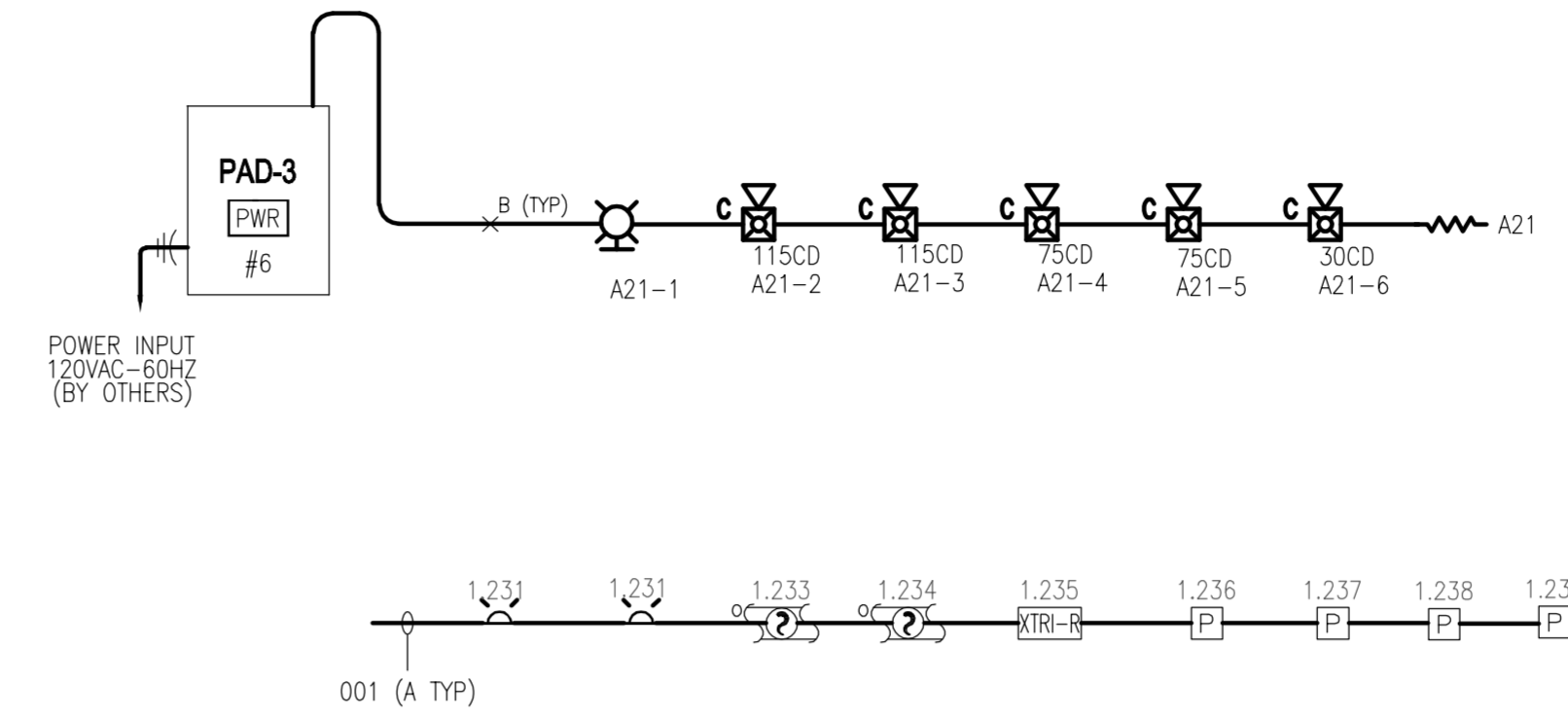
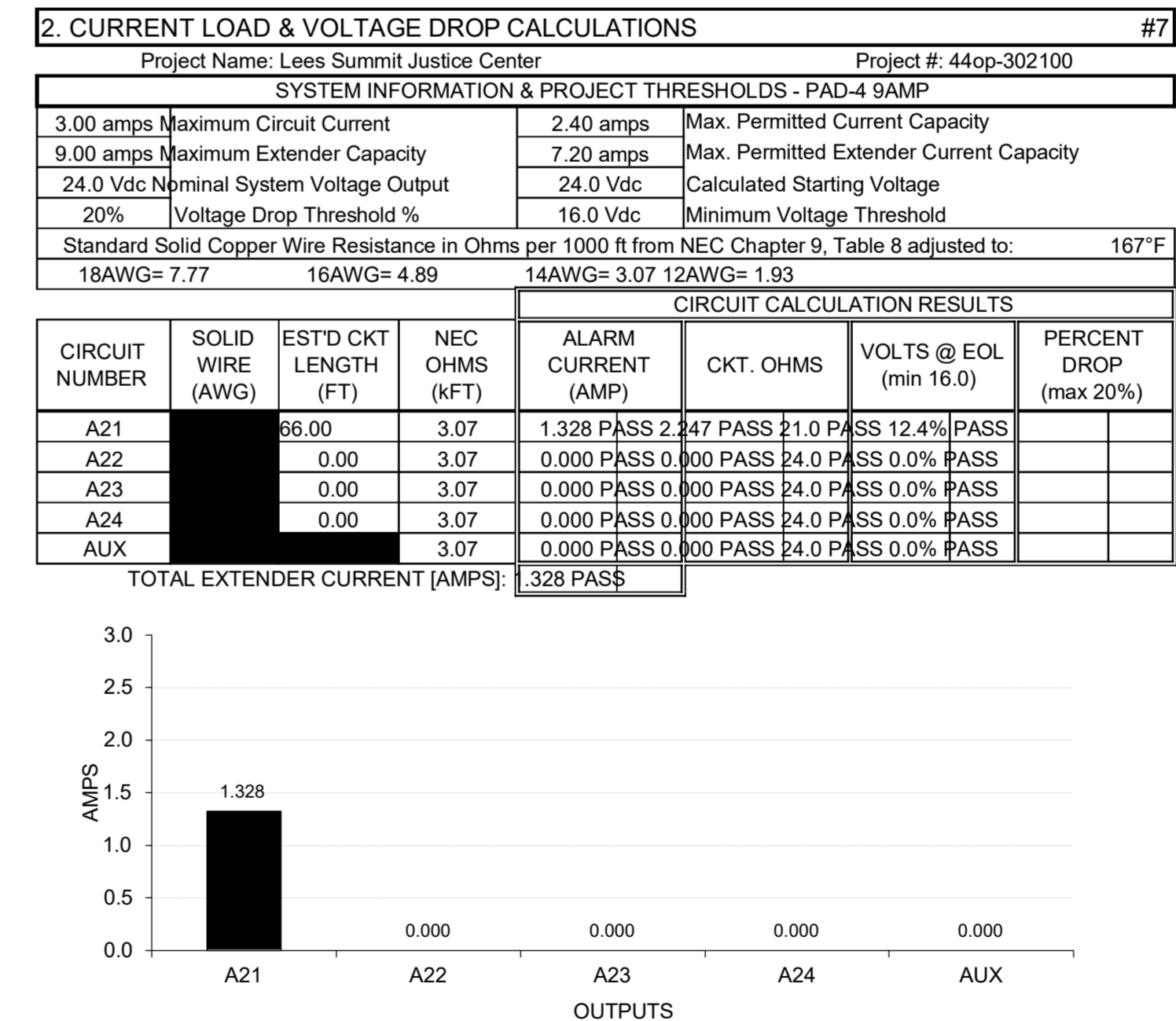


PAD PANEL LOCATED IN FIRE PR RM 116
INITIATING CIRCUIT WILL GO TO CLOSEST DEVICE IN EXISTING BLDG



Building Lee Summit Justice Center							
Panel # Main Fire Alarm Control Panel							
Panel Location: Lower Level, Fire Pr. 116							
BATTERY SIZING CALCULATION							
Device	Qty	Standby	Total Standby	Alarm	Total Alarm		
Panel Components							
FCM2018-U2 Operating Unit	1	0.1250	0.1250	0.1660	0.1660		
FC2018-U1 252pt Board	1	0.1050	0.1050	0.1360	0.1360		
FP2011-U1 170W Power Supply	1	0.0000	0.0000	0.0000	0.0000		
FCI2011-U1 NAC Expander	1	0.0150	0.0150	0.0400	0.0400		
FCA2018-U1 RS-485 Module	1	0.0580	0.0580	0.0580	0.0580		
FT-2015-U2 Control Annunciator	3	0.0550	0.1650	0.0550	0.1650		
Addressable Devices							
FDBZ Series Duct Det w/ FDO421	32	0.0003	0.0090	0.0003	0.0106		
FDO0T441 Photo/Thermal Detector	54	0.0004	0.0194	0.0007	0.0351		
FDT421 Thermal Detector	5	0.0003	0.0013	0.0004	0.0021		
XMS-S/DW Manual Pull Station	18	0.0005	0.0090	0.0005	0.0090		
XTR-I-D Dual Input Module	12	0.0005	0.0060	0.0010	0.0114		
XTR-I-R Input/Relay Module	17	0.0005	0.0085	0.0008	0.0128		
Circuits							
P-1	2	-	-	-	0.012		
P-2	2	-	-	-	0.012		
P-3	2	-	-	-	0.012		
Standby Current: 0.521 Amps		Standby Current: 0.521		Alarm Current: 0.682			
Standby Time: 24 Hours		Batteries Provided: PS12330		Battery Size: 33.00 A.H.			
Total Standby Draw: 12.51 Amp-Hours		Total Standby + Alarm: 12.56 A.H. (-)		25% Cor. Factor per NFPA: 3.14 A.H. (-)			
Alarm Current: 0.682 Amps		Spare Capacity: 17.29 A.H. (+)		Alarm Time: 5 Minutes			
Total Alarm Draw: 0.06 Amp-Hours							
VOLTAGE DROP CALCULATION							
Model # (x=Red or White)	Device	Circuit P-1	Circuit P-2	Circuit P-3	Circuit P-4	Total Qty	
	Qty	Current	Qty	Current	Qty	Current	Qty
Miscellaneous Devices						6	
PAD-3 Input (Sync/Turn-On)	0.006	2	0.012	2	0.012	-	6
Total Current	0.012 Amps	0.012 Amps	0.012 Amps	0.000 Amps	0.000 Amps		
Distance (Wire Length)	30 Feet	80 Feet	85 Feet	Feet	Feet		
Wire Size	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG		
Resistance (per 1000 ft)	3.14 Ohms	3.14 Ohms	3.14 Ohms	3.14 Ohms	3.14 Ohms		
Starting Circuit Voltage	20.40 Volts	20.40 Volts	20.40 Volts	20.40 Volts	20.40 Volts		
Voltage Drop	0.00 Volts	0.00 Volts	0.00 Volts	0.00 Volts	0.00 Volts		
Voltage @ End of Circuit	20.40 Volts	20.40 Volts	20.40 Volts	20.40 Volts	20.40 Volts		
Calculation Method: VOLTAGE DROP = 2 x TOTAL CURRENT x DISTANCE x RESISTANCE / 1000							
VOLTAGE @ END OF CIRCUIT = STARTING CIRCUIT VOLTAGE - VOLTAGE DROP							
OPERATING VOLTAGE RANGE FOR 24V NOTIFICATION APPLIANCES TO BE 19V-25V							

1. CURRENT DRAW CALCULATION		OVER SUPPLY		EXTENDER	
Project Name: Lees Summit Justice Center		Project Name: Lees Summit Justice Center		Project # 44op-302100	
DEVICE MODEL	DEVICE TYPE	STROBE CANDELA	CURRENT (AMPS)	APPLIANCE QUANTITIES PER CIRCUIT	
ST-AMC-RETRO-RAMNS-ALERT	15cd		0.064	0	0
ZH-HMC-CR	H.O. HornStrobe 115cd		0.371	0	0
ZH-HMC-R	H.O. HornStrobe 185cd		0.506	0	0
ZH-MC-CR	HornStrobe 15cd		0.087	0	0
ZH-MC-R	HornStrobe 30cd		0.131	0	0
ZH-MC-CR	HornStrobe 75cd		0.222	2	0
ZH-MC-R	HornStrobe 115cd		0.371	2	0
ZH-MC-R	HornStrobe 15cd		0.078	1	0
ZH-MC-R	HornStrobe 30cd		0.113	0	0
ZH-MC-R	HornStrobe 75cd		0.195	0	0
ZH-MC-R	HornStrobe 110cd		0.259	0	0
ZR-MC-R	Strobe 15cd		0.064	1	0
ZR-MC-R	Strobe 30cd		0.098	0	0
ZR-MC-R	Strobe 75cd		0.175	0	0
ZR-MC-R	Strobe 110cd		0.233	0	0
NOTE: All calculations utilize horn settings @ the highest setting. QTY Totals: 6 0 0 0					
AUXILIARY OUTPUT		Standby Alarm			
Flush 24vdc door holder (SDH-2D)		0.068	0.068		
Surface 24vdc door holder (SDH-3D)		0.068	0.068		
Flush 24vdc door holder (SDH-4D)		0.068	0.068		
Floor mount 24vdc door holder (SDH-5D)		0.068	0.068		
Double floor mount door holder (SDH-6D)		0.136	0.136		
HZM		0.001	0.000		
CURRENT DRAW PER CIRCUIT IN AMPERES:		1.328	0.000	0.000	0.000



3. BATTERY SIZE CALCULATION

STANDBY		ALARM	
Standby Period in Hours->	24 Hr	Alarm Period in Minutes	15 Min
Extender Internal Current->	0.068 amp	Extender Internal Current	5.000 amp
Extender circuit current->	0.001 amp	Extender circuit current	1.328 amp
Total Standby Current->	0.067 amp	Total Alarm Current	6.328 amp
Standby Amp-Hrs Required->	1.61 AH	Alarm Amp-Hrs Required	1.58 AH

Standby + Alarm Amp-Hrs-> 3.19 AH

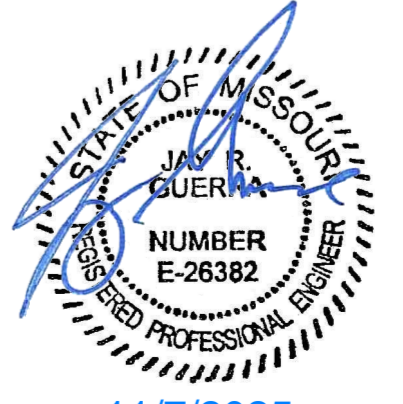
Multiplied by the De-rating Factor-> 25%

Minimum Battery Amp-Hrs Required-> 3.99 AH

Actual Battery Size-> 7.00 AH

Battery Safety Factor-> 219%

Maximum Battery Capacity: 18 AH (Maximum Inside Enclosure: 7 AH.)



MISSOURI STATE CERTIFICATE OF AUTHORITY #000816

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REVISION

NO.	DATE	DESCRIPTION
0	9/11/97	ORIGINAL DESIGN DOCUMENTS
1	06/11/25	44OP-302100-01 DEVICE REPLACEMENT - AS-BUILT DRAWING
2	11/6/25	44OP-302100-02 CHARGE ADDITION
3	7/10/25	AS-BUILTS
4	7/10/25	AS-BUILTS
5	2/19/21	REVISIONS PER FSC MEP

DRAWINGS PREPARED FOR:
LEE'S SUMMIT JUSTICE CENTER
10 NE TUDOR ROAD
LEE'S SUMMIT, MO 64086
FIRE ALARM PARTIAL LOWER LEVEL PLAN

DRAWN BY:
R. CALDWELL

SCALE:
AS SHOWN

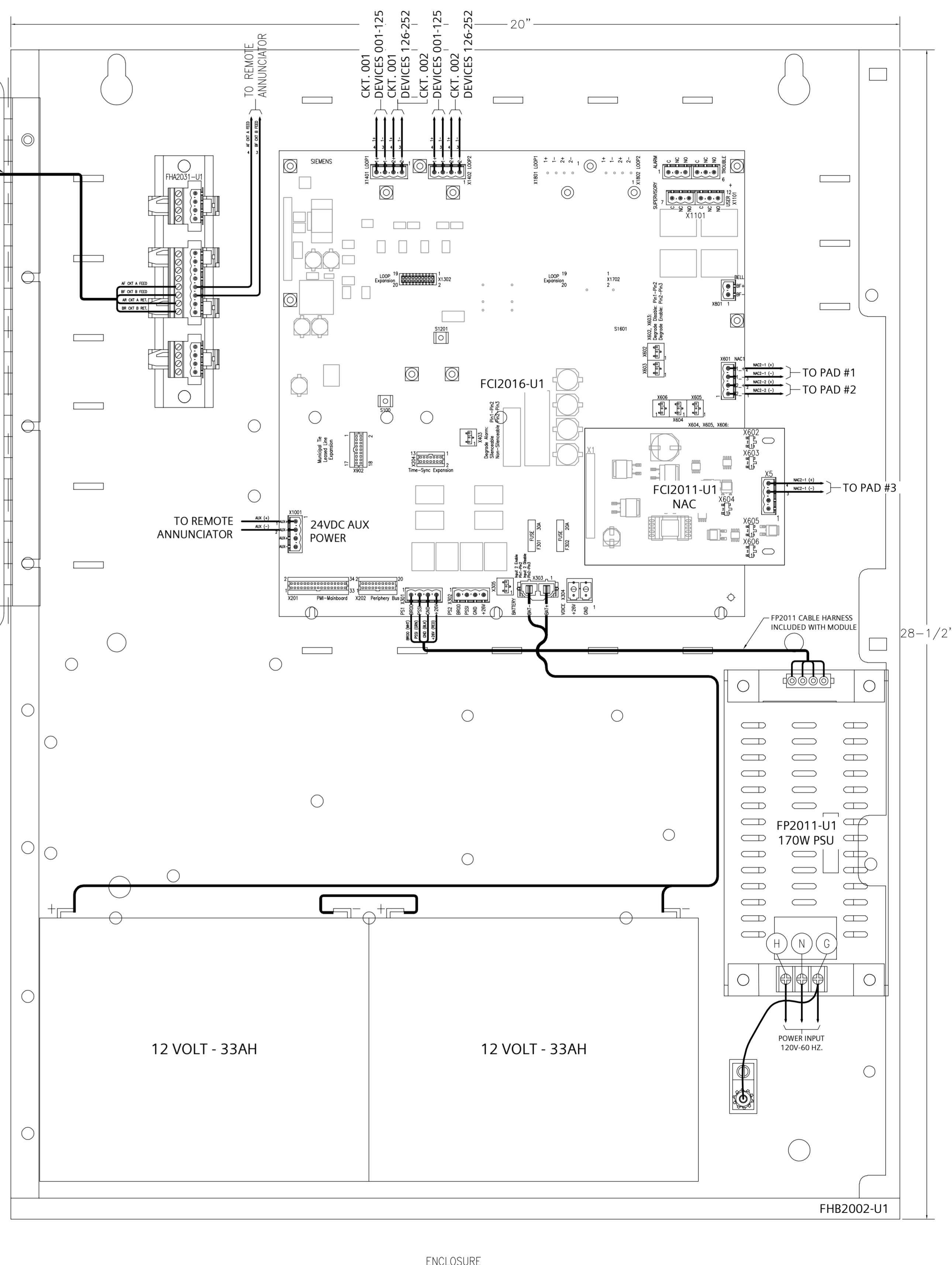
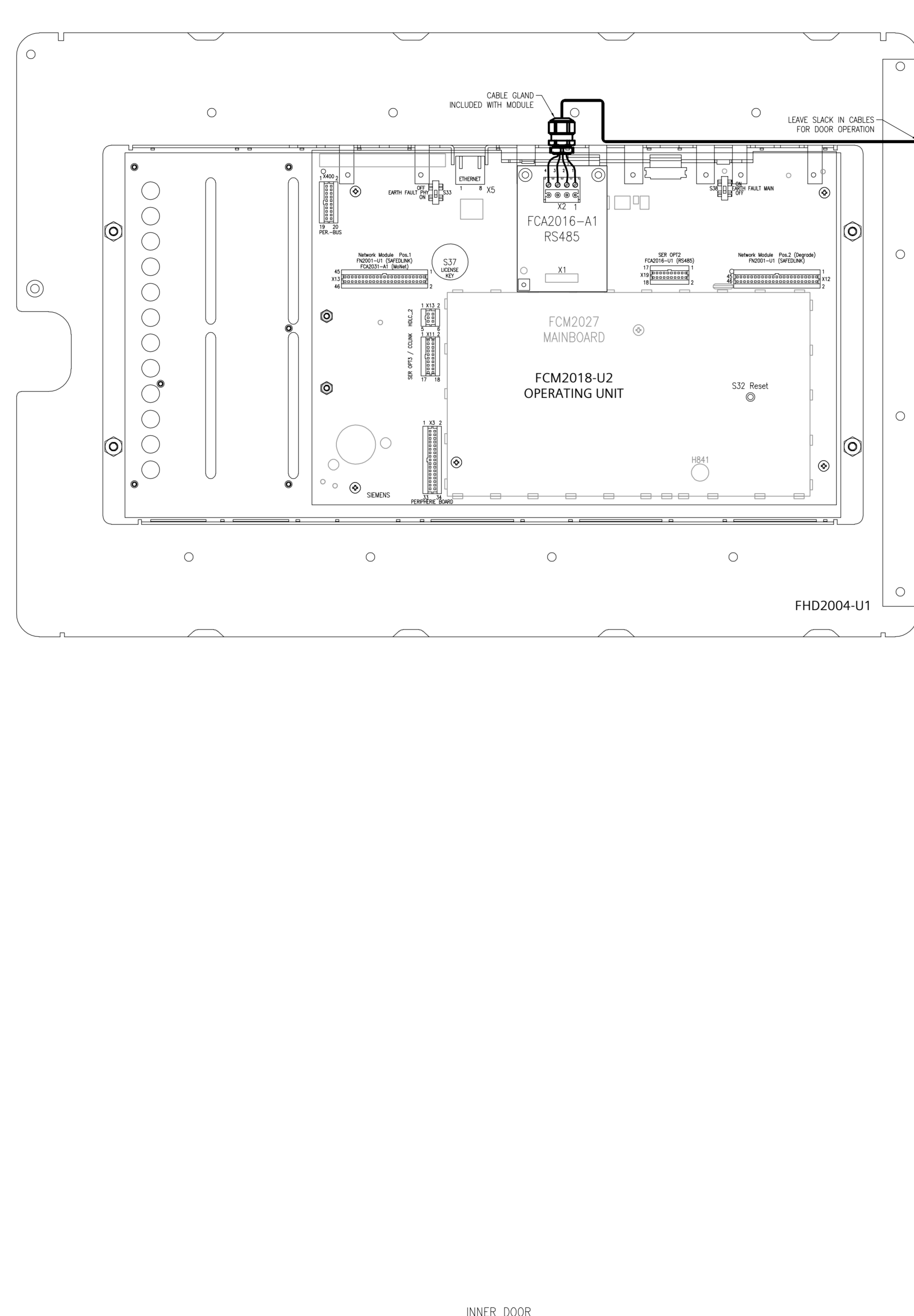
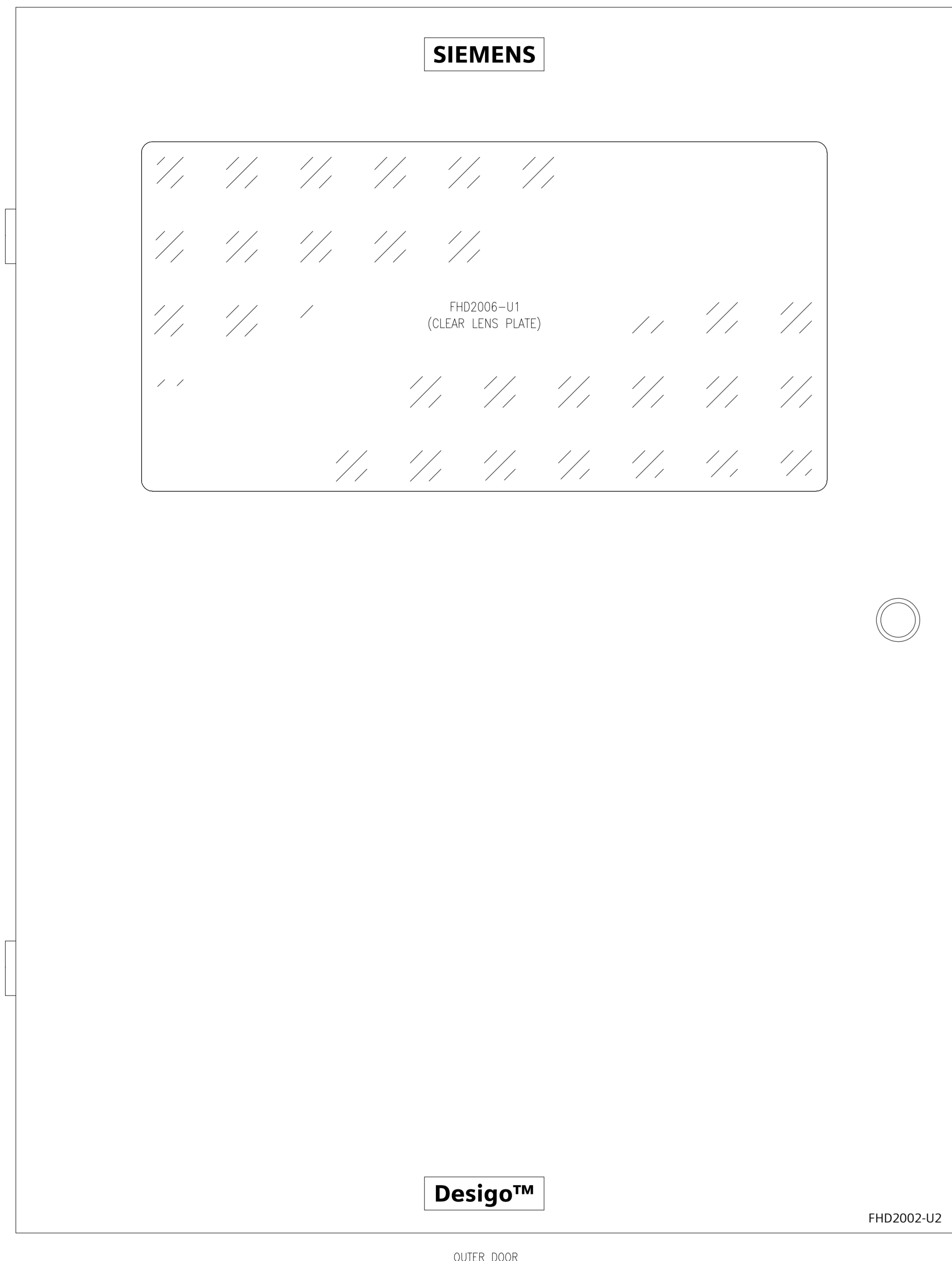
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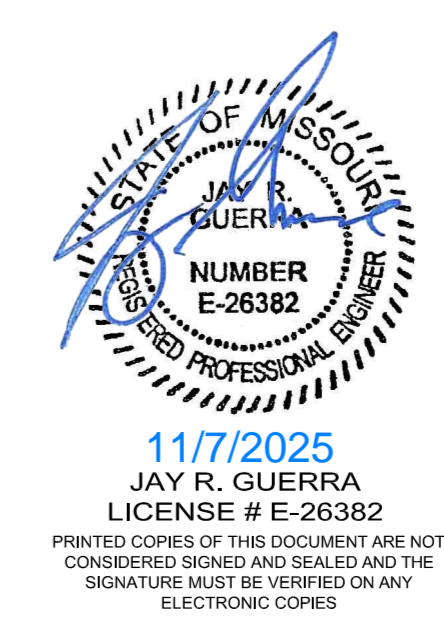
CHECKED BY:
JEF

SHEET NO.

FA01.1



FIRE ALARM CONTROL PANEL WIRING
NOT TO SCALE
LOCATION: FIRE PR. 115



MISSOURI STATE CERTIFICATE OF AUTHORITY #000816

GS ENGINEERING

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REVISION	
NO.	DESCRIPTION
0	ORIGINAL DESIGN DOCUMENTS
1	06/17/25 440P-388004C DEVICE REPLACEMENT - AS-BUILT DRAWING
2	11/6/25 440P-40825 - CHARGE ADDITION
3	7/10/25 AS-BUILTS
4	AS-BUILTS
5	2/19/21 REVISIONS PER FSC MEP

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DRAWINGS PREPARED FOR:
LEE'S SUMMIT JUSTICE CENTER
10 NE TUDOR ROAD
LEE'S SUMMIT, MO 64086
FIRE ALARM PANEL LAYOUT

DRAWN BY:
R. CALDWELL

SCALE:
AS SHOWN

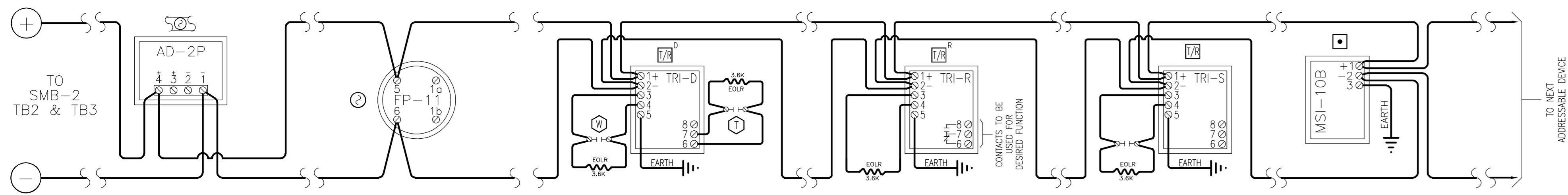
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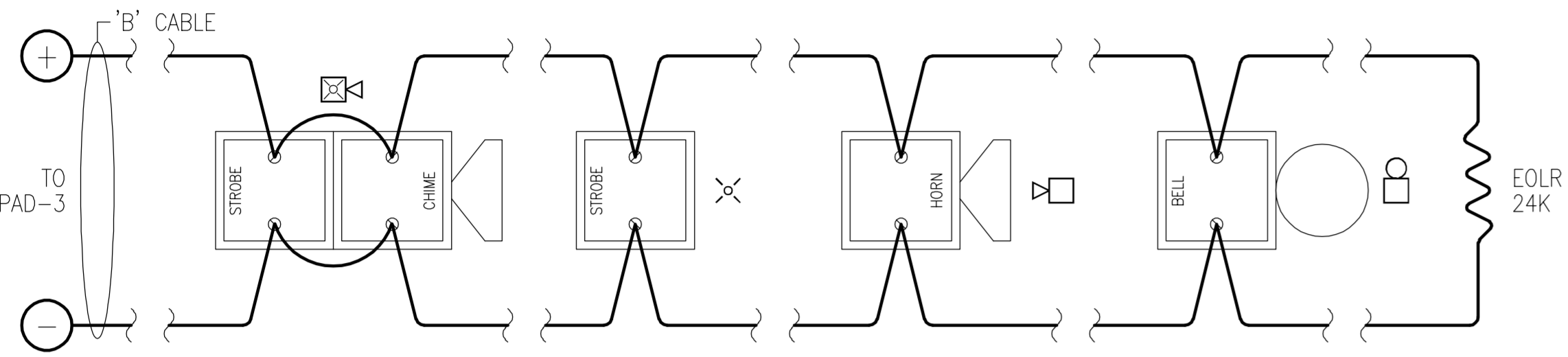
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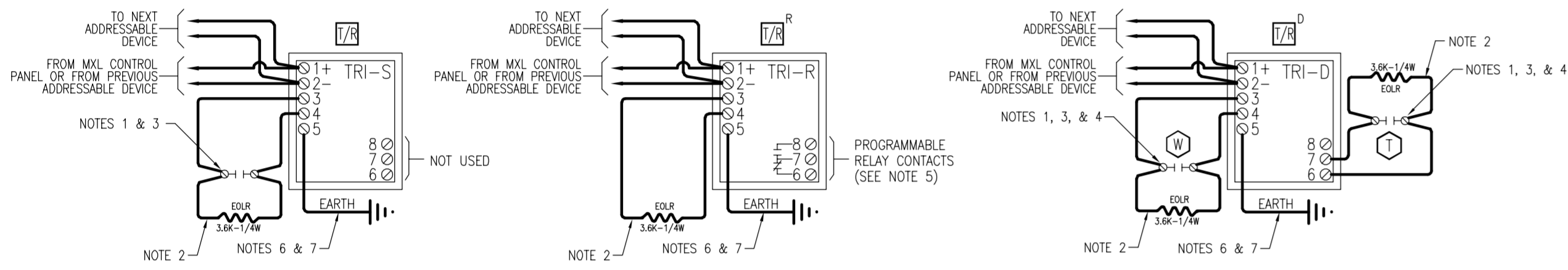
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TYPICAL INITIATING DEVICE WIRING



TYPICAL NOTIFICATION APPLIANCE CIRCUIT WIRING

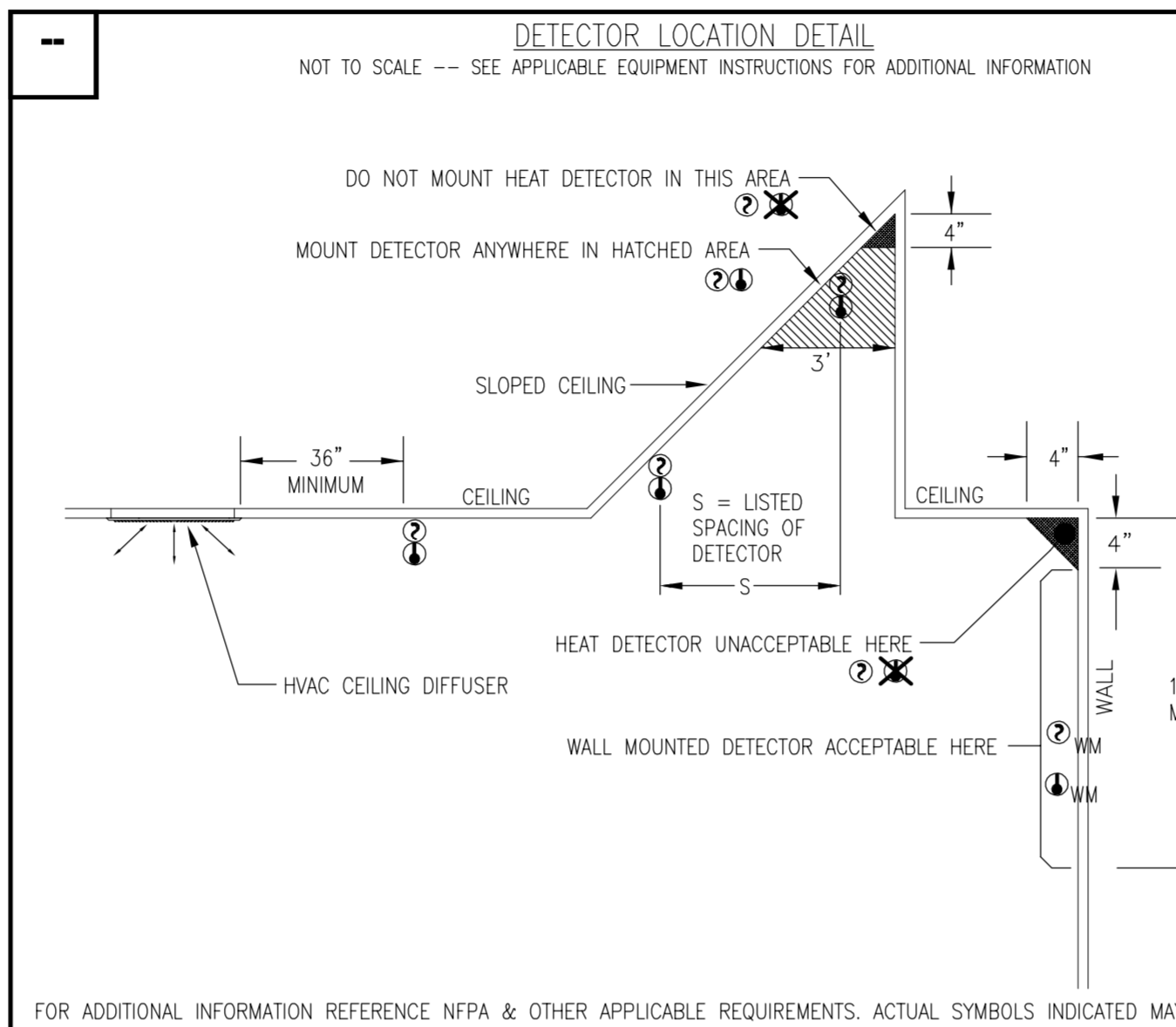


TRI-S WIRING

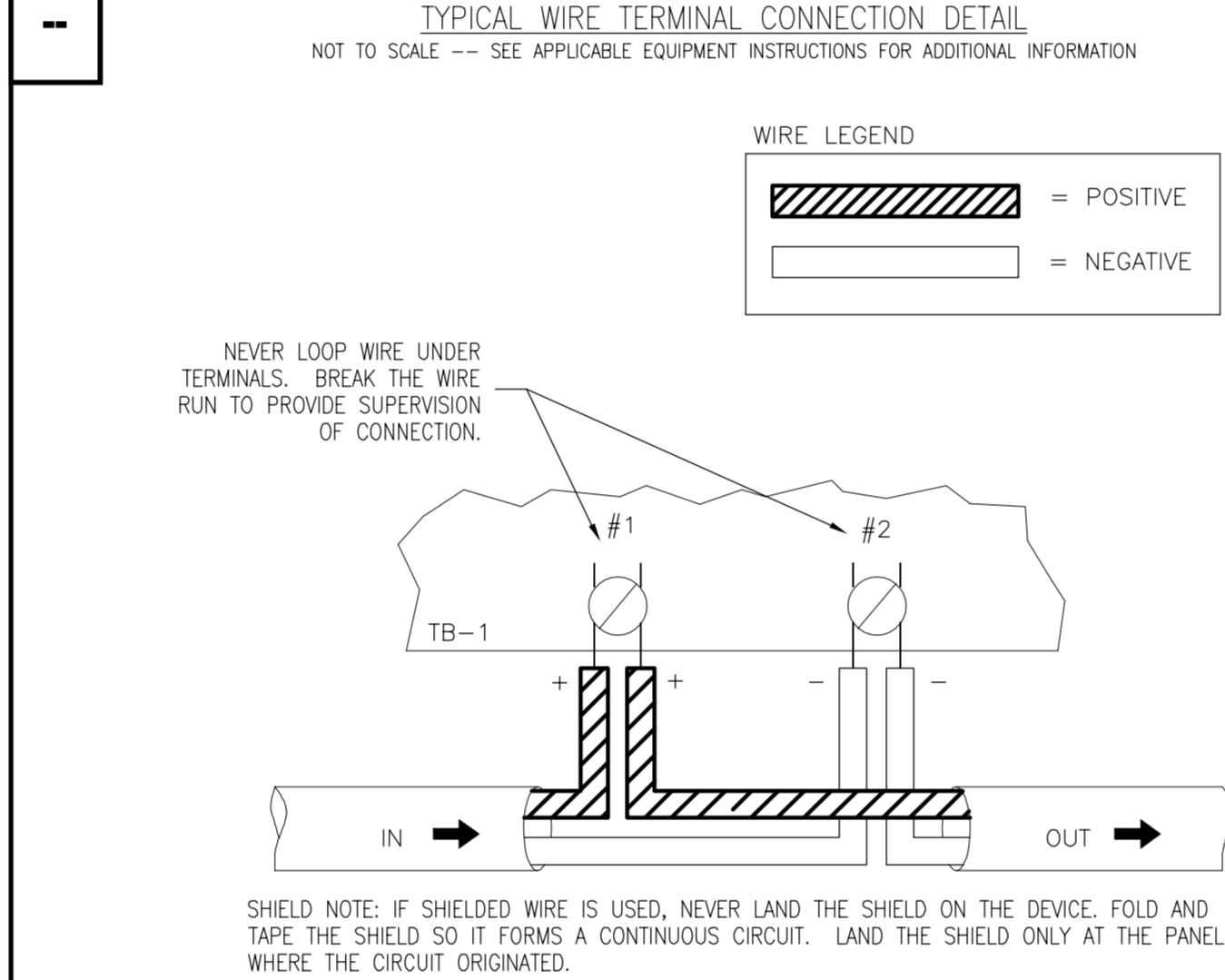
TRI-R WIRING

TRI-D WIRING

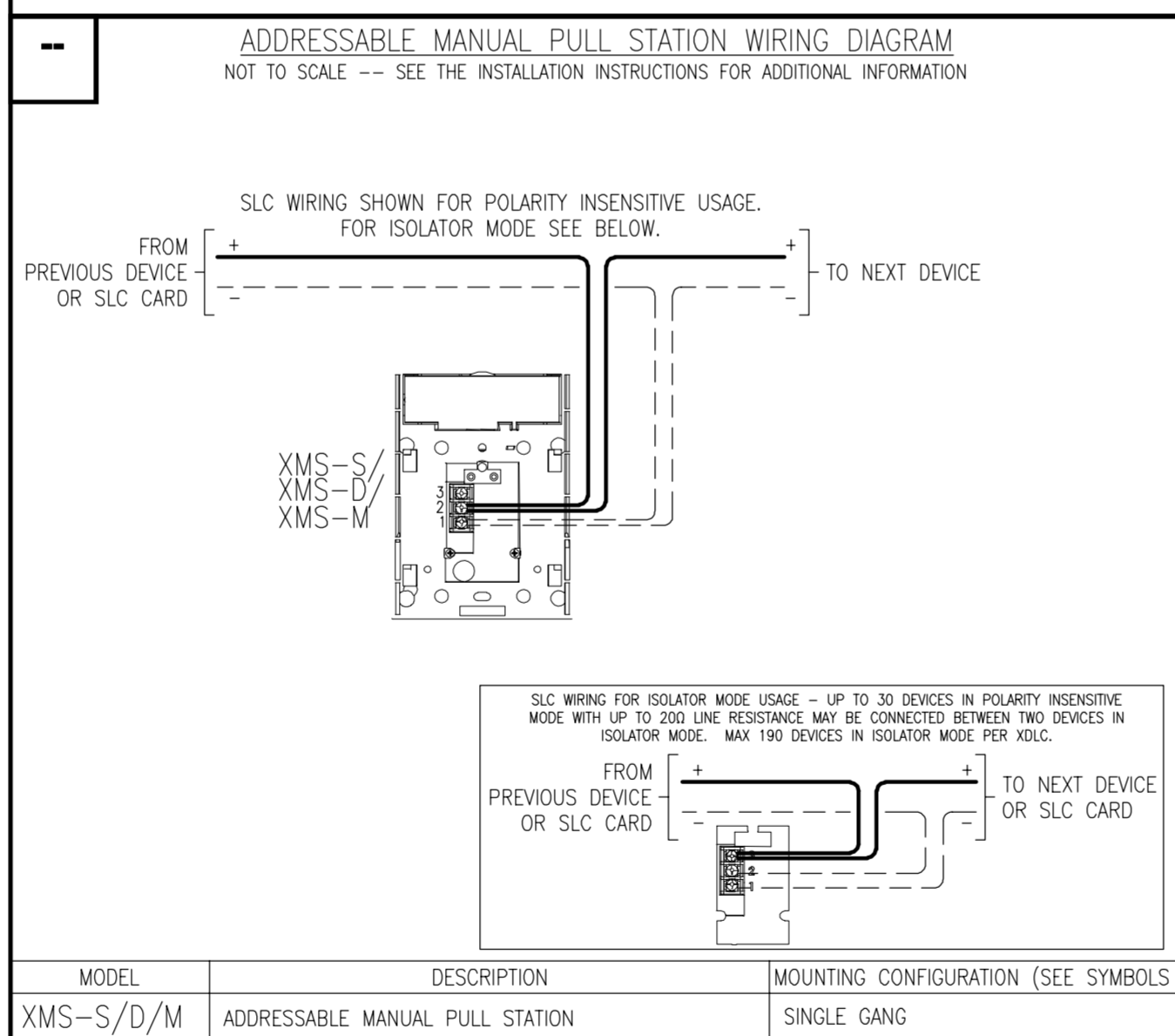
- NOTES:**
- All supervised switches must be held closed and/or open for at least a quarter of a second in order to guarantee detection.
 - Use UL listed EOL Model EL-30/31 with 3.6K, 1/4W resistor, P/N 140-820185. Order Model EL-30/31 separately.
 - The supervised switches have the following ratings:
Voltage maximum: 27VDC
Current maximum: 3.5mA during polling
Contact resistance maximum: 10 ohms
Maximum cable length: 200 feet (18 AWG)
Cable to line: 0.02µF
Cable to line: 0.04µF
Max line size: 14 AWG
Min line size: 18 AWG
 - Supervised switch S1 is on the first programmed address, and supervised switch S2 is on the second programmed address.
 - Relay contacts are rated: Resistive: 4A, 125 VAC
4A, 30 VDC
Inductive: 3.5A, 120 VAC (0.6P.F.)
3.0A, 30 VDC (0.6P.F.)
2.0A, 120 VAC (0.4P.F.)
2.0A, 120 VAC (0.35P.F.)
2.0A, 30 VDC (0.35P.F.)
 - If a Good Local Earth Ground is NOT available: Connect shield to terminal 5. If ALD wiring is not shielded, the switch wiring must be in metal raceway.
 - In supervisory: TRI-S/R draws 1.6mA
TRI-D draws 1.6mA
 - If a Good Local Earth Ground is Available:
a. Terminal 5 must be connected to earth ground.
b. Use wire nuts to pass the shield wire through the electrical box with NO connection to the device terminal block or to local ground.
c. Use shielded wire to connect the switch wiring.
d. Tie the switch wiring shield to the ALD wiring shield. Do not connect shield to terminal 5 or the local earth ground.



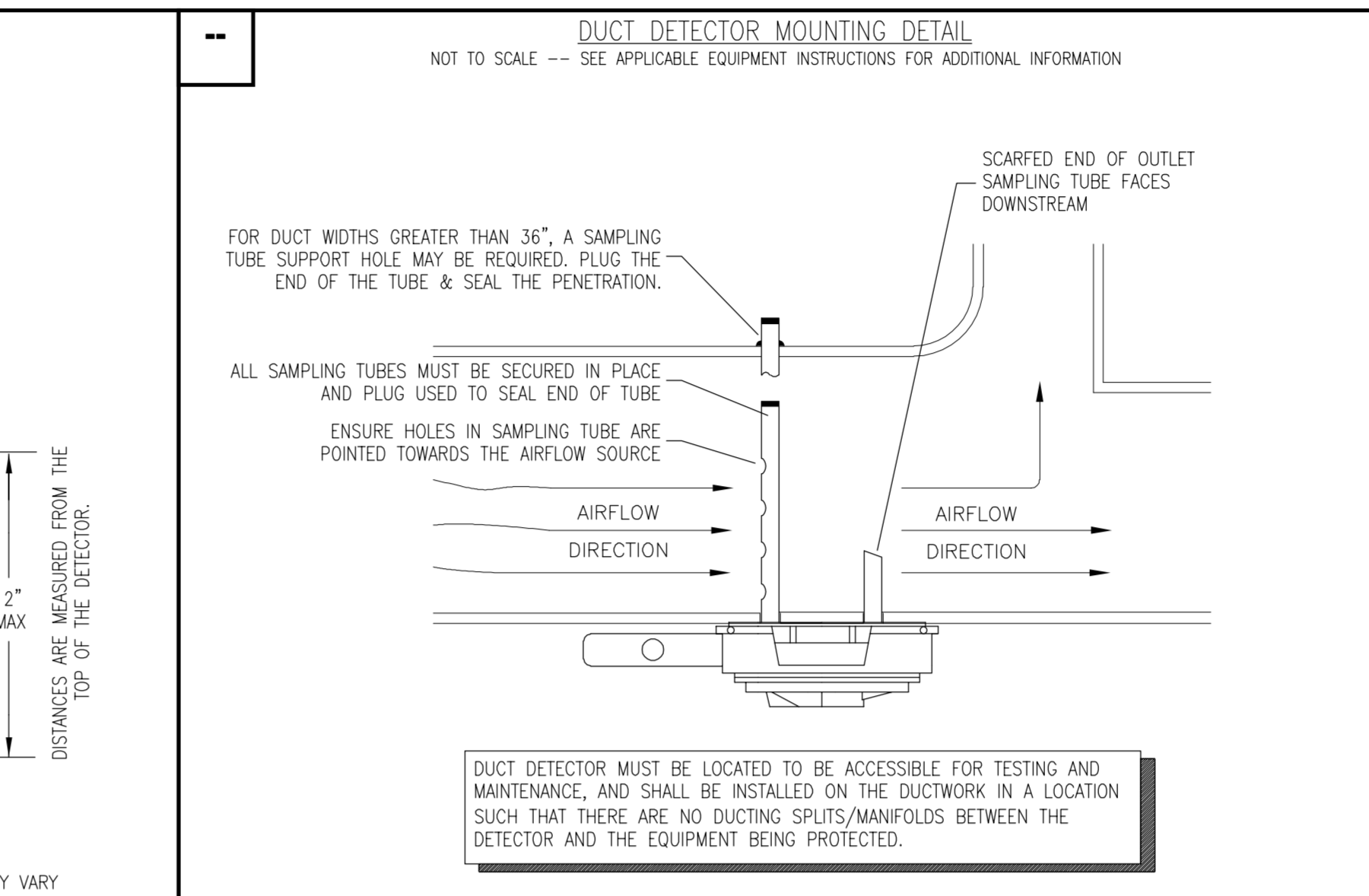
FOR ADDITIONAL INFORMATION REFERENCE NFPA & OTHER APPLICABLE REQUIREMENTS. ACTUAL SYMBOLS INDICATED MAY VARY



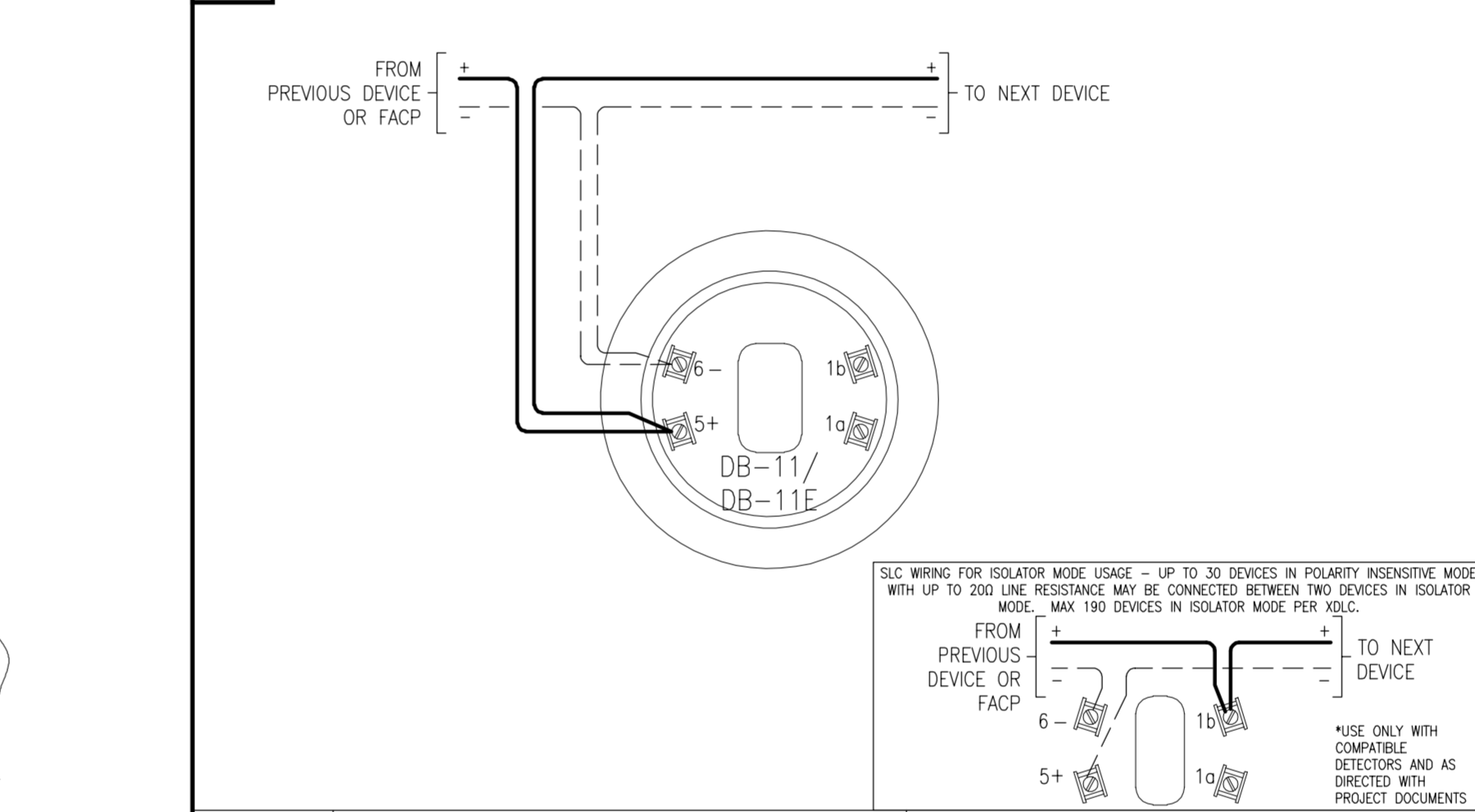
SHIELD NOTE: IF SHIELDED WIRE IS USED, NEVER LAND THE SHIELD ON THE DEVICE, FOLD AND TAP THE SHIELD SO IT FORMS A CONTINUOUS CIRCUIT. LAND THE SHIELD ONLY AT THE PANEL WHERE THE CIRCUIT ORIGINATED.



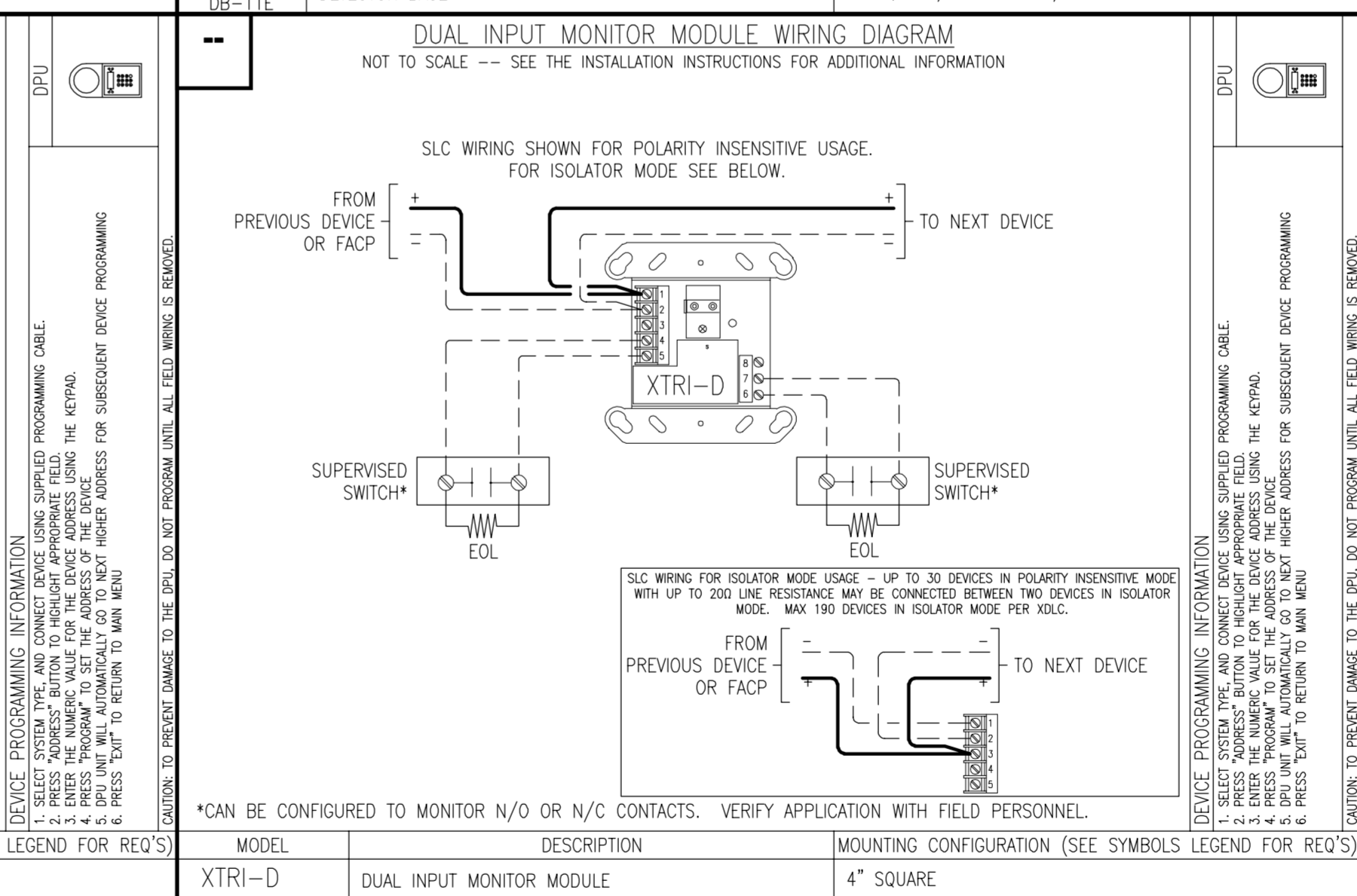
MODEL	DESCRIPTION	MOUNTING CONFIGURATION (SEE SYMBOLS LEGEND FOR REQ'S)
XMS-S/D/M	ADDRESSABLE MANUAL PULL STATION	SINGLE GANG



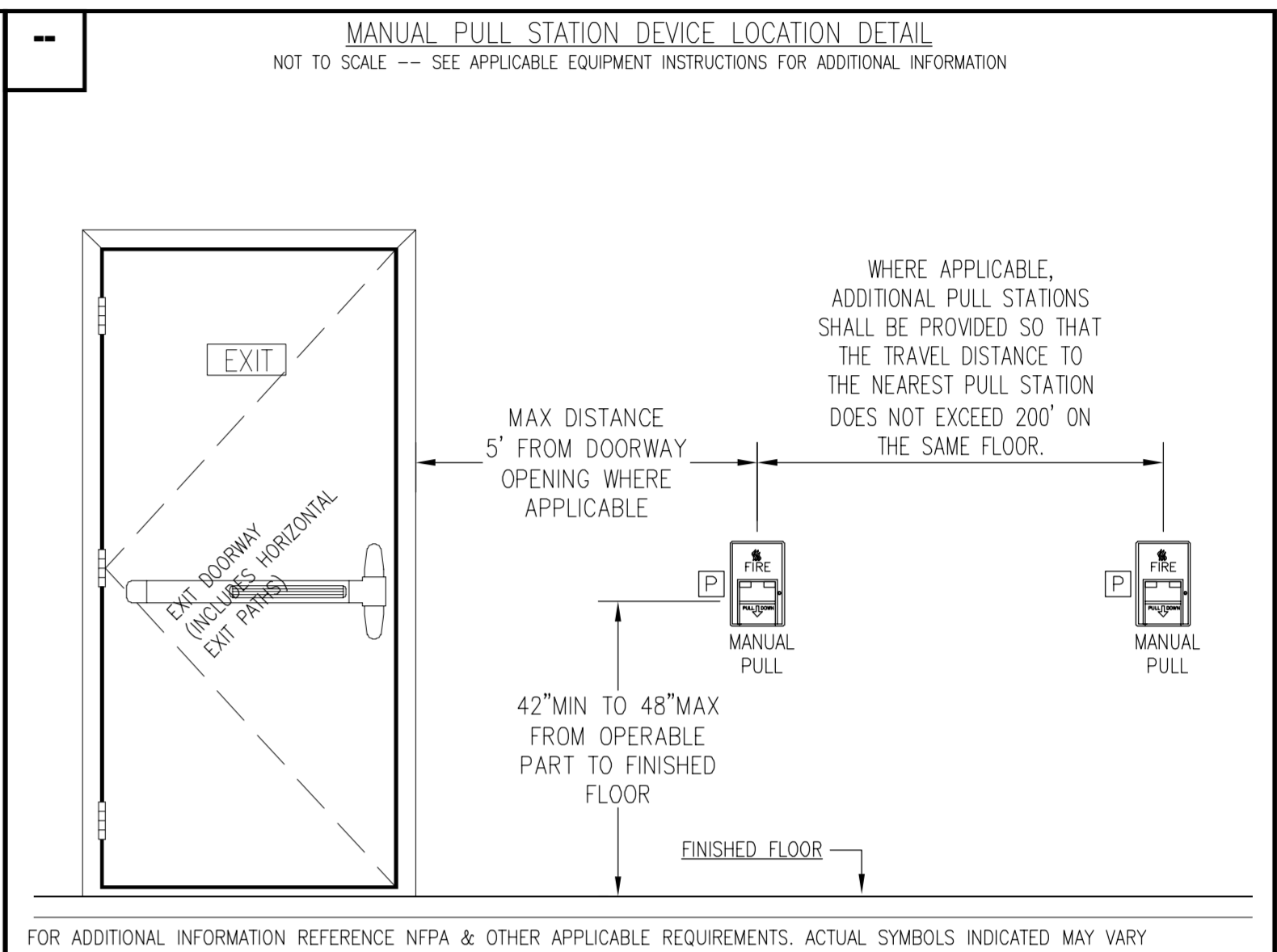
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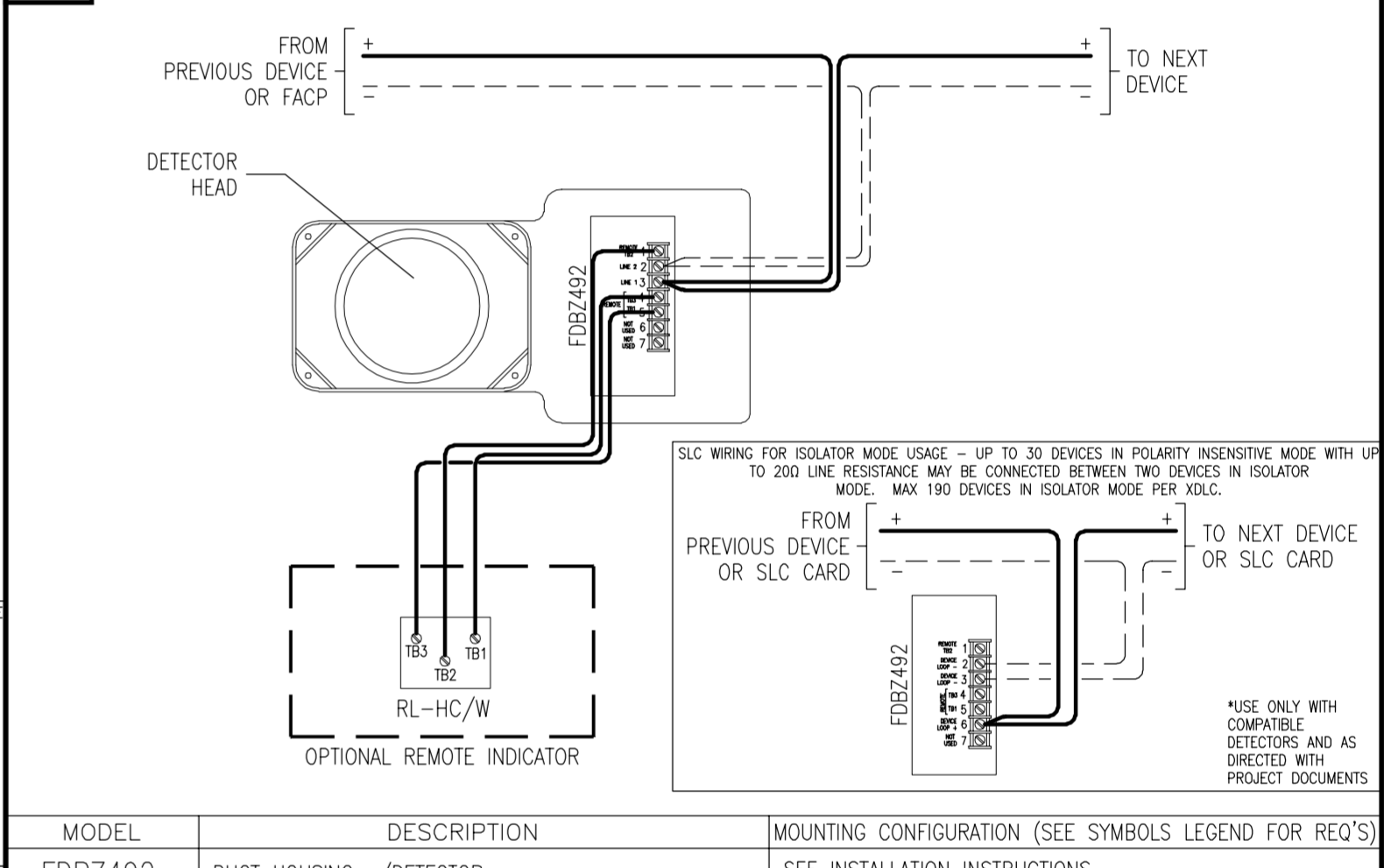
MODEL	DESCRIPTION	MOUNTING CONFIGURATION (SEE SYMBOLS LEGEND FOR REQ'S)
DB-11 / DB-11E	DETECTOR BASE	4" SQUARE, 4" OCTAGON, OR SINGLE GANG



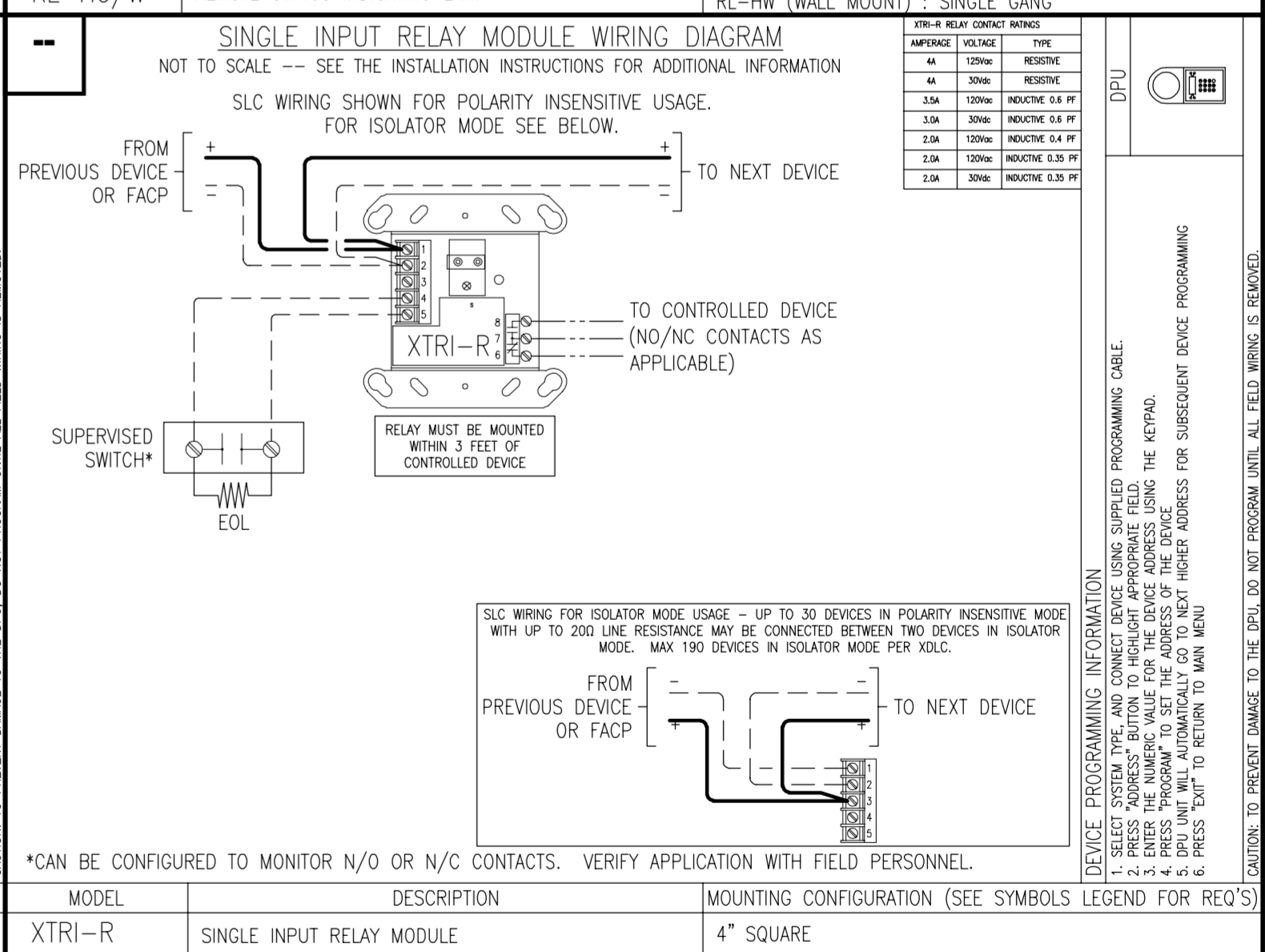
MODEL	DESCRIPTION	MOUNTING CONFIGURATION (SEE SYMBOLS LEGEND FOR REQ'S)
XTRI-D	DUAL INPUT MONITOR MODULE	4" SQUARE



FOR ADDITIONAL INFORMATION REFERENCE NFPA & OTHER APPLICABLE REQUIREMENTS. ACTUAL SYMBOLS INDICATED MAY VARY



MODEL	DESCRIPTION	MOUNTING CONFIGURATION (SEE SYMBOLS LEGEND FOR REQ'S)
FDBZ492	DUCT HOUSING w/DETECTOR	SEE INSTALLATION INSTRUCTIONS
RL-HC/W	REMOTE STATUS INDICATING LAMP	RL-HC (CEILING MOUNT) : 4" OCTAGON BOX RL-W (WALL MOUNT) : SINGLE GANG



MODEL	DESCRIPTION	MOUNTING CONFIGURATION (SEE SYMBOLS LEGEND FOR REQ'S)
XTRI-R	SINGLE INPUT RELAY MODULE	4" SQUARE

NO.	DATE	REVISION
0	9/17/97	ORIGINAL DESIGN DOCUMENTS
1	06/17/25	440P-38800A DEVICE REPLACEMENT - AS-BUILT DRAWING
2	11/6/25	440P-40825 - CHARGE ADDITION
3	7/10/25	AS-BUILT BUILDING TECHNOLOGIES INC. ALL BUILDING REVISIONS
4	10/30/25	AS-BUILT BUILDING REVISIONS
5	2/19/21	REVISIONS PER FSC MEP

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SIEMENS
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JUSTICE CENTER
LEE'S SUMMIT
10 NE TUDOR ROAD
LEE'S SUMMIT, MO 64086
FIELD DEVICE WIRING DETAILS

DRAWN BY: R. CALDWELL
SCALE: AS SHOWN
DATE: 9-11-97
JOB NO:
CHECKED BY: JEF
SHEET NO. FA08

