARE BOX, 1-1/2" DEEP (MIN)	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 S49VO-0001 FROM HTTP://WWW.SIMPLEX-FIRE.COM

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL 3
CERTIFICATE #: 93727
VALID THROUGH: 03/21/21

Nancy S. Wiltsie — 03/28/19
NANCY S. WILTSIE — DATE

Johnson Controls
DISTRICT - 419
14200 E. EXPOSITION AVE
AURORA, CO 80012
SERVICE: 303-355-0500
PHONE: 303-355-0500
FAX: 303-355-0615

THE MEDICAL CENTER OF AURORA
X-RAY EQUIPMENT UPGRADE

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

ISSUE LOG (Revisions shown with △ symbol)

MARK	DATE	CAD	CHK	DESCRIPTION

FOR PERMIT

DRAWN BY:	DRF
CHECKED BY:	NSW
ISSUE DATE:	3/28/19
JOB #:	
PROJECT #:	419:610759706

JOHNSON CONTROLS © 2019

SYSTEM: **FIRE ALARM SYSTEM**

SHEET: **WIRING TYPICALS**

FA-701

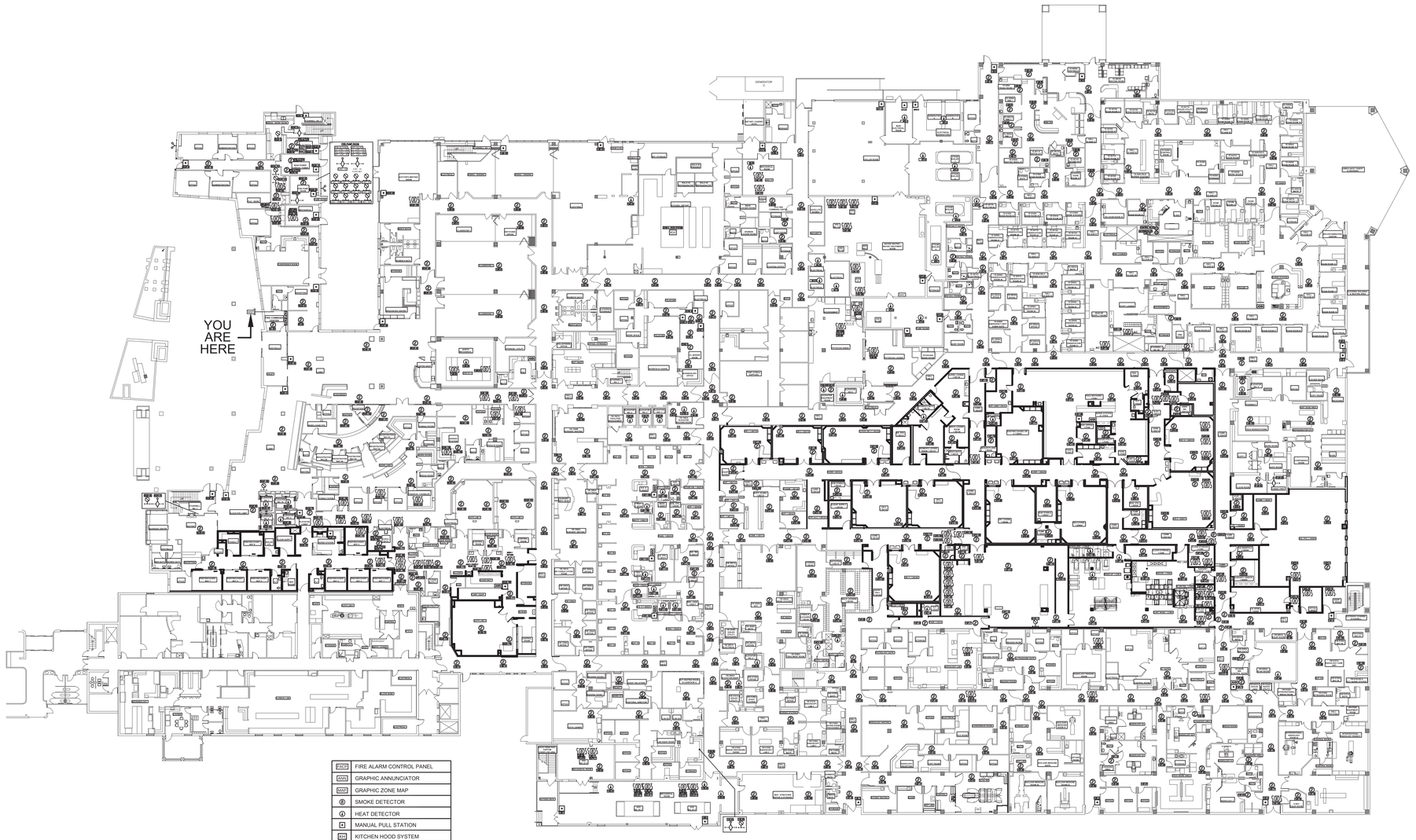
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24" x 36" - Arch D Size

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RSN: 1359688
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AS OF: 3/27/2019

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



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

Johnson Controls
AURORA (303) 355-0500

The Medical Center of Aurora
Health ONE

GRAPHIC MAP AT FIRE ALARM CONTROL PANEL
ACTUAL SIZE: 36" x 48"

NICET CERTIFICATION

TECHNICAL AREA 00303: LEVEL 3
CERTIFICATE #: 93727
VALID THROUGH: 03/21/21

Nancy S. Wiltsie — 03/28/19
NANCY S. WILTSIE — DATE

Johnson Controls
DISTRICT - 419
14200 E. EXPOSITION AVE
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THE MEDICAL CENTER OF AURORA
X-RAY EQUIPMENT UPGRADE
MEDICAL CENTER OF AURORA
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

Revisions shown with △ symbol

ISSUE LOG: MARK	DATE	CAD	CHK	DESCRIPTION

FOR PERMIT

DRAWN BY:	DRF
CHECKED BY:	NSW
ISSUE DATE:	3/28/19
JOB #:	
PROJECT #:	419:610759706

JOHNSON CONTROLS © 2019

SYSTEM: **FIRE ALARM SYSTEM**

SHEET: **GRAPHIC MAP AT FIRE ALARM CONTROL PANEL**

FA-801

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LAST PRINTED: 3/28/2019 7:57:15 AM
24" x 36" - Arch D Size

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Johnson Controls
14200 E. Exposition Ave.
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 - SOUTH CAMPUS
TMCA X-RAY EQUIP. UPGRADE
1501 SOUTH POTOMAC STREET
AURORA, CO 80012

Prepared for:

Mc2 ELECTRIC CONTRACTOR
88 LIPAN STREET
DENVER, CO 80223

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

PROJECT:	THE MEDICAL CENTER OF AURORA - SOUTH CAMPUS TMCA X-RAY EQUIP. UPGRADE
PREPARED FOR:	*Mc2 ELECTRIC CONTRACTOR*

TYPE:	***DESCRIPTION:***
4098-9714	PHOTO SENSOR
4098-9792	SENSOR BASE
49VO-APPLW	VO Appliance Only Wall
49VOC-WRFIRE	VO Cover Wall Red FIRE

Simplex®

TrueAlarm Analog Sensing

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

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

Features

TrueAlarm analog sensing provides:

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

For use with the following Simplex® products:

- 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:

- Seven levels of sensitivity from 0.2% to 3.7% (refer to additional information on page 3)

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

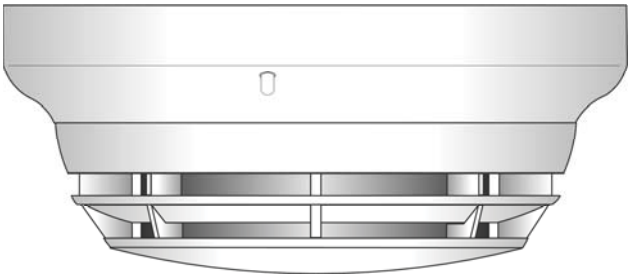
General features:

- Operation is for ceiling or wall mounting
- Listed to UL 268 and ULC-S529
- 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)

* 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. Accepted for use – City of New York Department of Buildings – MEA35-93E. Additional listings may be applicable, contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Fire Protection Products.



4098-9714 TrueAlarm Photoelectric Sensor Mounted in Base

Description

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

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

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

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

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

True*Alarm* Sensor Bases and Accessories

Sensor Base Features

Base mounted address selection:

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

General features:

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

Sensor Bases

4098-9792, Standard Sensor Base

4098-9789, Sensor Base with wired connections for:

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



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.

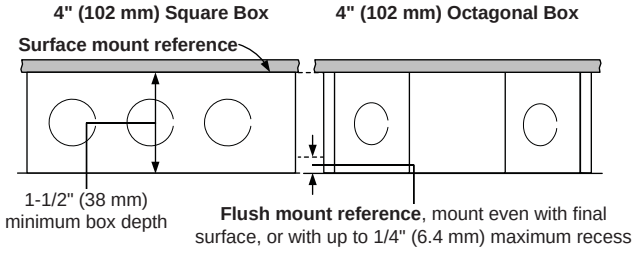
Since TrueAlarm sensors use the same base, different sensor types can be easily interchanged to meet specific location requirements. This feature also allows intentional sensor substitution during building construction. When conditions are temporarily dusty, instead of covering the smoke sensors (causing 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.

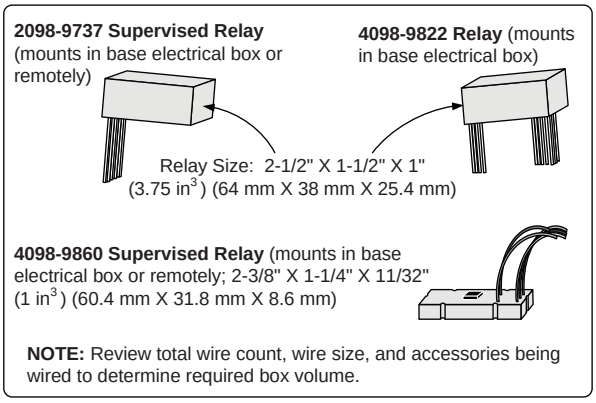
Mounting Reference

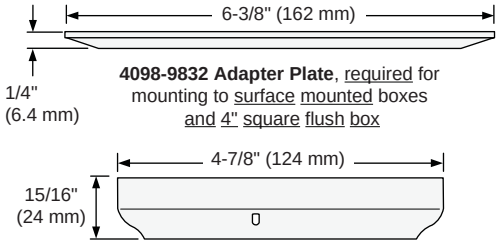
Electrical Box Requirements: (boxes are by others)

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







TrueAlarm Bases
4098-9780, 4098-9789, 4098-9791, & 4098-9792

True*Alarm* 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 / 190° F* (57.2° C / 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.

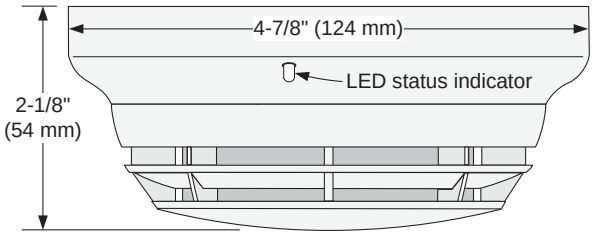
Smoke Sensors:

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

4098-9714 Photoelectric Sensor

TrueAlarm photoelectric sensors use a stable, pulsed infrared LED light source and a silicon photodiode receiver to provide consistent and accurate low power smoke sensing. Seven levels of sensitivity are available for each individual sensor, ranging from 0.2% to 3.7% per foot of smoke obscuration. Sensitivities of 0.2%, 0.5%, and 1% are for special applications in clean areas. Standard sensitivities are 1.5%, 2.0%, 2.5%, 3.0%, and 3.7%. Application type and sensitivity are selected and then monitored at the fire alarm control panel.*

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



4098-9714 Photoelectric Sensor with Base

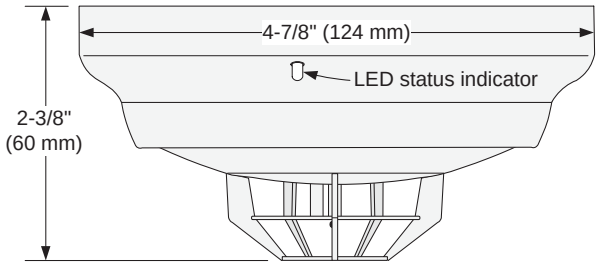
4098-9733 and 4098-9734 Heat Sensors

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.

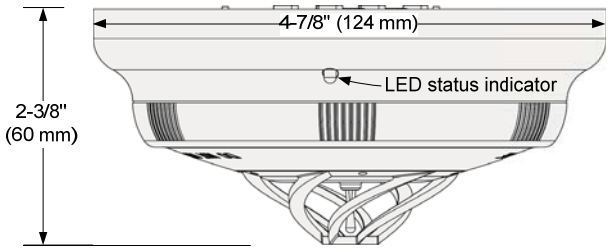
Rate-of-rise temperature detection is selectable at the control panel for either 15° F (8.3° C) or 20° F (11.1° C) per minute. Fixed temperature sensing is independent of rate-of-rise sensing and programmable to operate at 135° F (57.2° C) or 155° F (68° C). The 4098-9734 sensor provides an additional 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.*



4098-9733 Heat Sensor with Base



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.

TrueAlarm Analog Sensing Product Selection Chart

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

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

Model*	Color	Description	Compatibility	Mounting Requirements
4098-9792	White	Standard Sensor Base	No options	4" octagonal or 4" square box, 1-1/2" min. depth; or single gang box, 2" 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" octagonal or 4" square box **Note:** Box depth requirements depend on total wire count and wire size, refer to accessories list below for reference. **** NOTE:** 4098-9791 and 4098-9780 are NOT compatible with the 2120 CDT
4098-9789 IND	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	

TrueAlarm Sensors

Model*	Model*	Description	Compatibility	Mounting Requirements
4098-9714	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				
4098-9774	Black			
4098-9733	White	Heat Sensor		
4098-9734	White	High Temperature Heat Sensor		

TrueAlarm Sensor/Base Accessories

Model	Description	Compatibility	Mounting Requirements
2098-9737	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9791 base	**Remote Mounting** requires 4" octagonal or 4" square box, 1-1/2" minimum depth **Base Mounting** requires 4" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9860	Supervised Relay, mounts remote or in base electrical box	For use with 4098-9780 base	
2098-9808	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" 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" octagonal box, 2-1/8" deep with 1-1/2" extension ring
4098-9832	Adapter Plate	Bases 4098-9792, 4098-9789, 4098-9791, and 4098-9780	**Required** for surface or semi-flush mounted 4" square box and for surface mounted 4" octagonal box

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

Specifications

General Operating Specifications

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° to 100° F (0° to 38° C)
Operating Temperature Range	with 4098-9733 Heat Sensor	32° to 122° F (0° to 50° C)
	with 4098-9714 Smoke Sensor	15° to 122° F (-9° to 50° C)
	With 4098-9734 Heat Sensor	32° to 150° F (0° to 66° C)
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
4098-9791 Base With Supervised Remote Relay 2098-9737 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		270 μA, from 24 VDC supply
Alarm Current with 2098-9737 Relay		28 mA, from 24 VDC supply
4098-9780 Base With Supervised Remote Relay 4098-9860 (see page 2 for contact ratings)		
Power		Supplied from communications
4098-9822 Unsupervised Relay, Requirements for Bases 4098-9789. 4098-9791, and 4098-9780 (see page 2 for contact ratings)		
Externally Supplied Relay Coil Voltage		18-32 VDC (nominal 24 VDC)
Supervisory Current		Supplied from communications
Alarm Current		13 mA from separate 24 VDC supply

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Simplex

TrueAlert ES Addressable Notification Appliances

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

Visible Notification Appliances, Wall Mount Multi-Candela Strobes, Model Series 49VO

Features

Individually addressed and controlled multi-candela TrueAlert ES V/O (visible only) 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 an on-board sensor to detect the strobe output and then report its status to the control panel
- ***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 and ***Electrical test point access*** without removing cover
- Compatibility with ADA requirements; (refer to important installation information on page 3)
- Compatibility with legacy TrueAlert addressable systems for upgrade and replacement (see page 4)
- Listed to UL Standard 1971 and ULC Standard S526

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

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, ALERT, FEU, FEU/FIRE, or blank lettering
- Separate covers are available to change appliance 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
- Optional red wire guards (see 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 7125-0026:0373 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.



TrueAlert ES Addressable Strobes are Available in Red with White Lettering and White with Red Lettering

Description

TrueAlert ES addressable strobes are individually addressed 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).

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.

TrueAlert ES Operation Advantage *(Cont'd)*

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 improves 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.

TrueAlert ES Diagnostics *(Continued)*

Self-Test* Details *(Continued). 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 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 Addressable Strobes

TrueAlert ES addressable VO (strobe) 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
49VO-WRF(-BA)	Red	FIRE	Clear	49VO-WRQ	Red	FEU	Clear
49VO-WWF(-BA)	White			49VO-WWQ	White		
49VO-WRA(-BA)	Red	ALERT		49VO-WRS(-BA)	Red	Blank	
49VO-WWA(-BA)	White			49VO-WWS(-BA)	White		
49VO-APPLW	Select cover and mounting plate separately						

Separate Mounting Plate

Model	Color	Note
49MP-AVVOWR	Red	Mounting Plate **is required** when ordering model 49VO-APPLW
49MP-AVVOWW	White	

Separate Covers (Required when ordering model 49VO-APPLW)

Model*	Color	Wording	Model*	Color	Wording
49VOC-WRFIRE	Red	FIRE	49VOC-WRFEU	Red	FEU
49VOC-WWFIRE	White		49VOC-WWFEU	White	
49VOC-WRALT	Red	ALERT	49VOC-WRBLNG	Red	FEU/FIRE
49VOC-WWALT	White		49VOC-WWBLNG	White	
49VOC-WRS	Red	Blank	49VOC-WWS	White	Blank

*** 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.

Mounting Adapters and Wire Guard

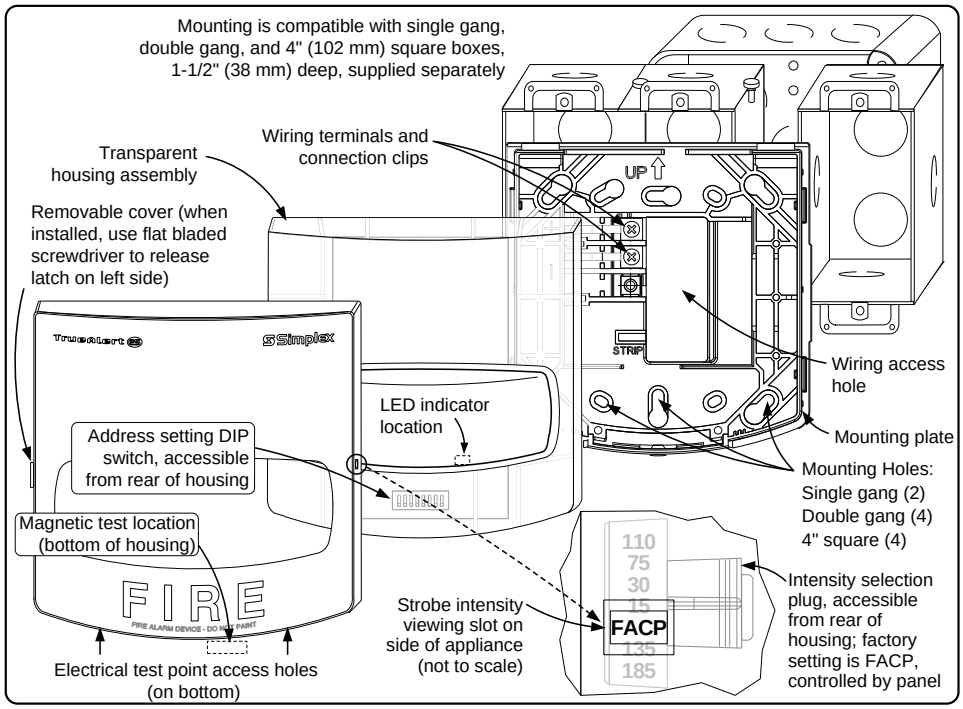
Model	Color	Description	Dimensions
4905-9937	Red	Surface Mount Adapter Skirt	5 ⅜" H x 5 ¼" W x 1 ⅝" D (136 mm x 133 mm x 41 mm) Total depth with strobe = 4 ⅜" (111 mm)
4905-9940	White		
4905-9931	Red Adapter Plate for mounting to Simplex 2975-9145 Box (typically for retrofit, mount vertical or horizontal)		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)
4905-9961	Red wire guard with mounting plate, compatible with semi-flush or surface mount boxes		6 $\frac{1}{16}$" H x 6 $\frac{1}{16}$" W x 3 ⅛" D (154 mm x 154 mm x 79 mm)

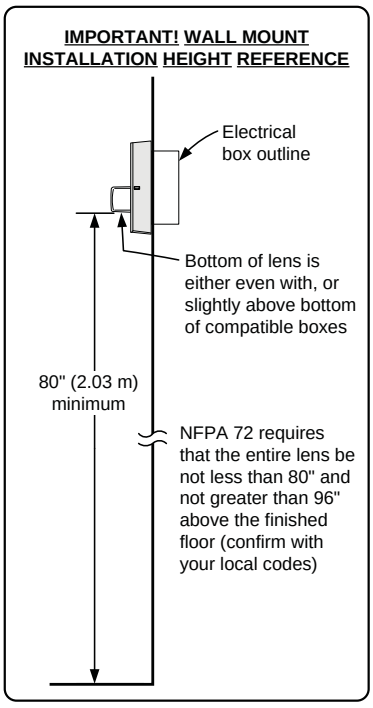
TrueAlert Device Reports Reference

Service Port — Page 1
REPORT 5 : TrueAlert Device Report — 12:34:56am TUE 27-Jan-15

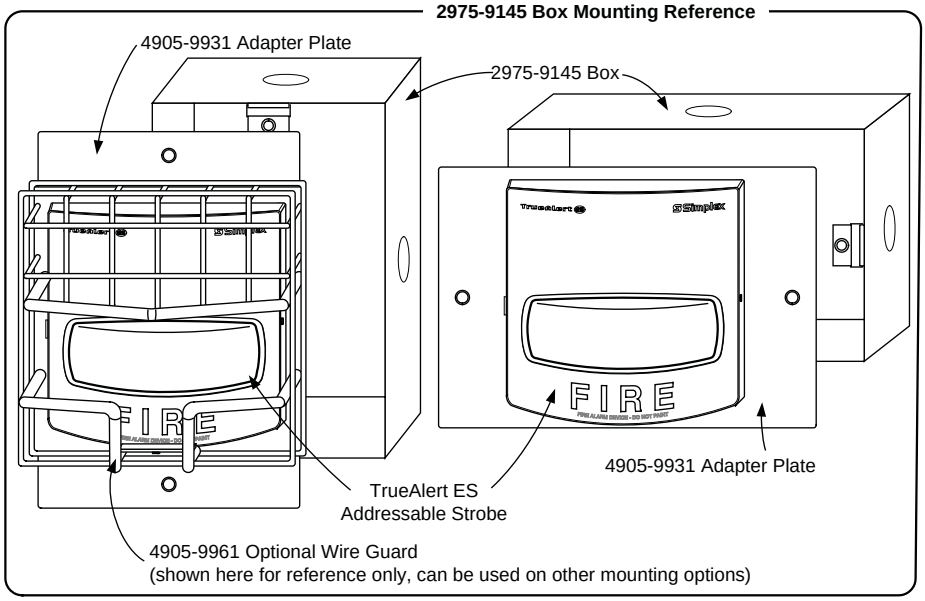
POINT ID	CUSTOM LABEL	DEVICE TYPE	CANDELA
T14-1-1	Location Label . . . up to 40 characters	V/O	15
T14-1-2	Break Room 5	A/V	110
T14-1-3	Boiler Room	A/V	75
T14-1-4	Elec. Room 7	A/V	135

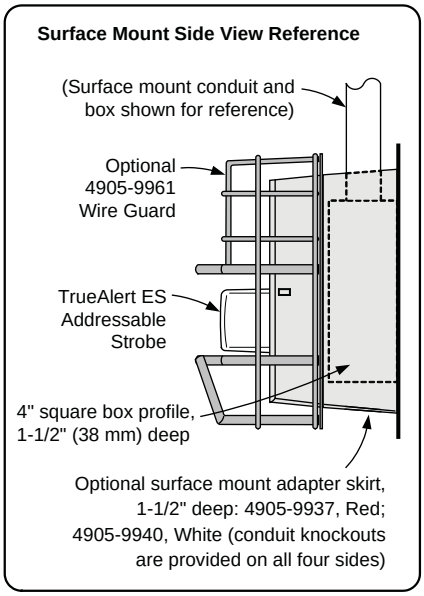
Installation Reference





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 Strobe Specifications

Electrical Ratings

Typical Operating Voltage Range	23 VDC to 31 VDC, Special Application (see below for 17 VDC rating)					
Supervisory Requirements	1 unit load (= 0.8 mA control panel current)					
IDNAC SLC Loading	Maximum of 127 addresses per SLC, 139 unit loads					
Candela Setting	**15 cd**	**30 cd**	**75 cd**	**110 cd**	**135 cd**	**185 cd**
23 VDC RMS Current Ratings, for typical design of IDNAC Addressable SLCs (6 VDC drop)	47 mA	57 mA	100 mA	132 mA	160 mA	208 mA

General Specifications

Temperature Range	32° to 122° F (0° to 50° C)
Humidity Range	10% to 93%, non-condensing @ 104° F (40° C)
IDNAC SLC Wiring Specifications (refer to control panel 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)
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	579-1031

Notes: Refer to compatibility table above for fire alarm control panel and power supply operation type.

TrueAlert ES Strobe LEGACY 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 Power Supply	S4100-0037			
TrueAlert Addressable Controller (4009T)	S4009-0003			

Electrical Ratings Reference for Retrofit Applications

Voltage Range	17 VDC to 31 VDC, Special Application			
Candela Setting	**15 cd**	**30 cd**	**75 cd**	**110 cd**
17 VDC RMS Current Ratings, use when connected to TrueAlert Addressable SLCs per above	62 mA	75 mA	133 mA	178 mA

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