



Grid Solutions
A GE and Alstom joint venture

220kV/132kV GIS SUBSTATION GHAZI ROAD , LAHORE

132kV LINE RELAY PANEL SCHEMATIC DRAWINGS

DOC / DWG REVIEW CODE	
<input type="checkbox"/> A	Approved, Issue IFC.
<input type="checkbox"/> B	Approved with comments as noted, Issue IFC after incorporation of these comments.
<input type="checkbox"/> C	Revise and re-submit for approval.
<input type="checkbox"/> D	Rejected.
Signed	Date
Permission to proceed does not constitute acceptance of approval of design details, analysers, test methods or materials/ selected by the CONTRACTOR and does not relieve the CONTRACTOR from full compliance with AGREEMENT obligations.	

REFERENCE DRAWINGS					
SR. NO.	DRAWING TITLE			DOCUMENT NO.	
1.	220kV / 132kV Metering & Protection SLD			P60194-E-SLMP-001	
REVISION HISTORY					
REV	DATE	DRW. BY	CHK. BY	APR. BY	REVISION DESCRIPTION
0	20.11.2018	ASJ	MFT	NAH	AS BUILT
Scale NOT-TO-SCALE				Sheet size A3	
Client 		NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)			
Contractor 		Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan			
Project 220kV / 132kV GIS SUBSTATION GHAZI ROAD , LAHORE					
Title 132kV LINE RELAY PANEL (=E03+RP3) SCHEMATIC DRAWINGS					
Order no P-60194		Document no P60194-E-ELR-SC-002			
Sheet type A		Total sheets 26		Sheet no 1	

	1	2	3	4	5	6	7	8								
	PAGE NO.	SHEET NAME	SHEET DESCRIPTION			ISSUE / REVISION										
						A	B	C	D	E	F	01	02	03	04	05
A B C D E F	01	A	Cover Sheet			X	X	X	X	X	X					
	02	AA	List Of Contents			X	X	X	X	X	X					
	03	AB	Symbol and Legends			X	X	X	X	X	X					
	04	AC1	Component List			X	X	X	X	X	X					
	05	AD	Panel View			X	X	X	X	X	X					
	06	AE	Bay Concept & Protection Logic			X	X	X	X	X	X					
	07	D	AC Supply Distribution Circuit			X	X	X	X	X	X					
	08	E	DC Supply Distribution Circuit			X	X	X	X	X	X					
	09	F	AC/DC Supply Failure Circuit			X	X	X	X	X	X					
	10	G	Relay Power Supply Circuit			X	X	X	X	X	X					
	11	H1	Line Differential Relay Protection CT/VT input			X	X	X	X	X	X					
	12	H2	O/C & E/F CT input			X	X	X	X	X	X					
	13	I1	Line Differential Relay input Circuit			X	X	X	X	X	X					
	14	I4	System Input Circuit			X	X	X	X	X	X					
	15	K1	Protection Trips Circuit			X	X	X	X	X	X					
	16	K11	Trips Circuit Supervision			X	X	X	X	X	X					
	17	NA1	System Alarm Circuit			X	X	X	X	X	X					
	18	NA2	System Alarm Circuit			X	X	X	X	X	X					
	19	PA2	Protection Inter Circuit			X	X	X	X	X	X					
	20	RA1	Annunciation Circuit			X	X	X	X	X	X					
	21	RA2	Event & Fault Recorder Circuit			X	X	X	X	X	X					
	22	RA3	SCADA Circuit			X	X	X	X	X	X					
	23	Z1	Component Diagram			X	X	X	X	X	X					
	24	Z2	Component Diagram			X	X	X	X	X	X					
	25	Z3	Component Diagram			X	X	X	X	X	X					
	26	Z4	Component Diagram			X	X	X	X	X	X					
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0	AS BUILT		20.11.2018	ASJ	Manufacturer	 EPESOL 7-8 Garden Block, New Garden Town, Lahore, Pakistan	Contractor	 Grid Solutions A GE and Alstom joint venture	Client	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project	220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title	Drawing no. P60194-E-ELR-SC-002		
													Project no.	Sheet type	Sheet no.	
REV.	DESCRIPTION		DATE	DRAWER									P-60194	AA	02	

	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A		CIRCUIT BREAKER		MINIATURE CIRCUIT BREAKER		AUXILIARY CONTACTOR NO+NC	21	DISTANCE
B		SWITCH/ISOLATOR		SELECTOR SWITCH		AMMETER	24	OVEREXCITATION
C		EARTHING		LIMITED SWITCH		VOLTmeter	25	SYCHROCHECK
D		GIS TERMINATION		HUMIDITY & TEMPERATURE CONTROLLER		POWER FACTOR METER	49	THERMAL OVERLOAD
E		SF6 TO AIR BUSHING		PANEL HEATER		DIGITAL PANEL METER	50/51	PHASE OVERCURRENT
F		LINE TRAP		THREE PIN SOCKET		ACTIVE POWER METER	50N/51N	EARTH FAULT
G		SURGE ARRESTOR		INDICATION LIGHT		REACTIVE POWER METER	50BF	CIRCUIT BREAKER FAILURE
H		CURRENT TRANSFORMER		PUSH BUTTON		ENERGY METER	64	RESTRICTED EARTH FAULT
I		COUPLING CAPACITOR VOLTAGE TRANSFORMER		AUXILIARY CONTACTOR COIL			67N	DIRECTIONAL EARTH FAULT
J		POWER TRANSFORMER		POWER SUPPLY AC/DC			68	POWER SWING BLOCKING
K		AUTO TRANSFORMER		TERMINAL			78	OUT OF STEP
L				OPTO CONTACTS			79	AUTO-RECLOSING
M				RELAY CONTACTS			85	COMMUNICATION FAILURE
N				HOOTER			87T	TRAFO DIFFERENTIAL
O				AC BELL			87C	LOW IMPEDANCE DIFFERENTIAL CONNECTION
P							87BB	LOW IMPEDANCE DIFFERENTIAL BUSBAR

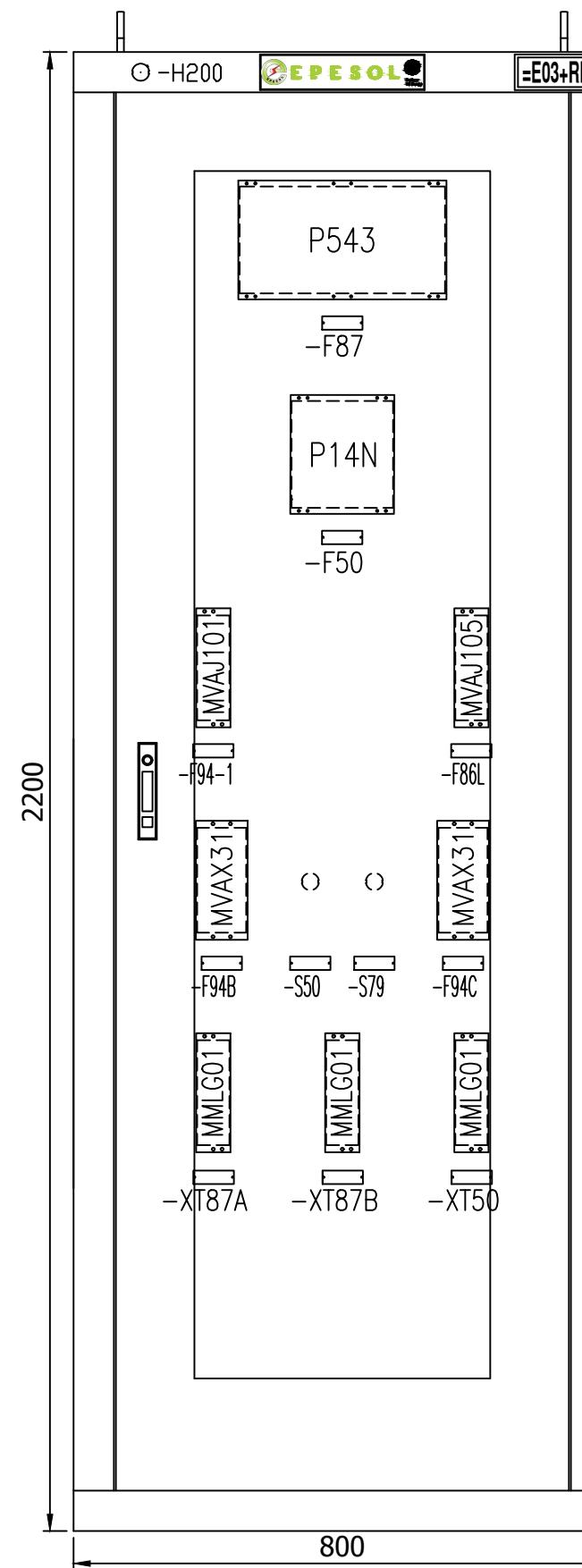
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0	AS BUILT	20.11.2018	ASJ	Manufacturer EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) SYMBOLA AND LEGENDS	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type AB
									Sheet no. 03

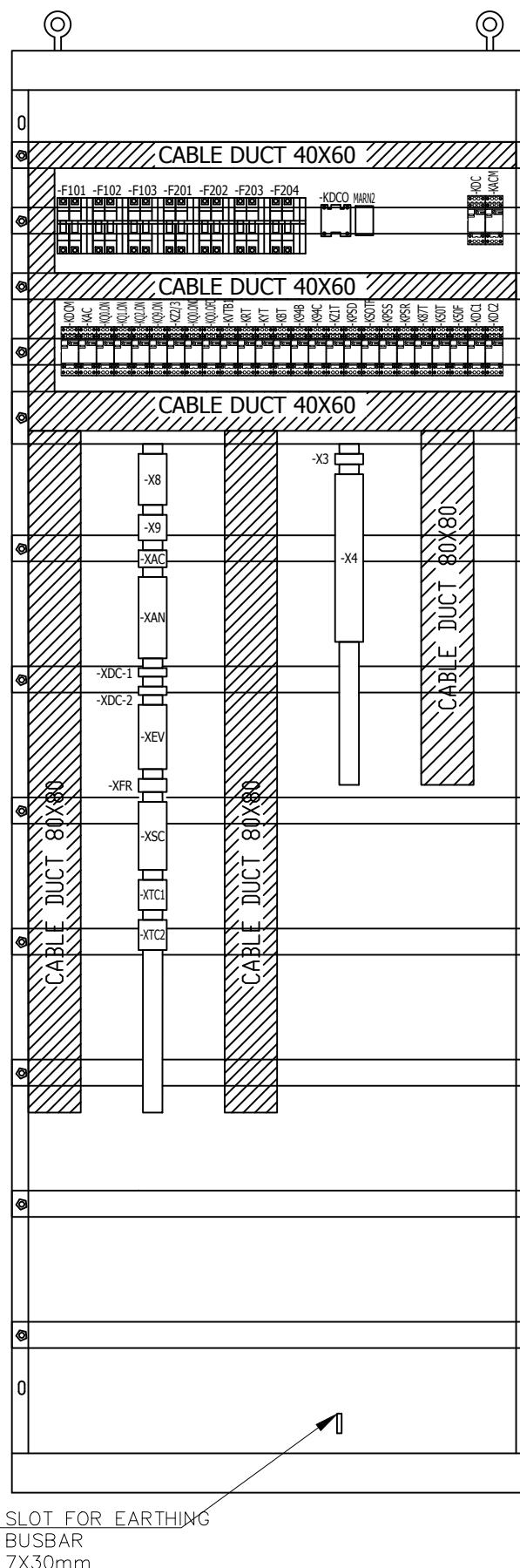
	1	2	3	4	5	6	7	8			
	QTY.	DEVICE DESCRIPTION		DEVICE SPECIFICATIONS DEVICE TYPE ; TECHNICAL DATA / SPECIFICATIONS			DEVICE DESIGNITION	MANUFACTURER			
A	01	LINE DIFFERENTIAL PROTECTION RELAY		AGILE P543, Cortec: P543-91PC7M0820M Supply: 110-250VDC / 100-240VAC, VT + CT (100-120V:1/5A) Inputs 16 Opto Inputs, 14 Relay Outputs			-F87	GE			
	01	OVER CURRENT PROTECTION RELAY		AGILE P14N, Cortec: P14N-B16A7C570A 08 Opto Inputs, 08 Relay Outputs			-F50	GE			
	02	TRIP CIRCUIT SUPERVISION		MVAX31, Cortec: MVAX31-S1DD0754A			-F94B-C	GE			
B	04	RESISTORS		4KΩ			-R94 B/C 1-2	GE			
	02	RESISTORS		1.5KΩ			-R94 B/C 3	GE			
	03	TEST BLOCK		MMLG01, Cortec: MMLG01-R1AA9002D			-XT87A,-XT87B,XT50	GE			
C	01	TRIPPING RELAY (SELF-RESETTING)		MVAJ101, Cortec: MVAJ101-RA0802A Supply: 110-125VDC, 8 NO + 2 NC Contacts			-F94-1	GE			
	01	LOCKOUT RELAY (HAND/ELECTRICAL RESET)		MVAJ105, Cortec: MVAJ105-RA0802A Supply: 110-125VDC, 8 NO + 2 NC Contacts			-F86L	GE			
	02	CONTROL MCB - PANEL LIGHT & HEATER		2-Pole, Ratings: 2A, 240VAC, 6kA @ 240VAC, 2 C/O Contacts, Ord: G62C02+CAH(2)			-F101, -F102	GE			
D	01	CONTROL ELCB - PANEL SOCKET		2-Pole, Ratings: 16A, 30mA, 240VAC, 10kA @ 240VAC, 2 C/O Contacts, Ord: DM100C16/030+CAH(2)			-F103	GE			
	04	CONTROL MCB - DC DISTRIBUTION		2-Pole, Ratings: 4A, 110VDC, 10kA @ 110VDC, 2 C/O Contacts, Ord: EP102UCC04+CAH(2)			-F201, -F202, -F203, -F204	GE			
	25	AUXILIARY CONTACTOR		Coil Voltage: 110VDC, DIODE, 4 C/O Contacts, Ord: PRC4M40DCJL			-KDCM, -KQ0.ON, -KQ1.ON, -KQ2.ON, -KQ9.ON, -KZ2/3T, -KQ0.ONC, -KQ0.OFC, -KVTB1, -KRT, -KYT, -K94B, -K94C, -KBT, -KZ1T, -KPSD, -KSOTF, -KPSS, -KPSR, -K87F, -KDC1, -KAC, -K50T, -K50F, -KDC2	GE			
E	01	AUXILIARY CONTACTOR - SUPPLY CHANGEOVER		Coil Voltage: 110VDC, 3 NO + 3 NC Contacts, Ord: MCRC022ATWJ+MARN211AT			-KDCO	GE			
	02	AUXILIARY CONTACTOR		Coil Voltage: 240VAC, 4 C/O Contacts, Ord: PRC4M40ANL			-KDC, -KACM	GE			
	01	SELECTOR SWITCH - AUTORECLOSER		YS-AK-2-2-44-D, 2-Postion (IN-OUT), 110VDC, KEYLOCKABLE TYPE, KEY RELEASE ON "OUT"			-S79	YONGSUNG			
F	01	PUSH BUTTON		Black Button, Spring Return, 2-Pole, Rating 12A, 110VDC Ord: YS-AP1-2-40-B-D-W			-S50	YONGSUNG			
	01	PANEL LIGHT WITH DOOR SWITCH		240VAC @ 50Hz, 5W, with Door Limit Sw. Ord: YSP3315GW-B + YS-T8-30-5W			-H100,-S100	YONGSUNG			
	01	THREE PIN SOCKET		1N+PE, 16A, 240VAC @ 50Hz			-X100	LEAR			
G	01	PANEL HEATER		240VAC @ 50Hz, 50W			-R100	ELAB			
	01	HUMIDITY & TEMPERATURE CONTROLLER		40-90%RH, 25-50°C, 230VAC @ 50Hz			-B100	ELAB			
	01	INDICATION LAMP - DC SUPPLY FAILURE		Type: Integrated LED, Color : RED , Supply : 240VAC @ 50Hz, Ord: YS-PL-2-AL-22-R-W			-H200	YONGSUNG			
H	0	AS BUILT		20.11.2018	ASJ	Manufacturer  EPESOL 7-8 Garden Block, New Garden Town, Lahore, Pakistan	Contractor  GE Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) COMPONENT LIST	Drawing no. P60194-E-ELR-SC-002
							Project no. P-60194				
	REV.	DESCRIPTION		DATE	DRAWER		Sheet type AC1				
									Sheet no. 04		

	1	2	3	4	5	6	7	8			
A B C D E F	QTY.	DEVICE DESCRIPTION		DEVICE SPECIFICATIONS DEVICE TYPE ; TECHNICAL DATA / SPECIFICATIONS			DEVICE DESIGNITION		MANUFACTURER		
	12	TERMINAL BLOCKS FOR SYSTEM INPUT STATUS		CBD-4			-X8		CABUR		
	6	TERMINAL BLOCKS FOR PROTECTION INTER CIRCUIT		CBD-4			-X9		CABUR		
	4	TERMINAL BLOCKS FOR AC SUPPLY DISTRIBUTION		CBD-4			-XAC		CABUR		
	19	TERMINAL BLOCKS FOR ANNUNCIATOR		CBD-4			-XAN		CABUR		
	2	TERMINAL BLOCKS FOR DC SUPPLY-1 DISTRIBUTION		CBD-4			-XDC1		CABUR		
	2	TERMINAL BLOCKS FOR DC SUPPLY-2 DISTRIBUTION		CBD-4			-XDC2		CABUR		
	15	TERMINAL BLOCKS FOR EVENT RECORDER		CBD-4			-XEV		CABUR		
	3	TERMINAL BLOCKS FOR FAULT RECORDER		CBD-4			-XFR		CABUR		
	16	TERMINAL BLOCKS FOR SCADA		CBD-4			-XSC		CABUR		
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0	AS BUILT		20.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor 	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132KV LINE RELAY PANEL (=E03+RP3) COMPONENT LIST	Drawing no. P60194-E-ELR-SC-002	
REV.	DESCRIPTION		DATE	DRAWER					Project no. P-60194	Sheet type AC1	Sheet no. 04a

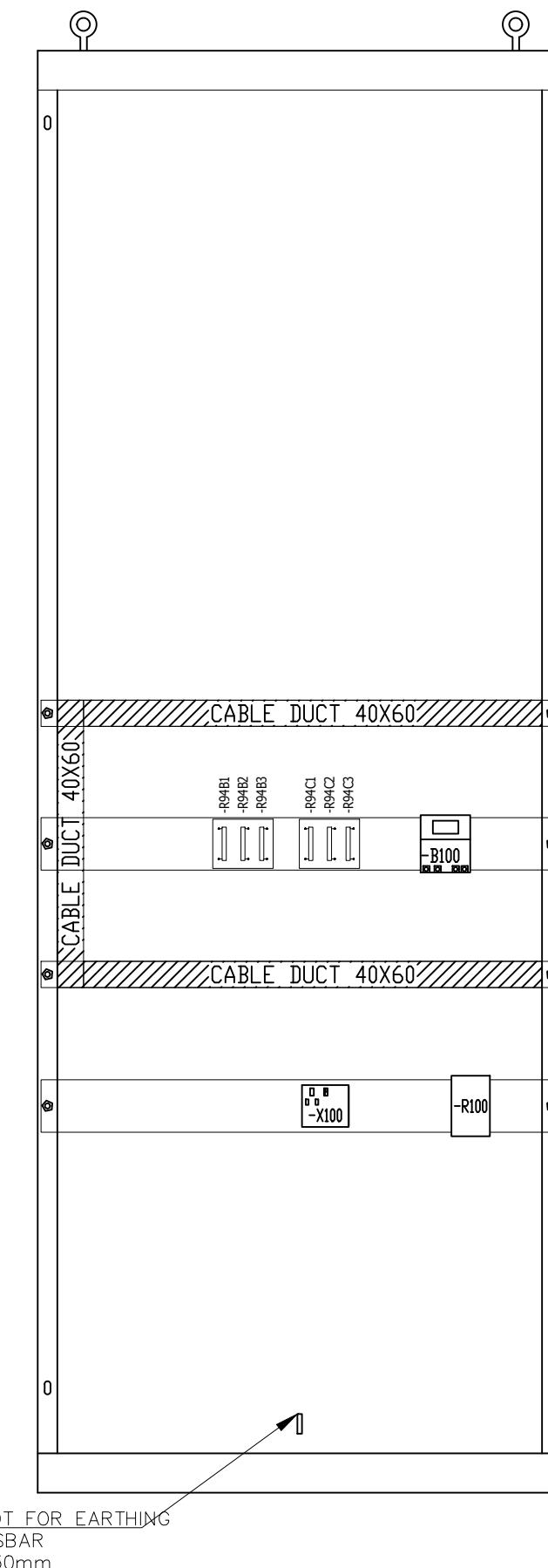
FRONT VIEW WITH DOOR



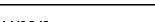
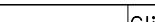
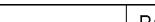
LEFT SIDE VIEW



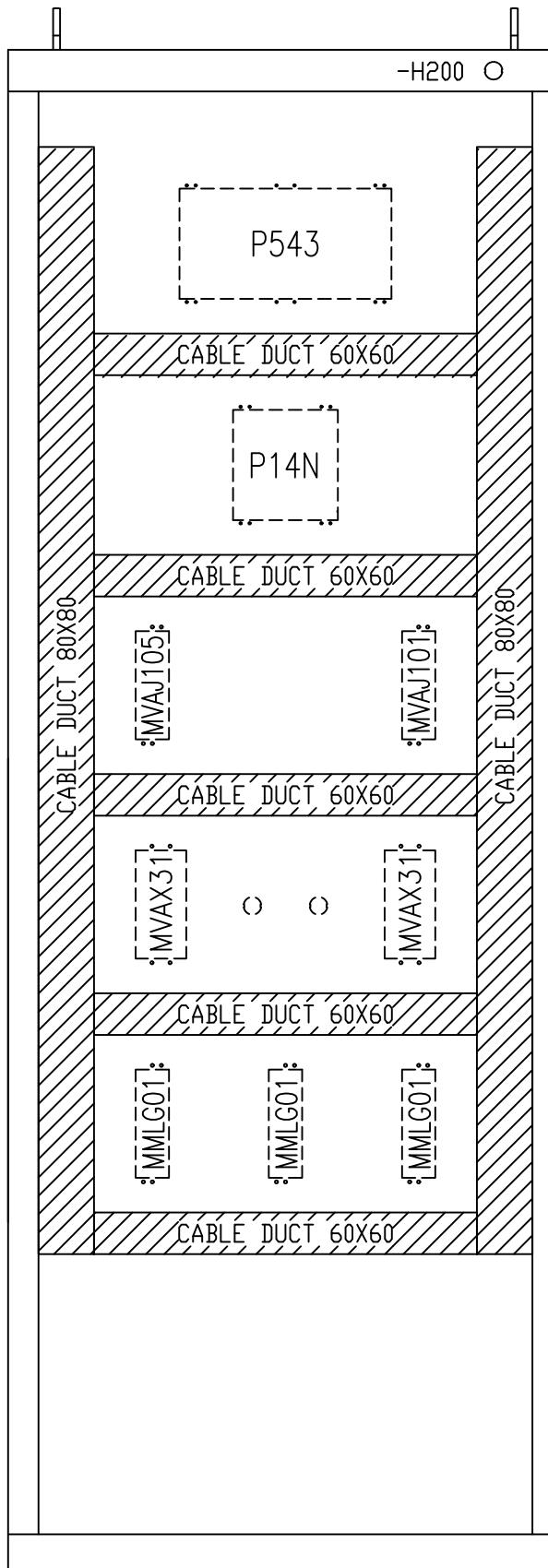
RIGHT SIDE VIEW



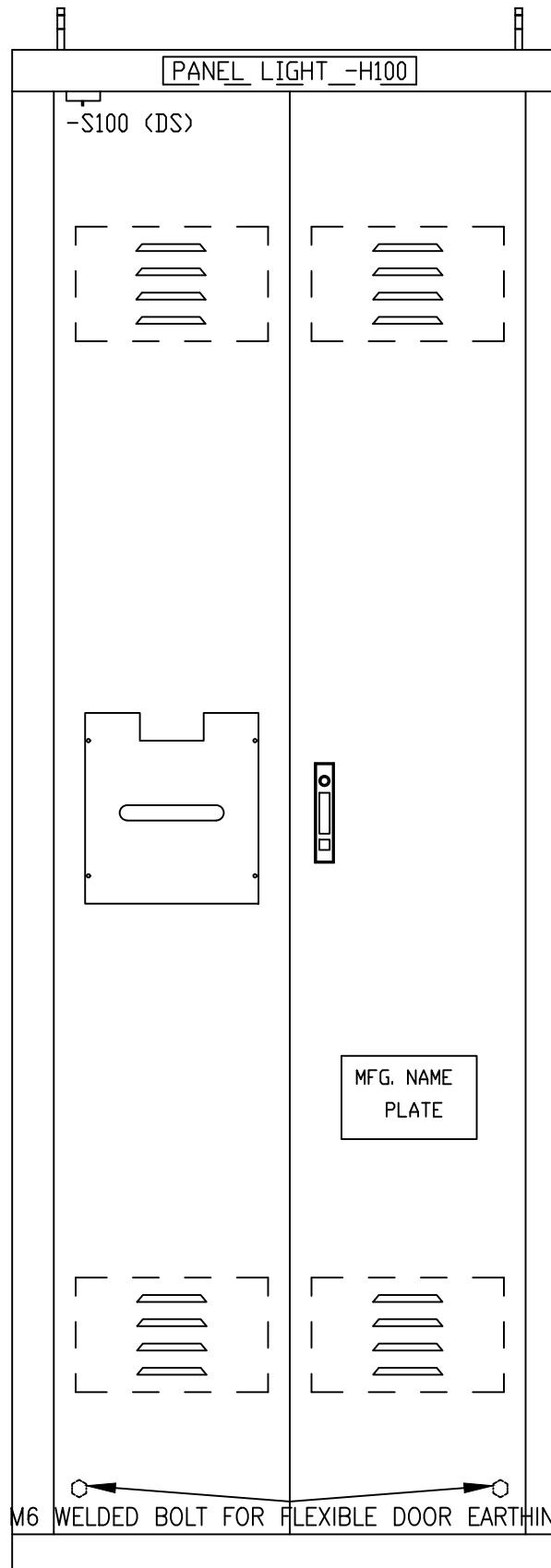
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								P60194-E-ELR-SC-002			
								Project no.	Sheet type	Sheet no.	
REV.	DESCRIPTION	DATE	DRAWER					P-60194	AD	05	

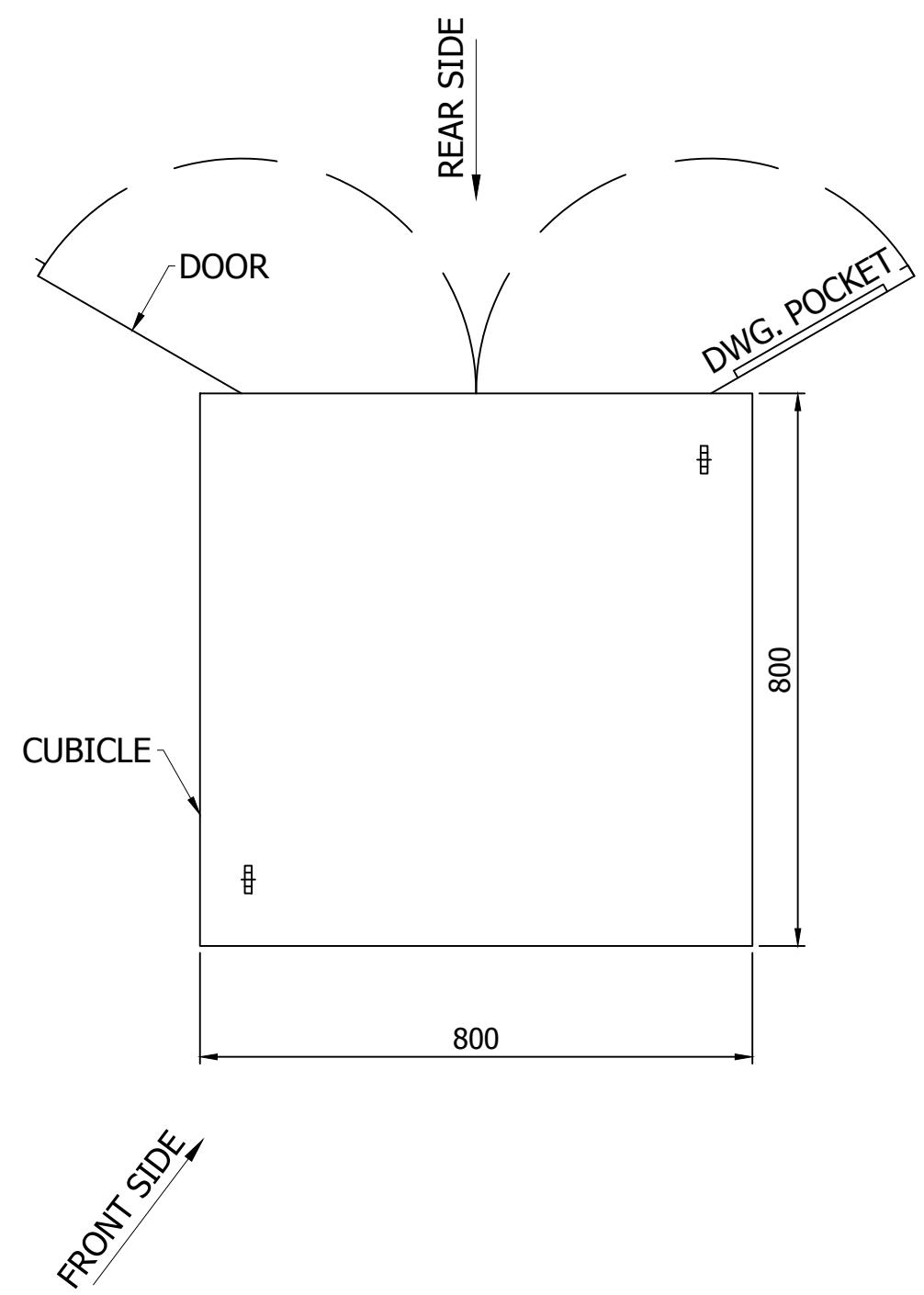
BACK VIEW WITHOUT DOOR



BACK VIEW WITH DOOR



TOP VIEW



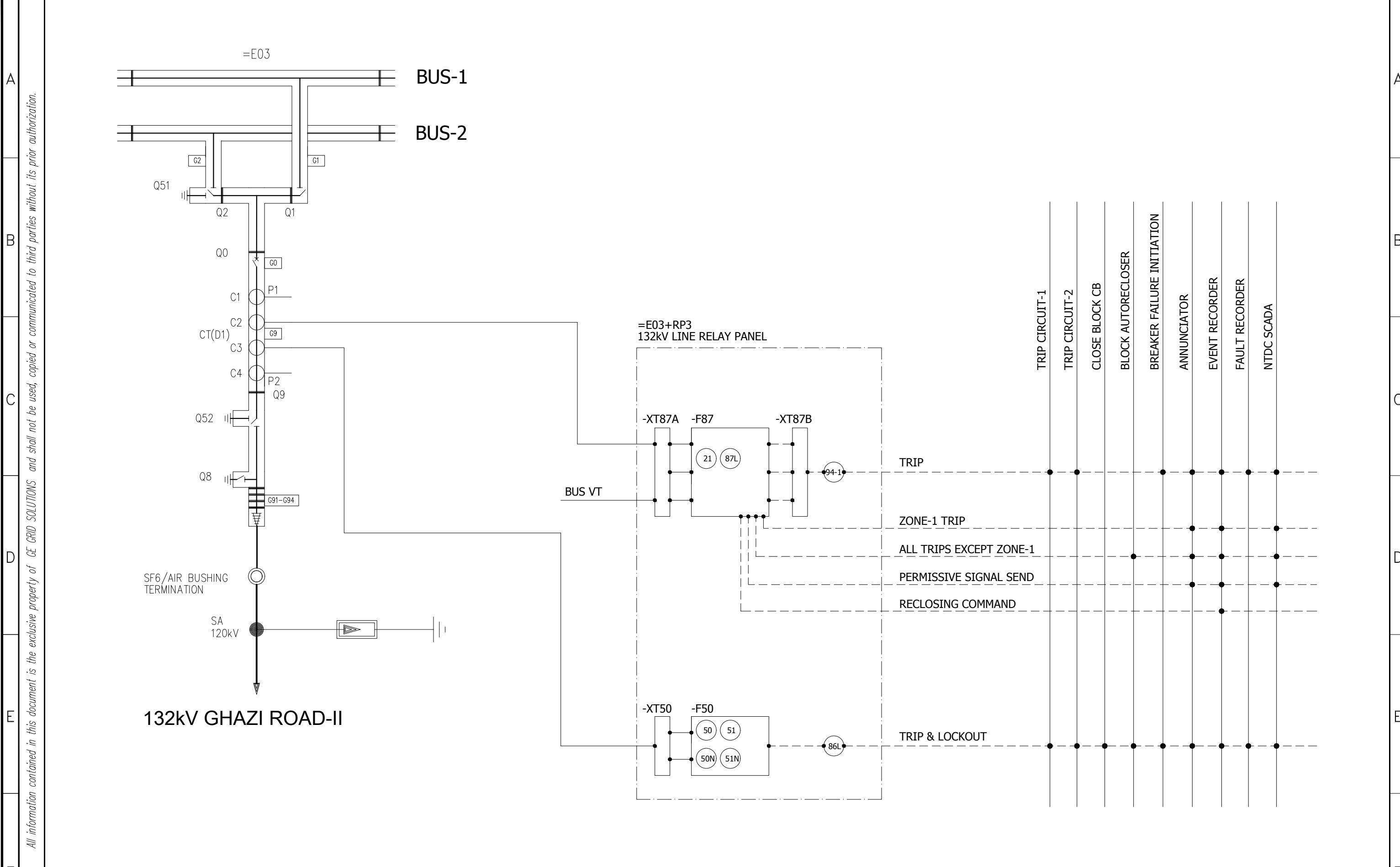
NOTE:-

- 1 - PANEL DIMENSION: 800 x 800 x 2200mm (WxDxH)
- 2 - COLOR : RAL 7032
- 3 - SHEET THICKNESS : 2-2.5 mm
- 4 - PROTECTION CLASS : IP-51 (INDOOR TYPE)
- 5 - ALL DOOR FITTED WITH 16mm EARTH STRAP & INSULATED WITH GREEN-YELLOW COLOUR.

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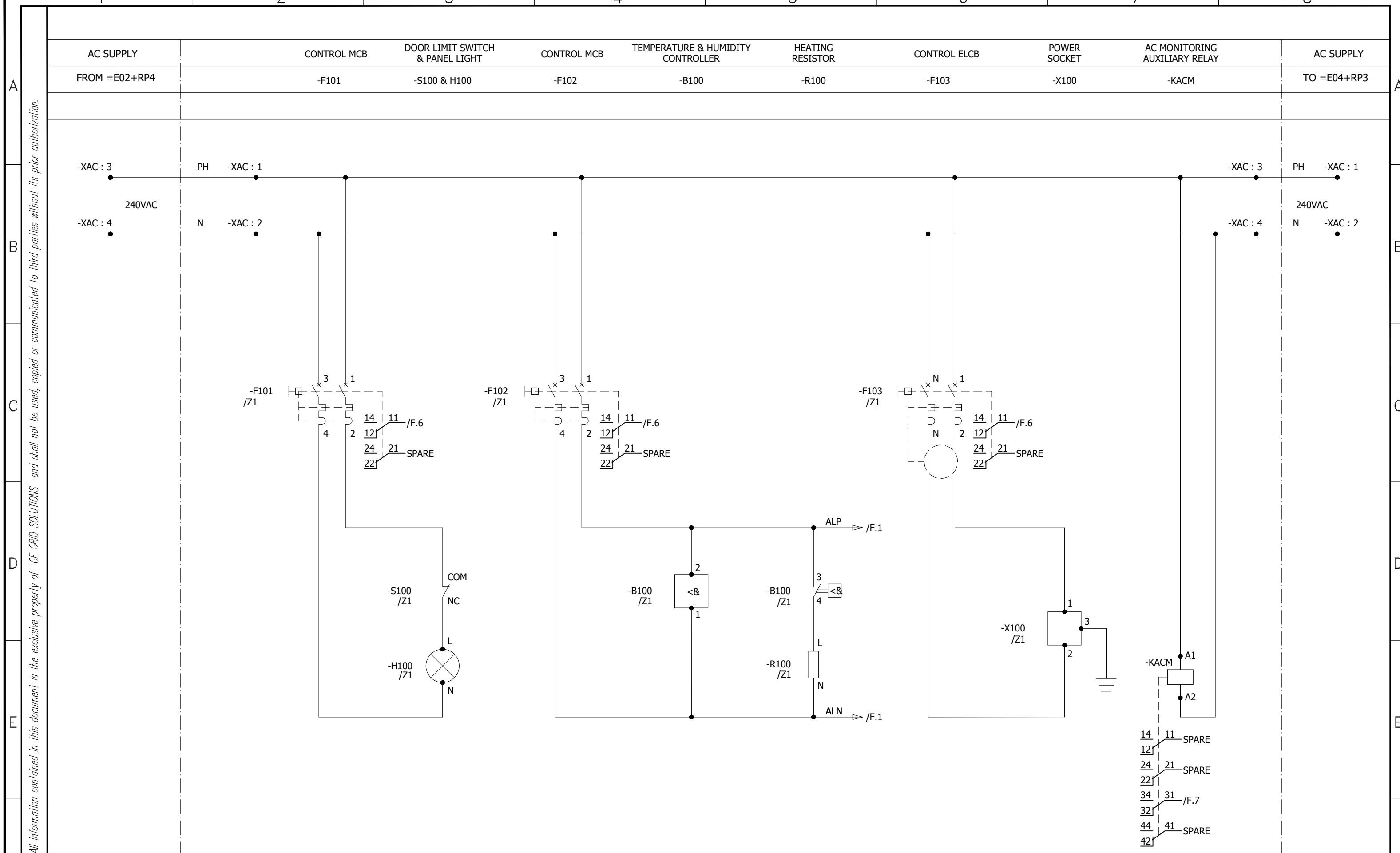
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REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194

1 2 3 4 5 6 7 8

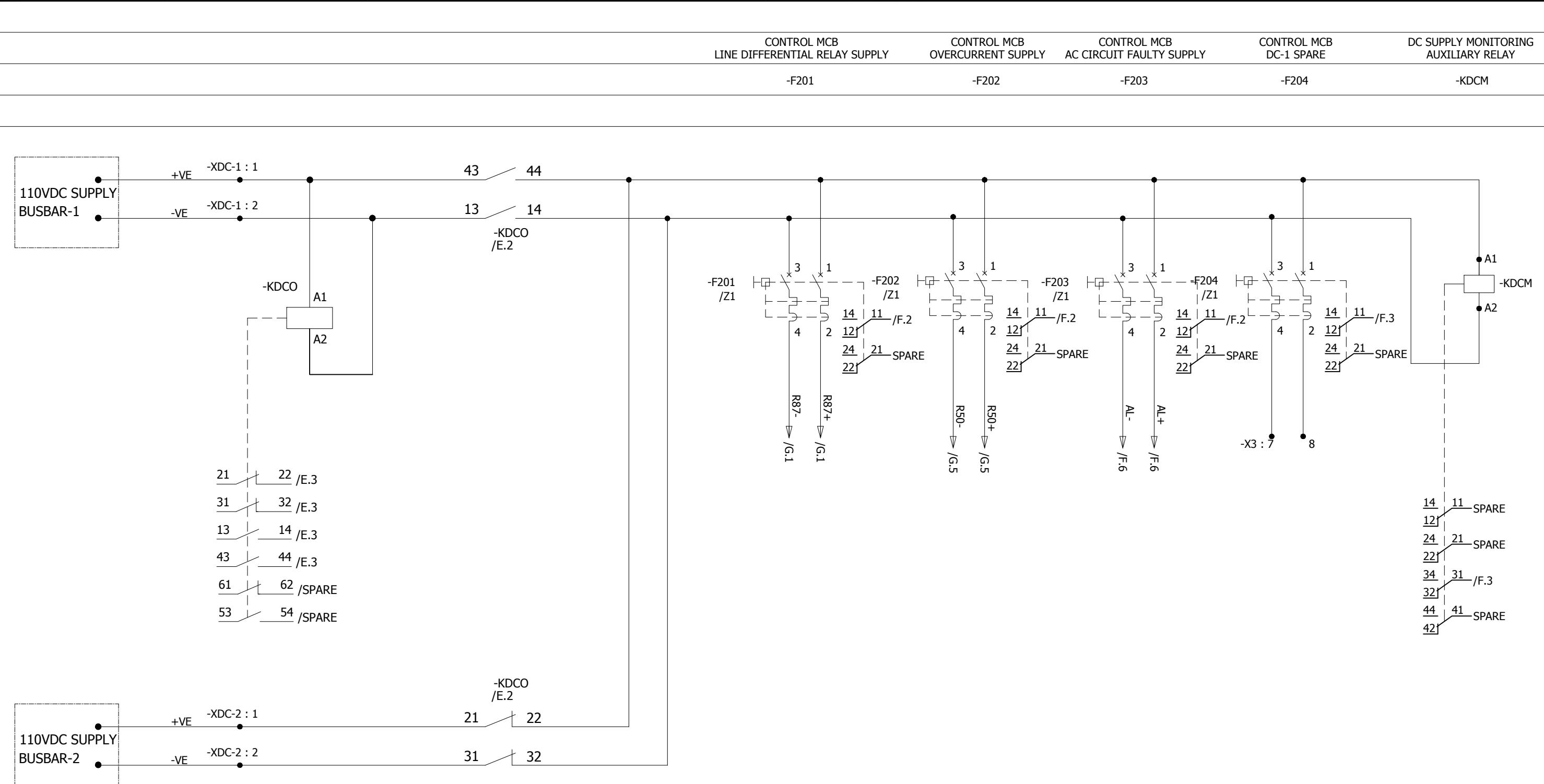


0	AS BUILT	20.11.2018	ASJ	Manufacturer EPE SOL 7a-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) BAY CONCEPT & PROTECTION LOGICS	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type AE
									Sheet no. 06

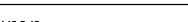
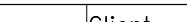
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REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type D
									Sheet no. 07



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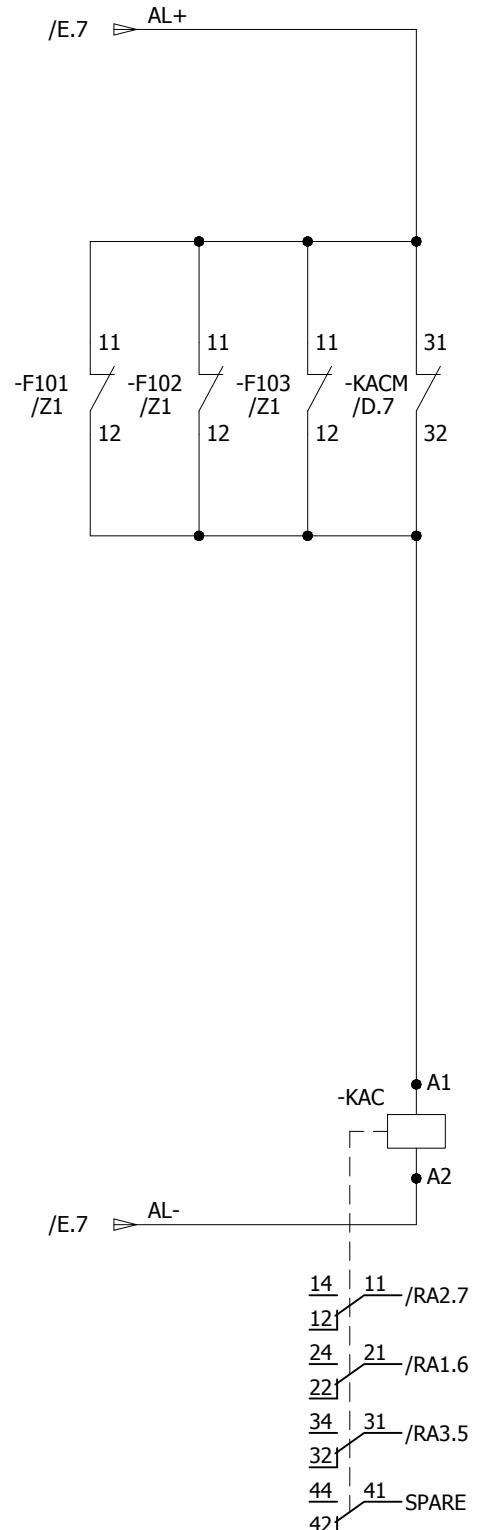
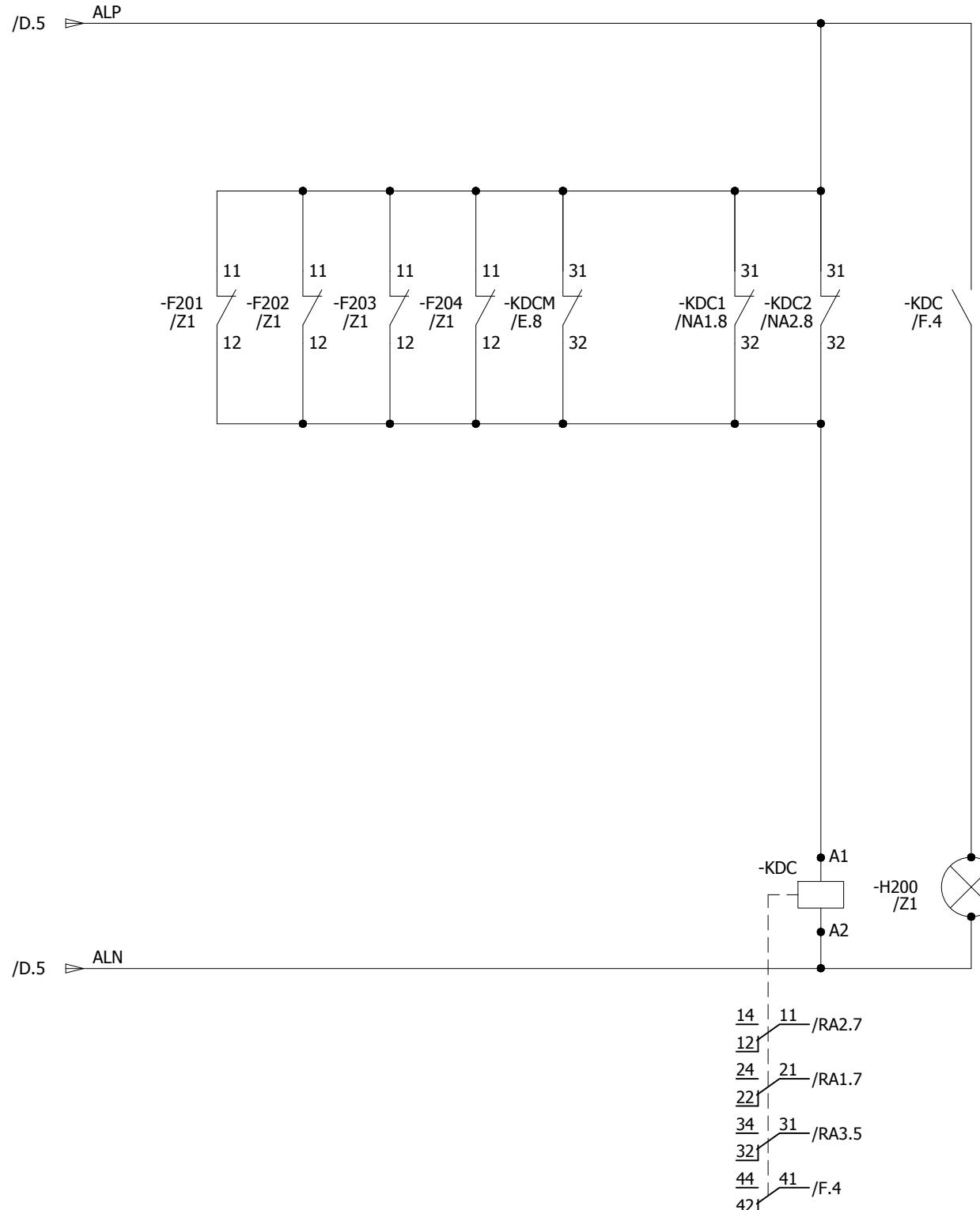
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								P60194-E-ELR-SC-002			
								Project no. P-60194			
								Sheet type E			
REV.	DESCRIPTION	DATE	DRAWER	1	2	3	4	5	6	7	8

110V DC CIRCUIT FAULTY

240V AC CIRCUIT FAULTY

-KDC

-KAC



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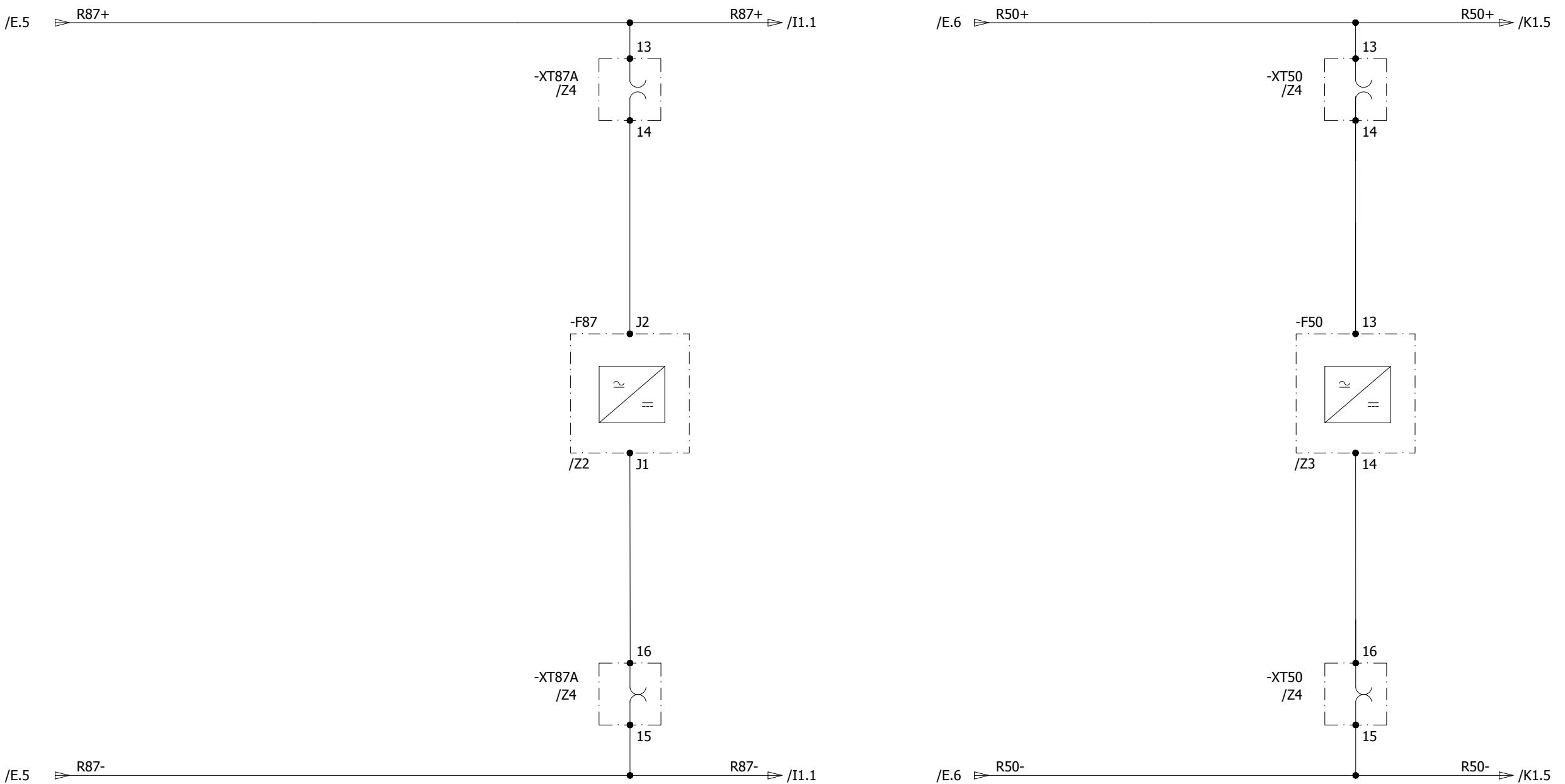
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REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type F
									Sheet no. 09

LINE DIFFERENTIAL PROTECTION

OVERCURRENT PROTECTION

RELAY SUPPLY

RELAY SUPPLY



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A

A

B

B

C

C

D

D

E

E

F

F

0	AS BUILT	20.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) RELAY POWER SUPPLY CIRCUIT	Drawing no. P60194-E-ELR-SC-002	
REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type G	Sheet no. 10

1 2 3 4 5 6 7 8

TEST BLOCK

LINE DIFFERENTIAL PROTECTION
RELAY

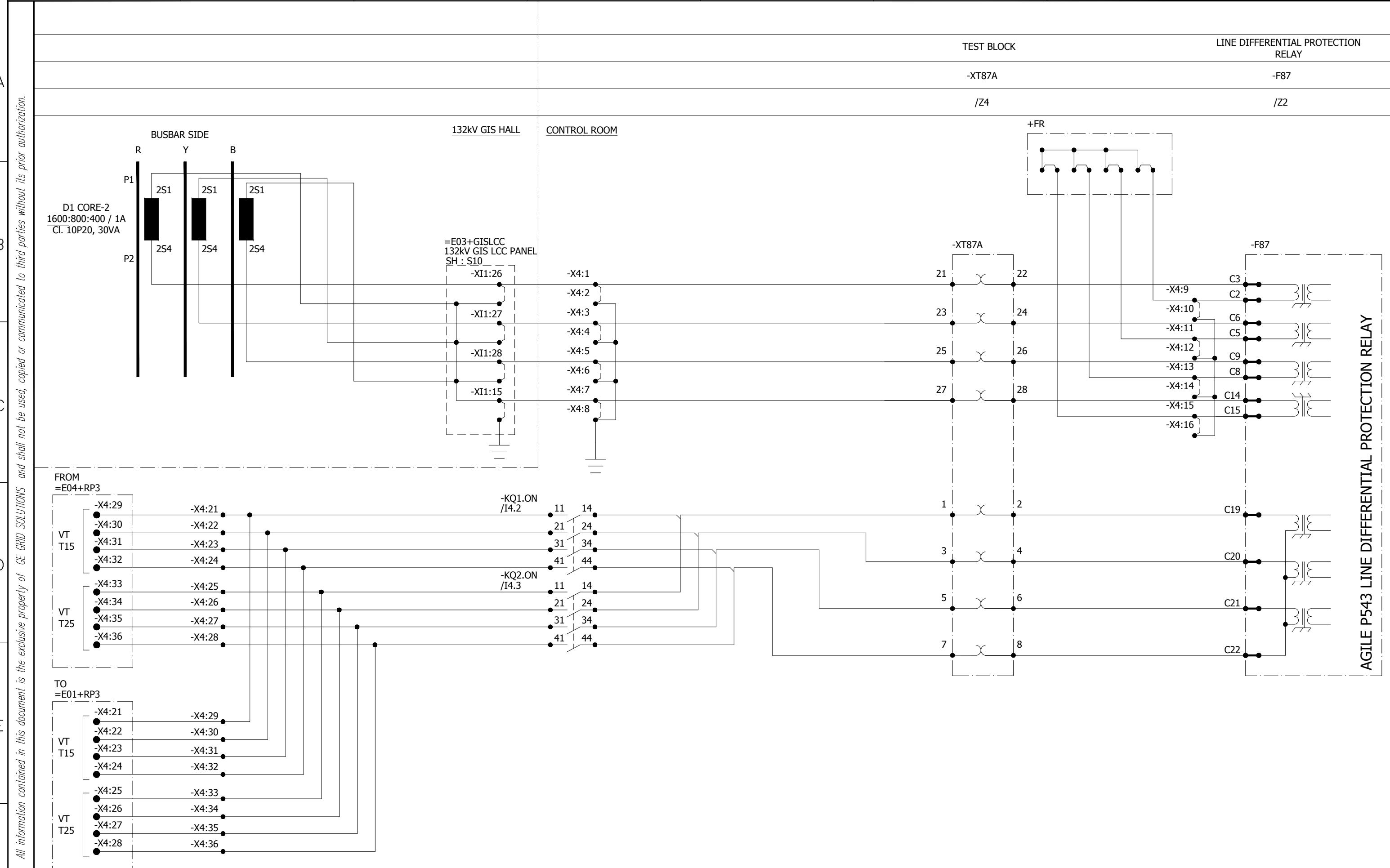
-XT87A

-F87

/Z4

/Z2

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0	AS BUILT	20.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.
				EPEPSOL	Grid Solutions	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	132kV LINE RELAY PANEL (=E03+RP3) LINE DIFFERENTIAL PROTECTION CT/VT CIRCUIT	P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194 Sheet type H1 Sheet no. 11

1 2 3 4 5 6 7 8

TEST BLOCK

OVERCURRENT
RELAY

-XT50

-F50

/Z4

/Z3

132kV GIS HALL

CONTROL ROOM

BUSBAR SIDE

D1 CORE-3
1600:800:400 / 1A
Cl. 10P20, 30VA

=E03+GISLCC

132kV GIS LCC PANEL

SH : S11

-XI1:40

-XI1:41

-XI1:42

-XI1:29

-X5:1

-X5:2

-X5:3

-X5:4

-X5:5

-X5:6

-X5:7

-X5:8

-XT50

1

2

3

4

5

6

7

8

-F50

21

22

23

24

25

26

27

28

AGILE P14N O/C & E/F RELAY

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AS BUILT

20.11.2018

ASJ

Manufacturer



EPESOL
71-B Garden Block,
New Garden Town,
Lahore, Pakistan

Contractor



Grid Solutions
A GE and Alstom joint venture

Client



NATIONAL TRANSMISSION &
DISPATCH COMPANY LIMITED
(NTDC-WAPDA)

Project

220kV/132kV GIS SUBSTATION
GHAZI ROAD, LAHORE

Title

132kV LINE RELAY PANEL
(=E03+RP3)
O/C & E/F CT INPUTS

Drawing no.

P60194-E-ELR-SC-002

Project no.

P-60194

Sheet type

H2

Sheet no.

12

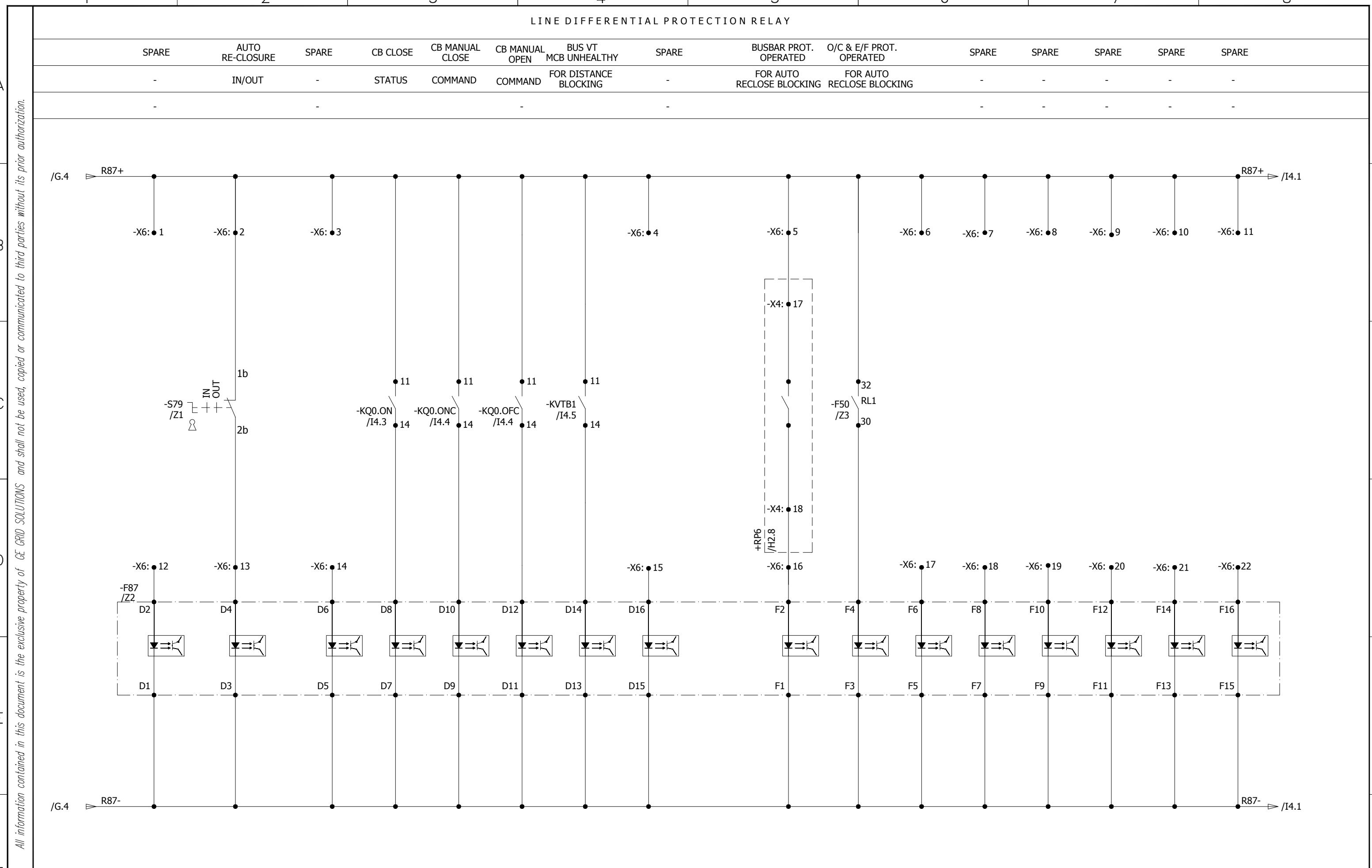
REV.

DESCRIPTION

DATE

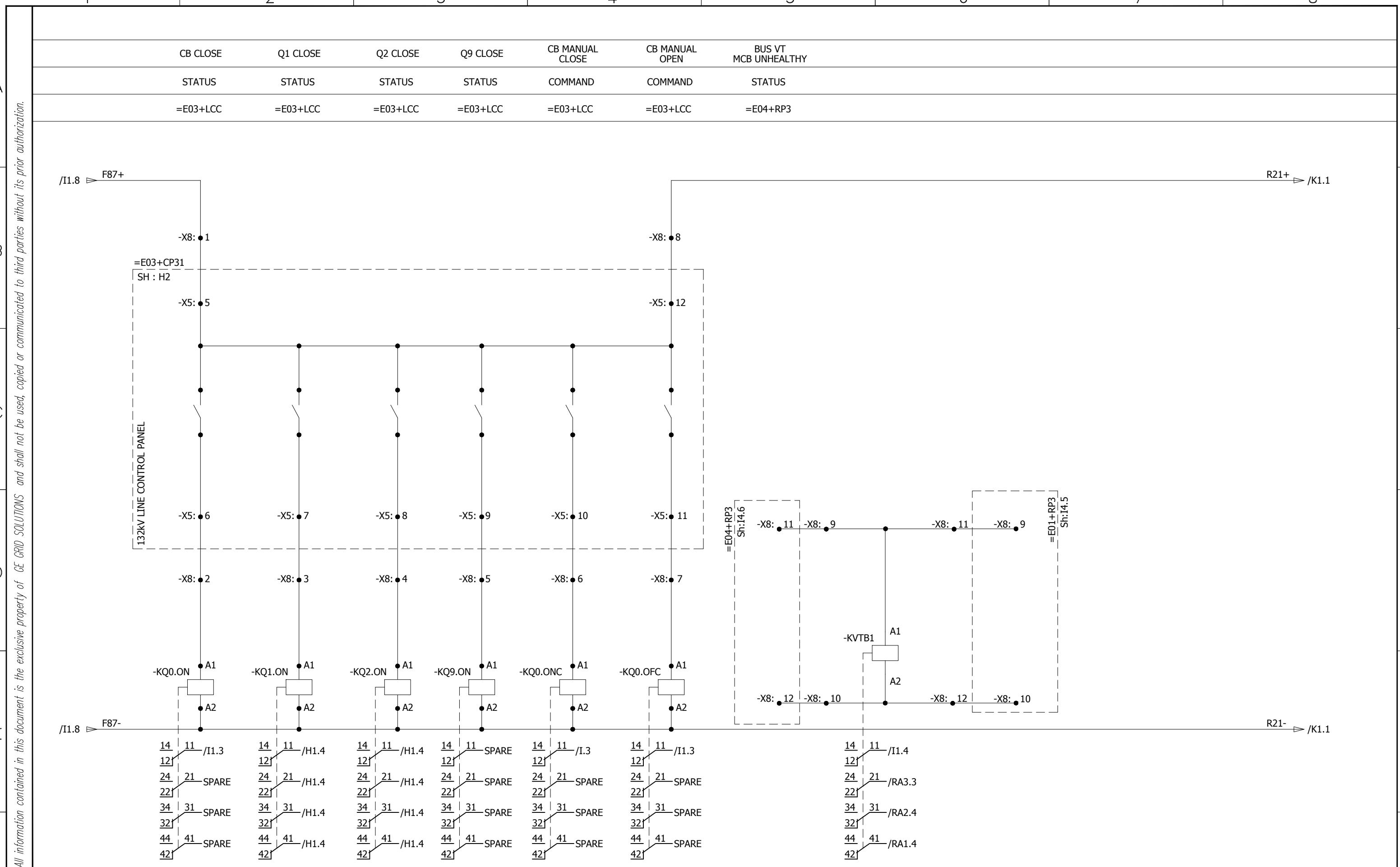
DRAWER

LINE DIFFERENTIAL PROTECTION RELAY



0	AS BUILT	20.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132KV LINE RELAY PANEL (=E03+RP3) LINE DIFFERENTIAL RELAY INPUTS	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
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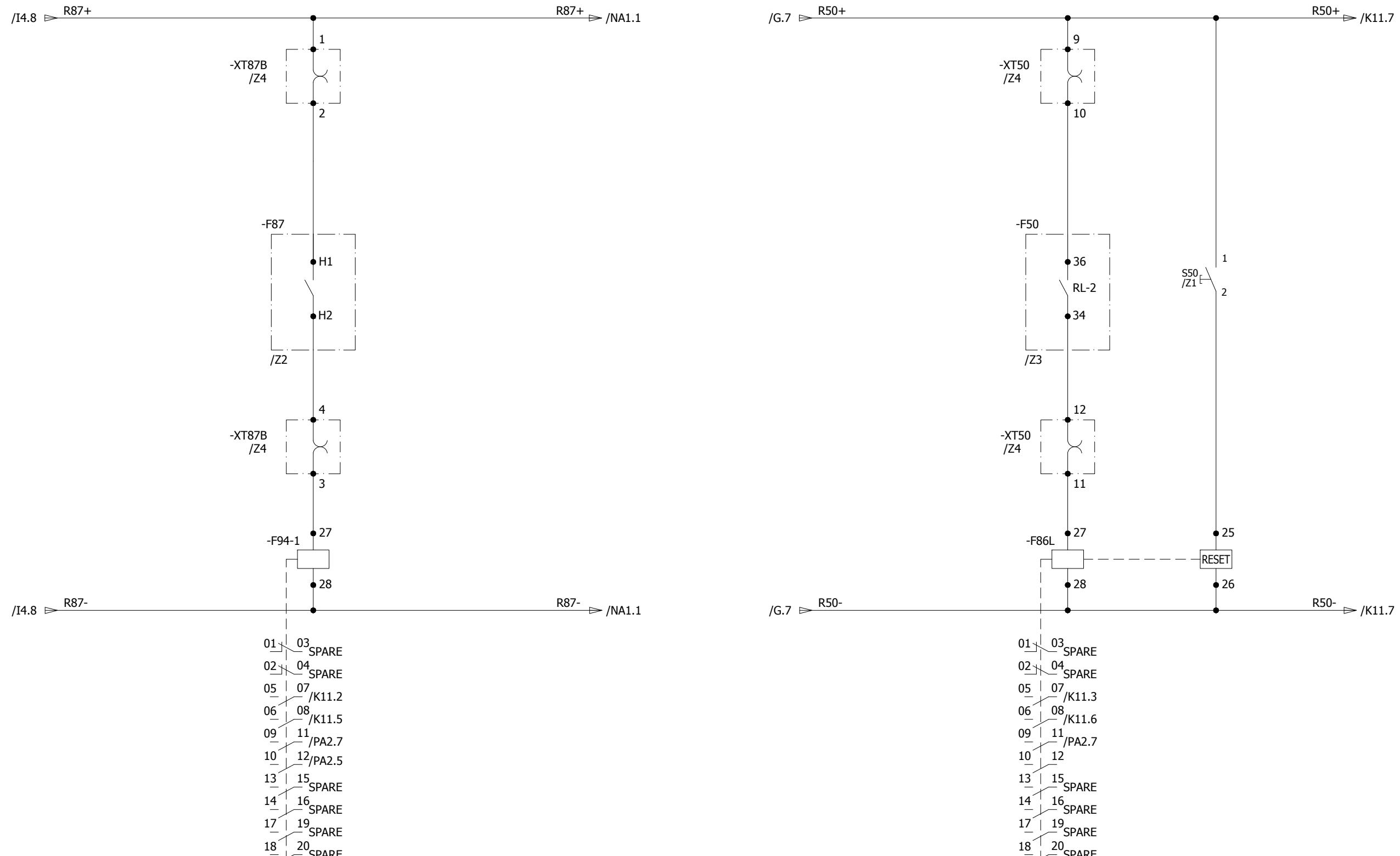


0	AS BUILT		20.11.2018	ASJ	Manufacturer	Contractor	Client	Project	Title	Drawing no.		
REV.	DESCRIPTION		DATE	DRAWER	EPEPSOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Grid Solutions A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	132kV LINE RELAY PANEL (=E03+RP3) SYSTEM INPUTS	P-60194	Sheet type	Sheet no.
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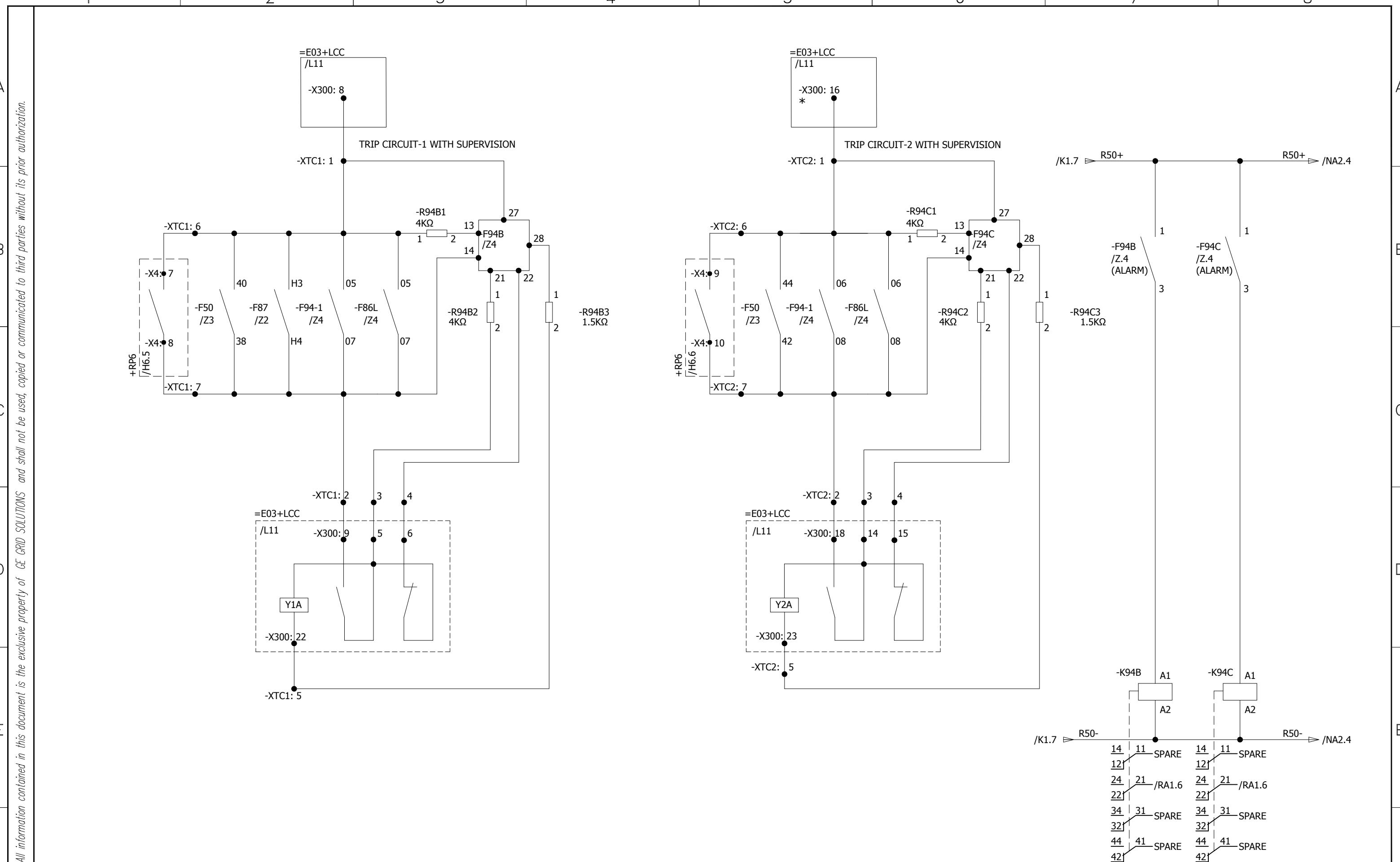
LINE DIFFERENTIAL PROTECTION GENERAL TRIP

O/C & E/F PROTECTION TRIP TRIP RELAY RESET

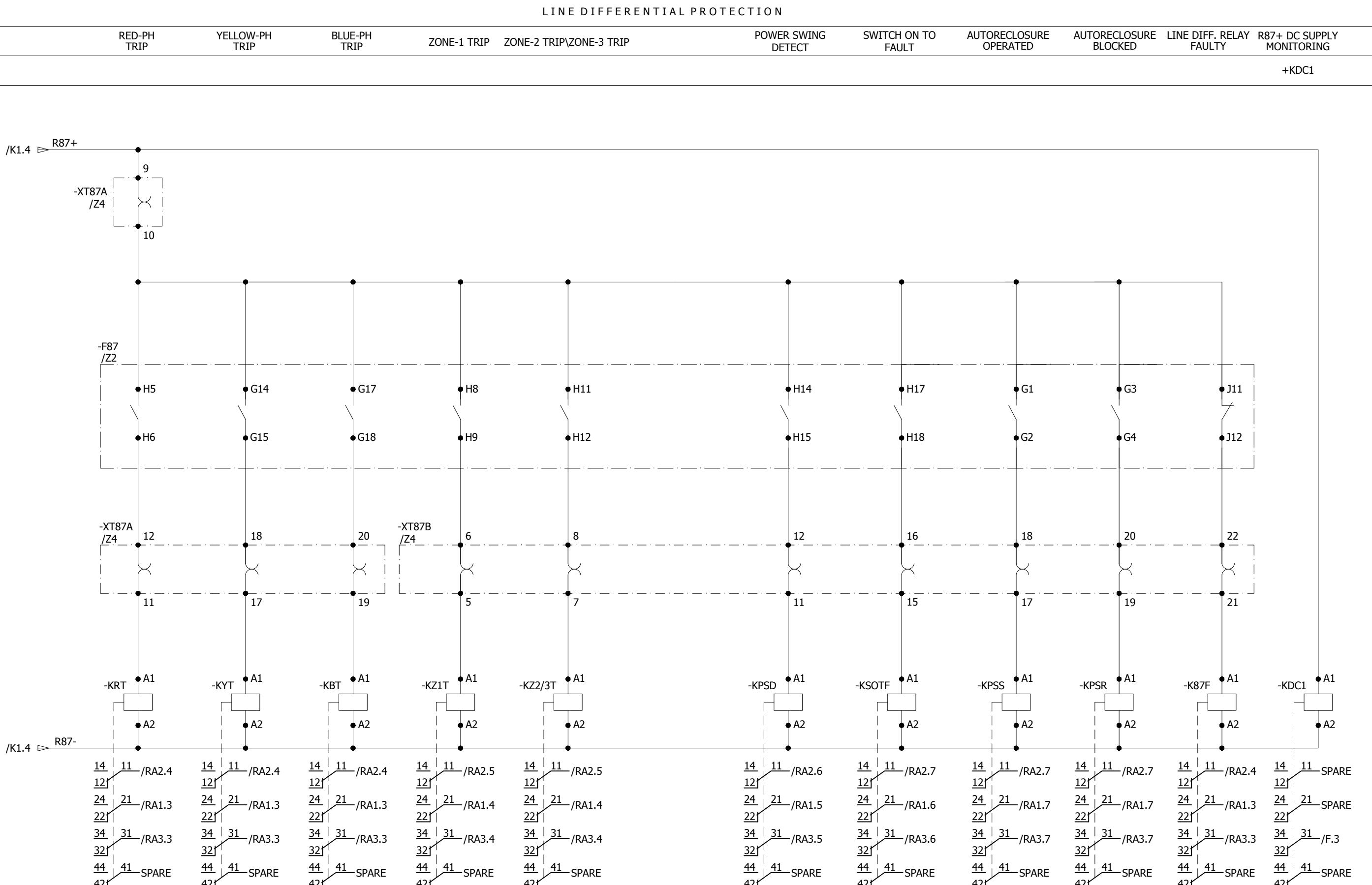
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0	AS BUILT	20.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) PROTECTION TRIPS	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type K1
									Sheet no. 15



0	AS BUILT	20.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132KV LINE RELAY PANEL (=E03+RP3) TRIP CIRCUIT SUPERVISION CIRCUIT	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type K11
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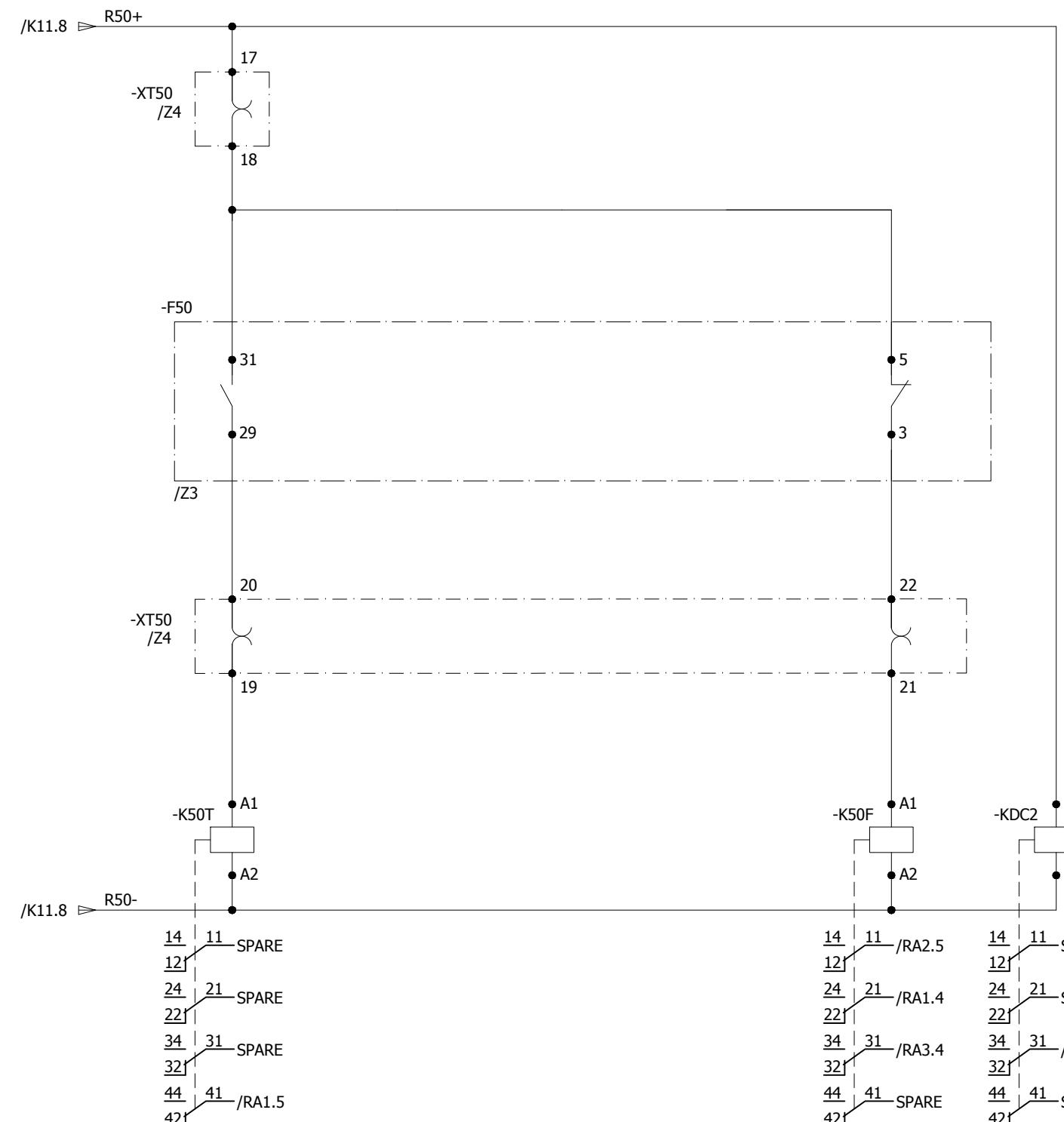


O/C & E/F RELAY ALARMS

R50+ DC SUPPLY
MONITORINGO/C & E/F
TRIPPROTECTION
FAULTY

+KDC2

/Z3



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0	AS BUILT	20.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) SYSTEM ALARMS	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194 Sheet type NA2 Sheet no. 18

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A

B

C

D

E

F

A

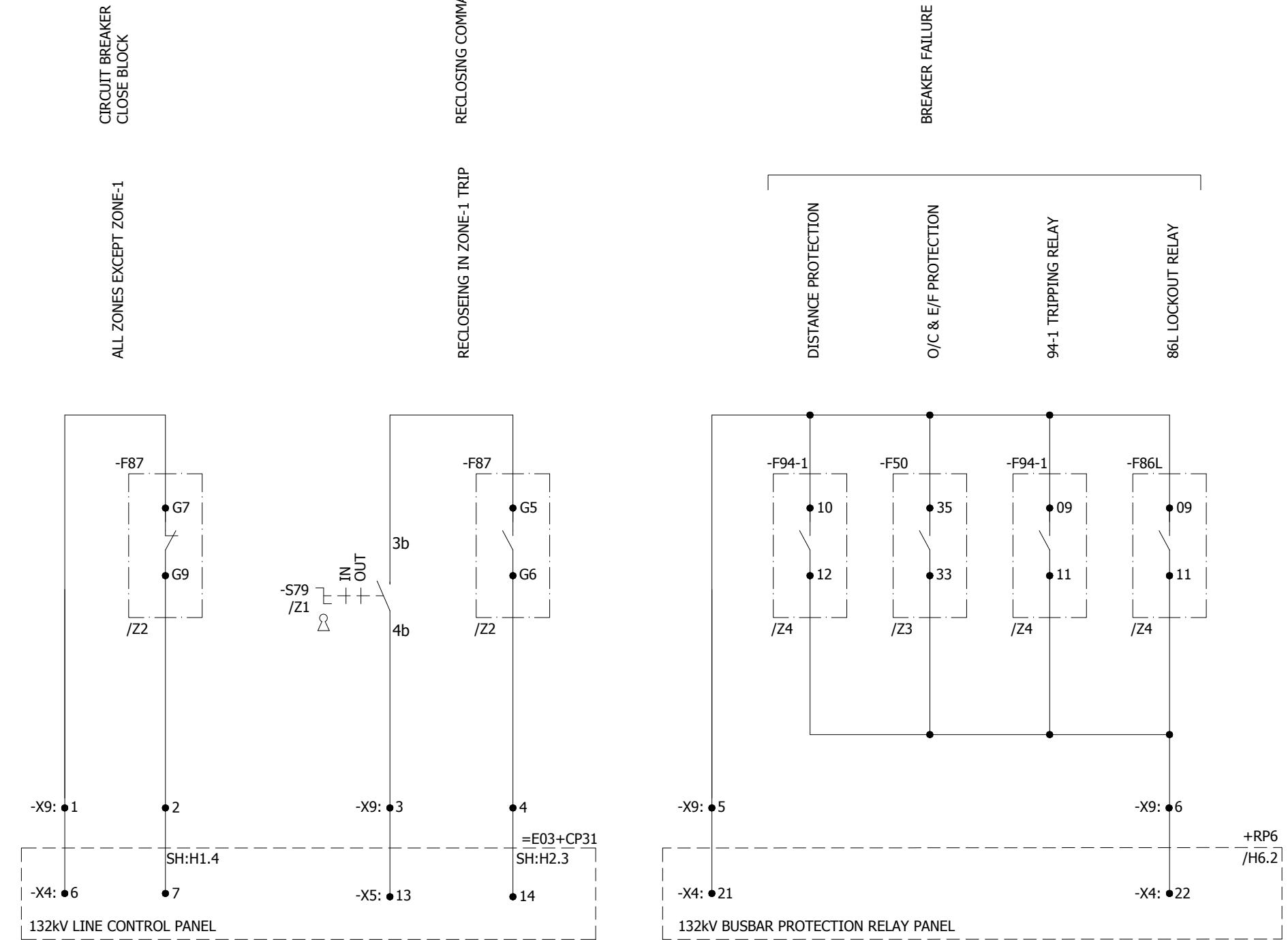
B

C

D

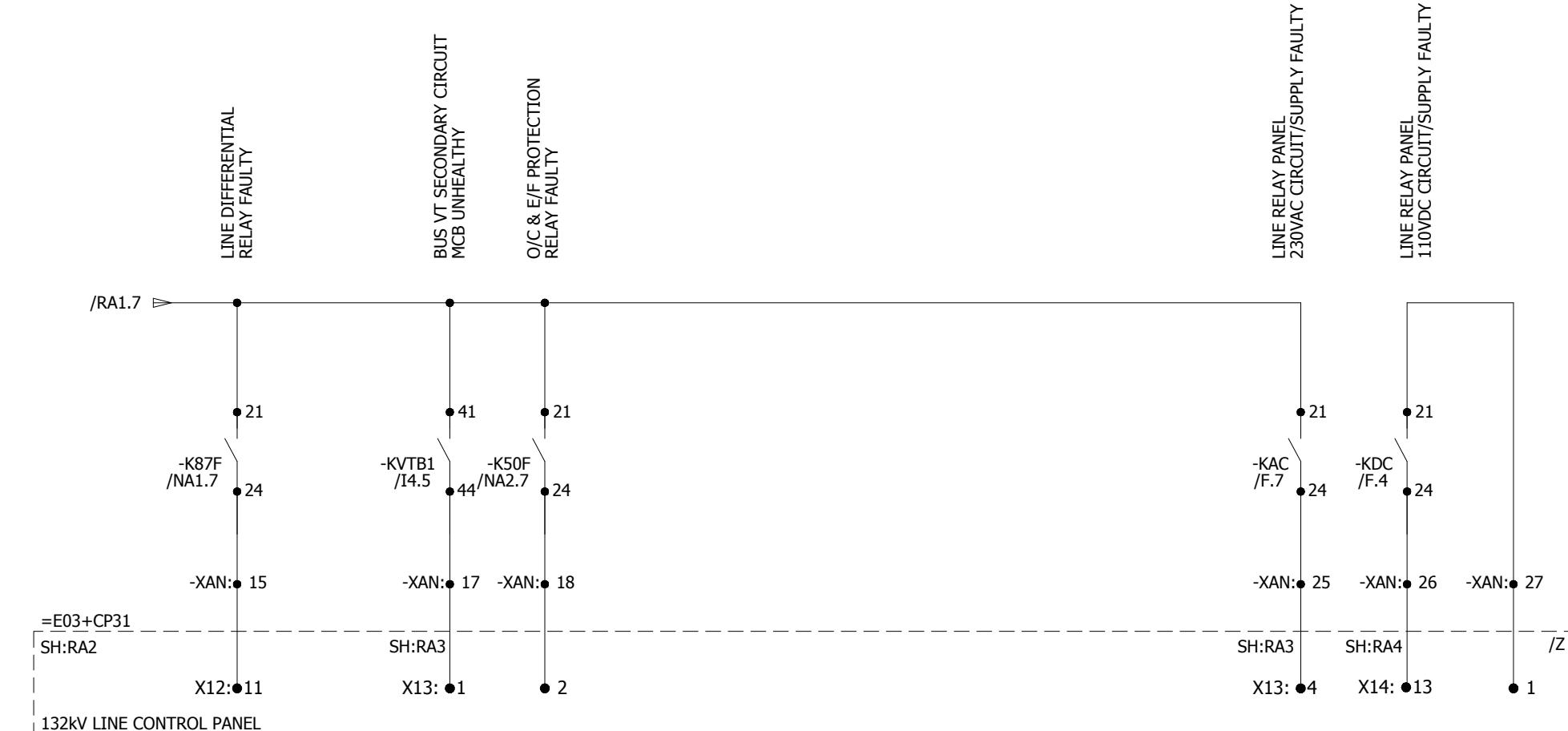
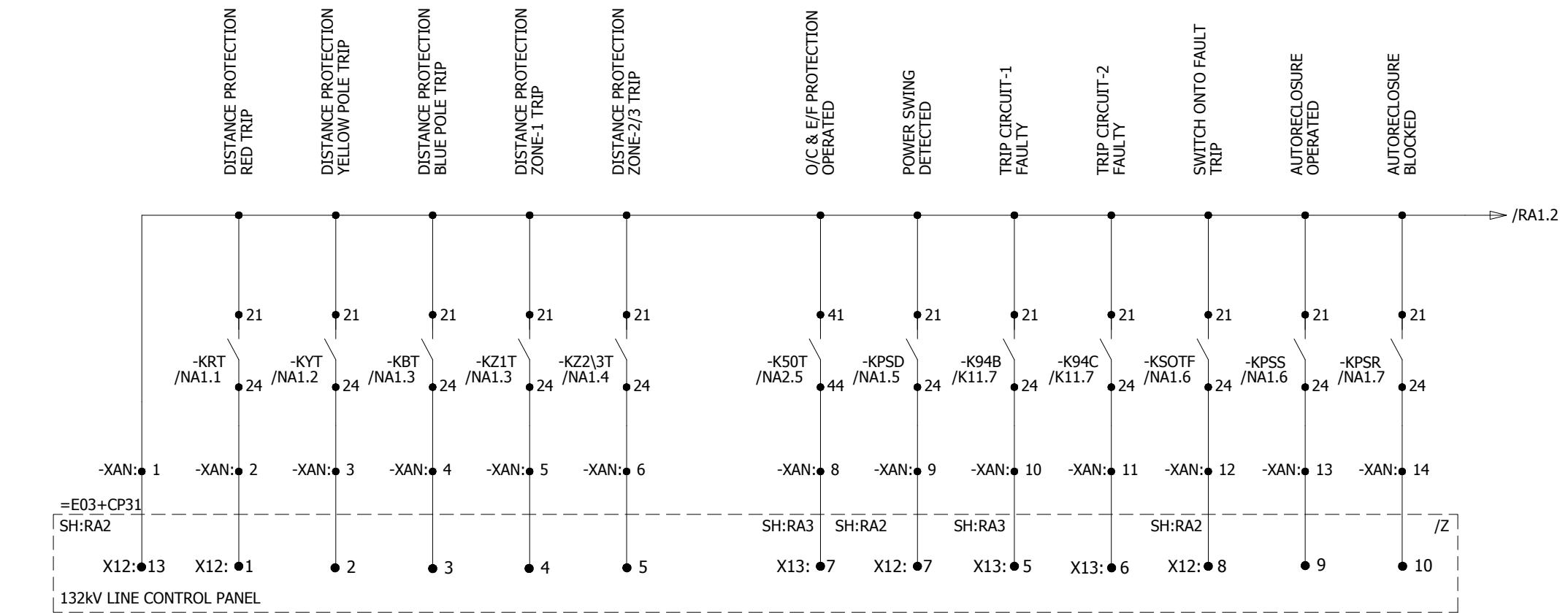
E

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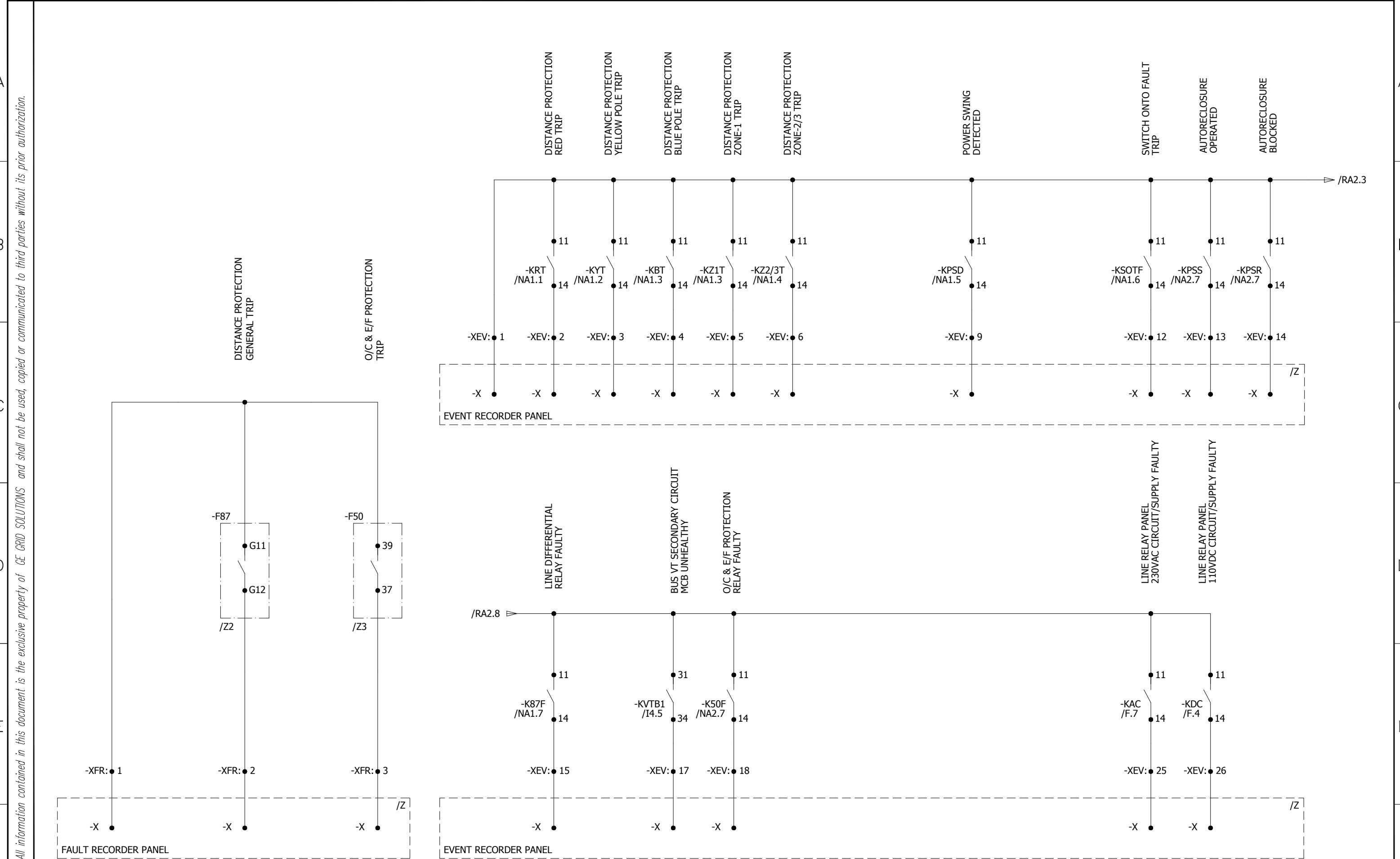
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REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194 Sheet type PA2 Sheet no. 19
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0	AS BUILT	20.11.2018	ASJ	Manufacturer  EPESOL 21-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions A GE and Alstom joint venture	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) ANNUNCIATION CIRCUIT	Drawing no.		
								P60194-E-ELR-SC-002			
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REV.	DESCRIPTION	DATE	DRAWER	1	2	3	4	5	6	7	

1 2 3 4 5 6 7 8



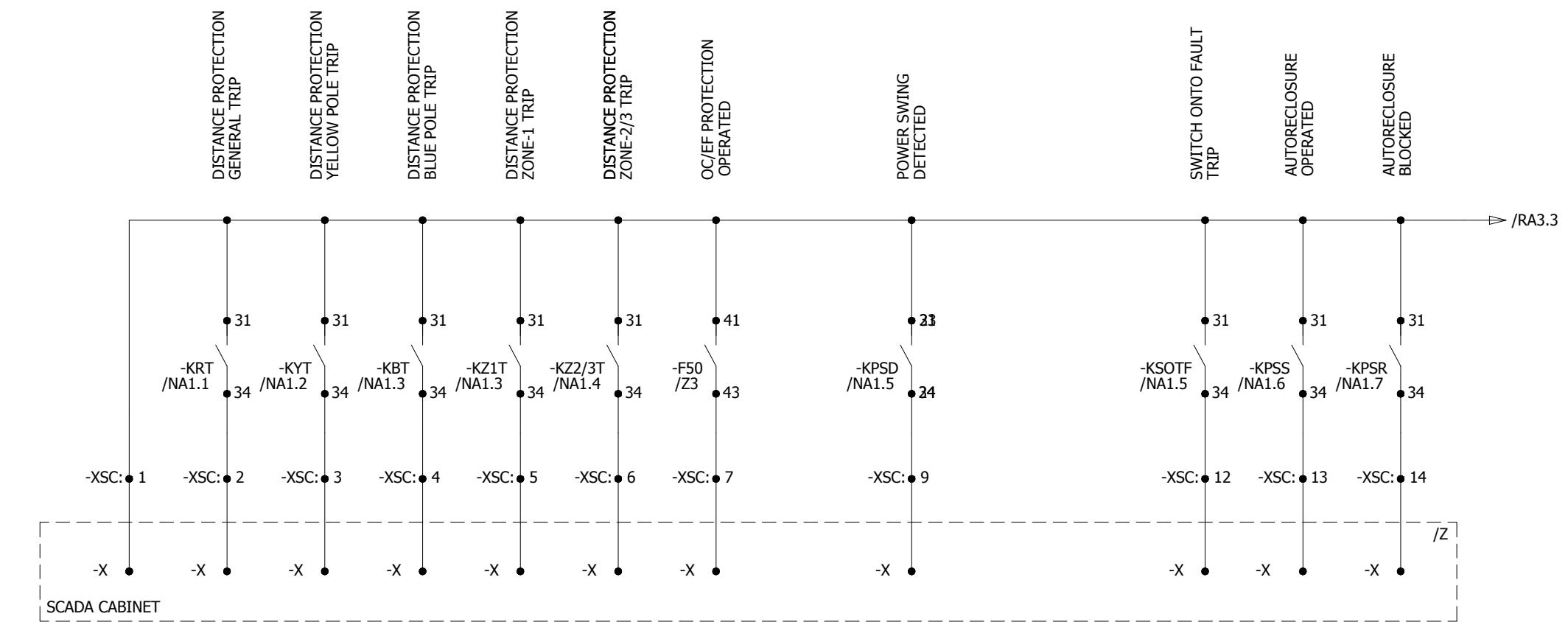
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REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194
									Sheet type RA2
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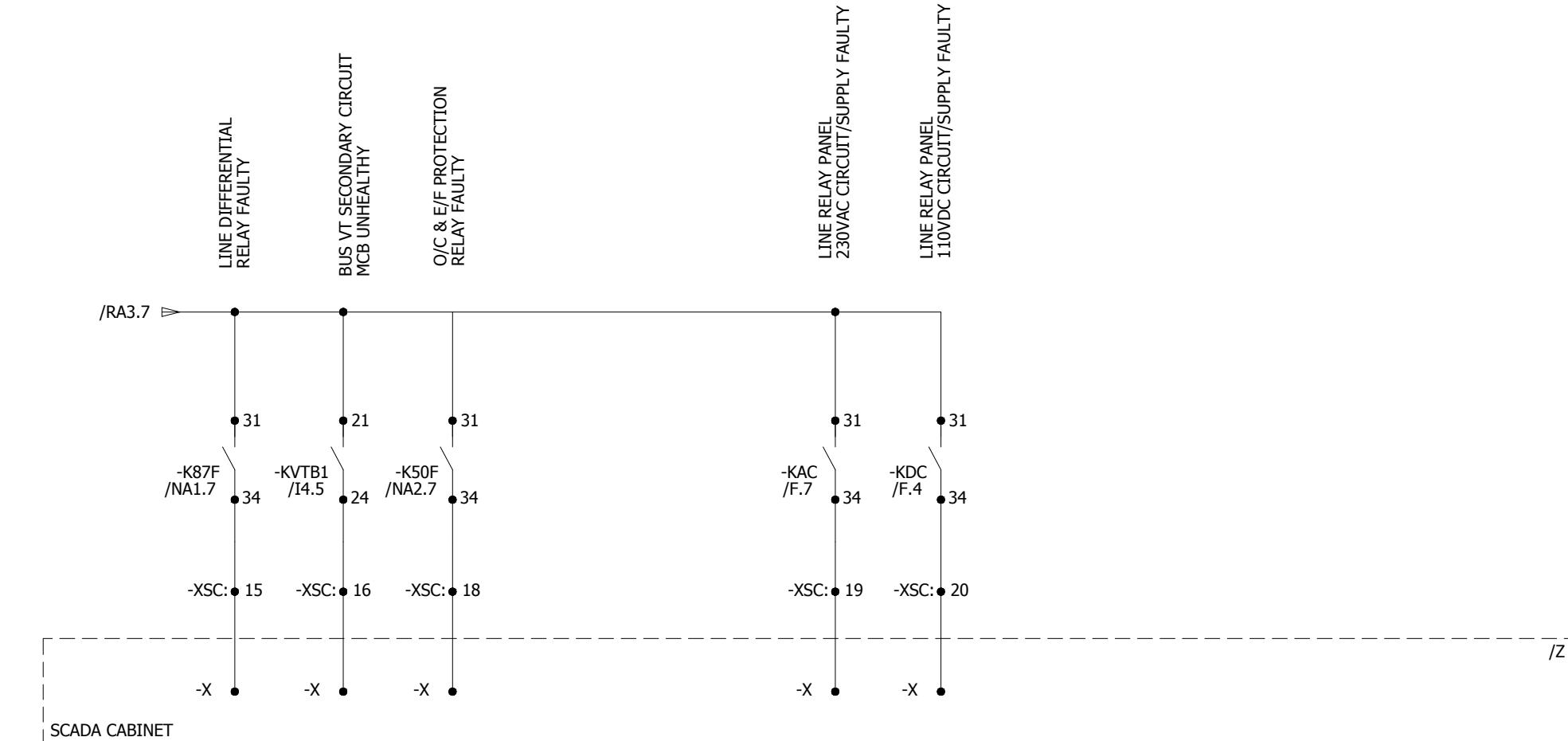
A

A



B

B



C

C

D

D

E

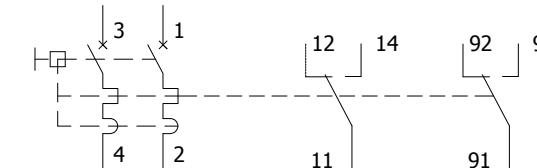
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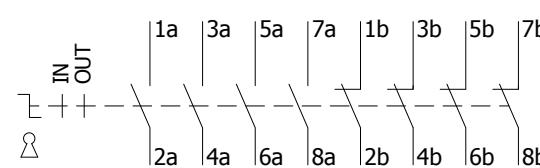
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0	AS BUILT	20.11.2018	ASJ	Manufacturer EPE SOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) SCADA CIRCUIT	Drawing no. P60194-E-ELR-SC-002
REV.	DESCRIPTION	DATE	DRAWER						Project no. P-60194

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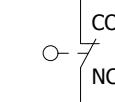


-F101	D.2	F.6	
-F102	D.4	F.6	
-F103	D.6	F.6	
-F201	E.5	F.2	
-F202	E.5	F.2	
-F203	E.6	F.2	
-F204	E.7	F.3	

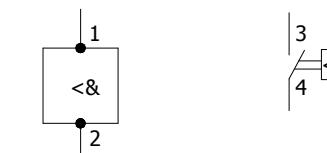


-S79 I1.2 PA2.4

parties without its prior authorization

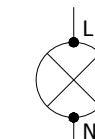


-S100 D.3

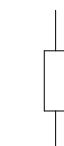


-B100 D.4 D.5

parties without its prior authorization

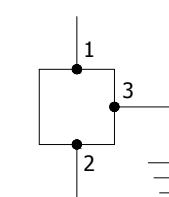


-H100	D.3
-H200	F.4

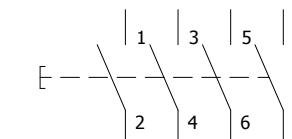


-R100 D.5

parties without its prior authorization



-X100 D.7



-S50 K1.7

parties without its prior authorization

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-F101	D.2	F.6	
-F102	D.4	F.6	
-F103	D.6	F.6	
-F201	E.5	F.2	
-F202	E.5	F.2	
-F203	E.6	F.2	
-F204	E.7	F.3	

-S79				I1.2	PA2.4		
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-S100	D.3
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-B100	D.4	D.5
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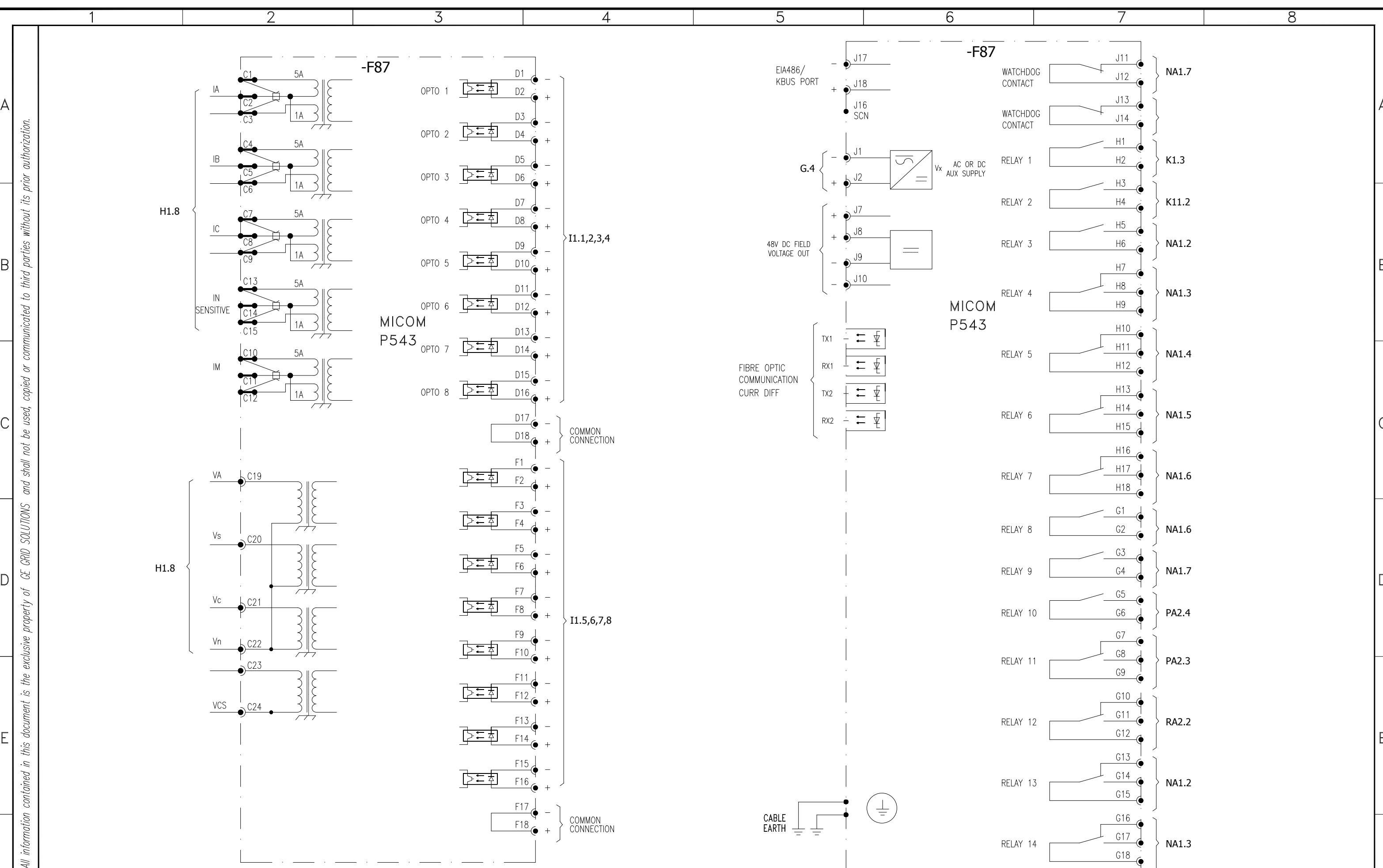
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-R100	D.5
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-X100	D.7
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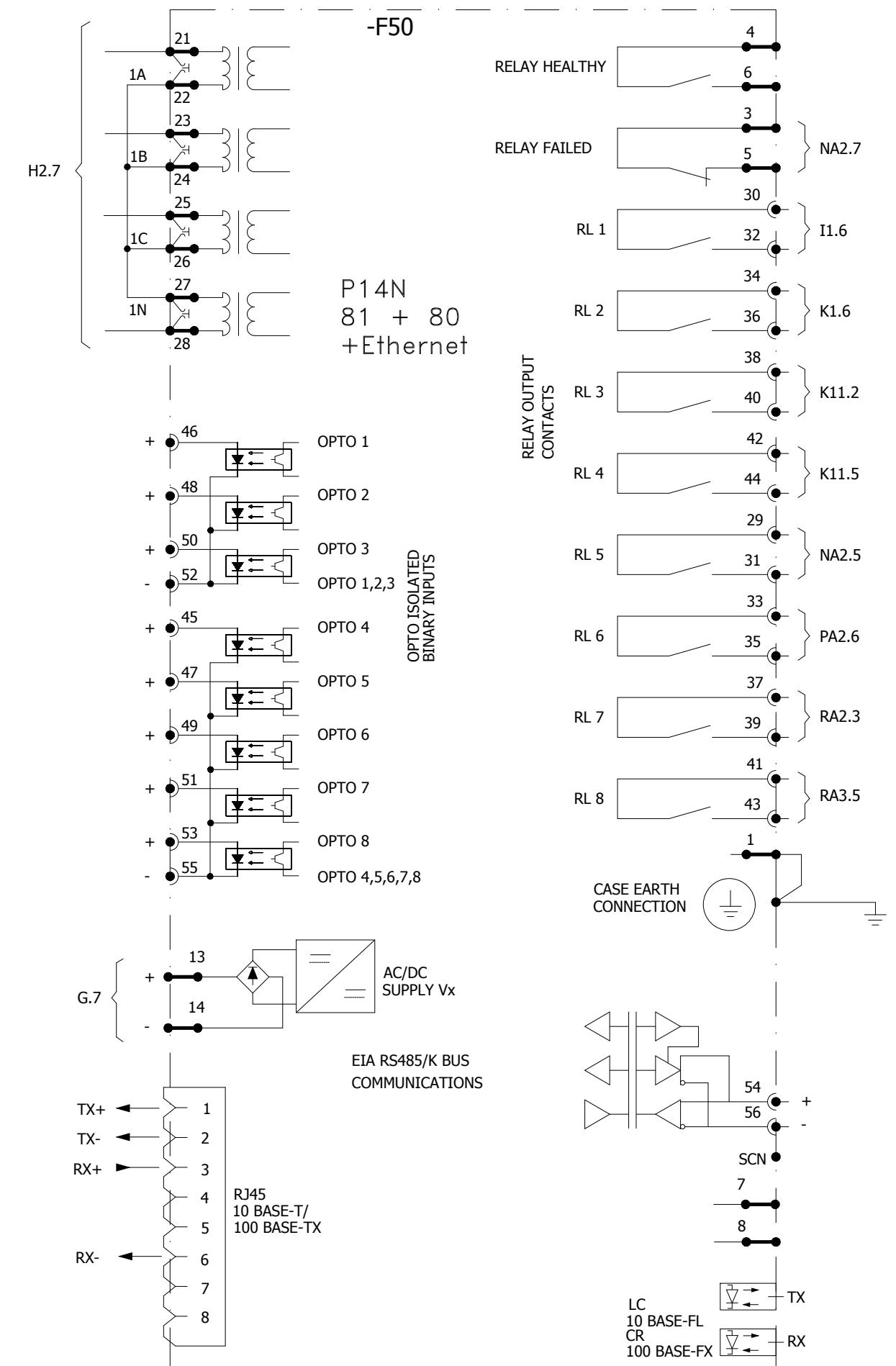
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0	AS BUILT	20.11.2018	ASJ	Manufacturer EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor GE Grid Solutions A GE and Alstom joint venture	Client NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	Project 220kV/132kV GIS SUBSTATION GAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL (=E03+RP3) COMPONENT DIAGRAM	Drawing no. P60194-E-ELR-SC-002	
REV.	DESCRIPTION	DATE	DRAWER					Project no. P-60194	Sheet type Z1	Sheet no. 23



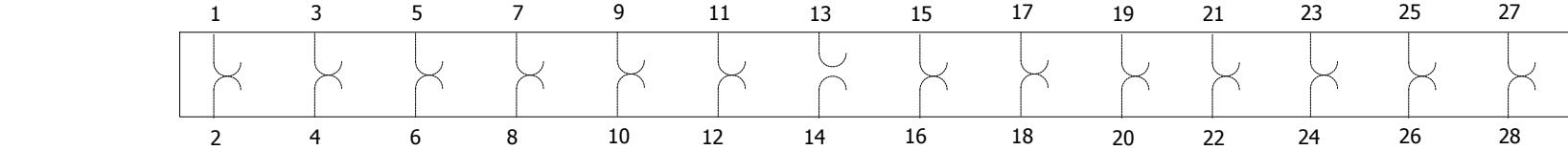
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REV.	DESCRIPTION	DATE	DRAWER	EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Grid Solutions A GE and Alstom joint venture	NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED (NTDC-WAPDA)	220KV/132KV GIS SUBSTATION GHAZI ROAD, LAHORE	132KV LINE RELAY PANEL (=E03+RP3) COMPONENT DIAGRAM	P60194-E-ELR-SC-002		
									Project no. P-60194	Sheet type Z2	Sheet no. 24
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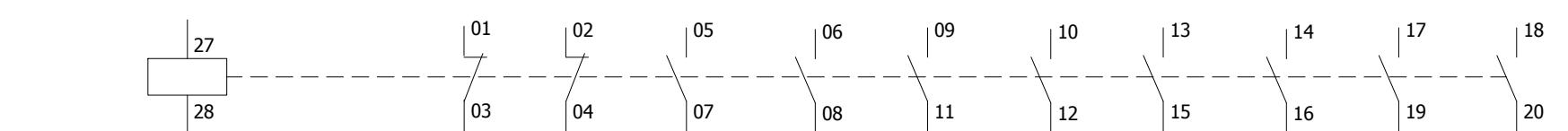


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REV.	DESCRIPTION	DATE	DRAWER						Sheet type	Sheet no.	Z3

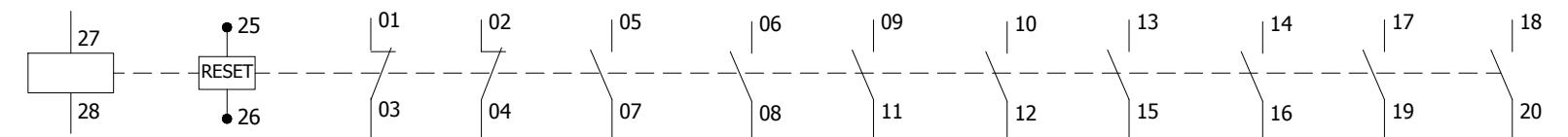
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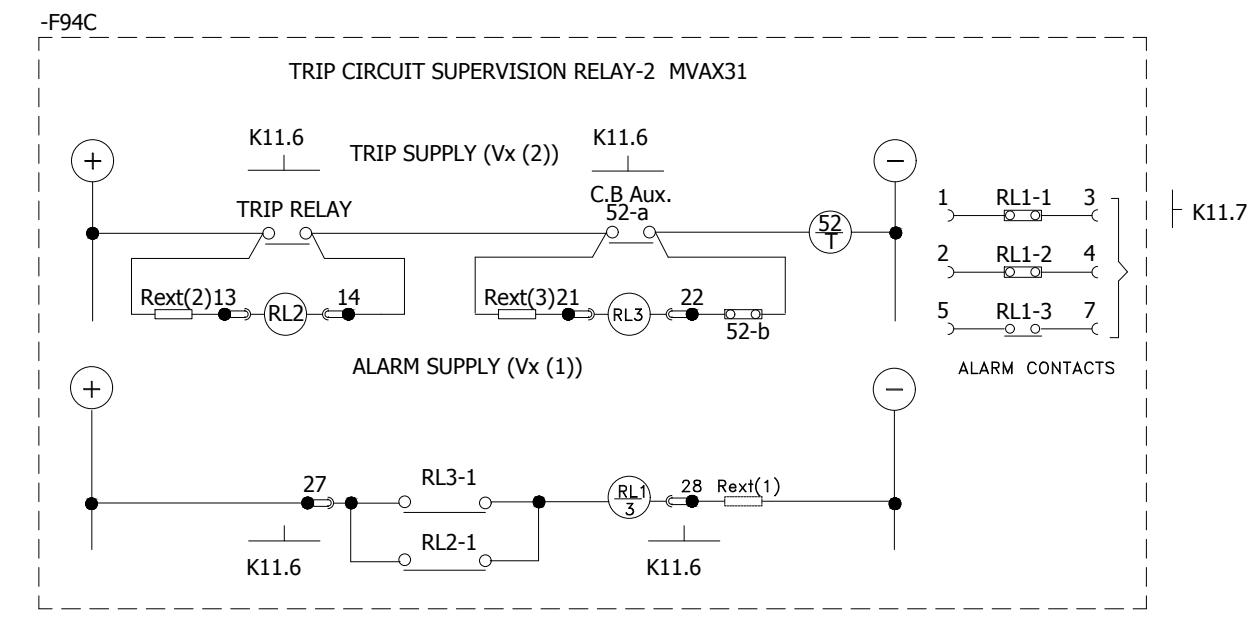
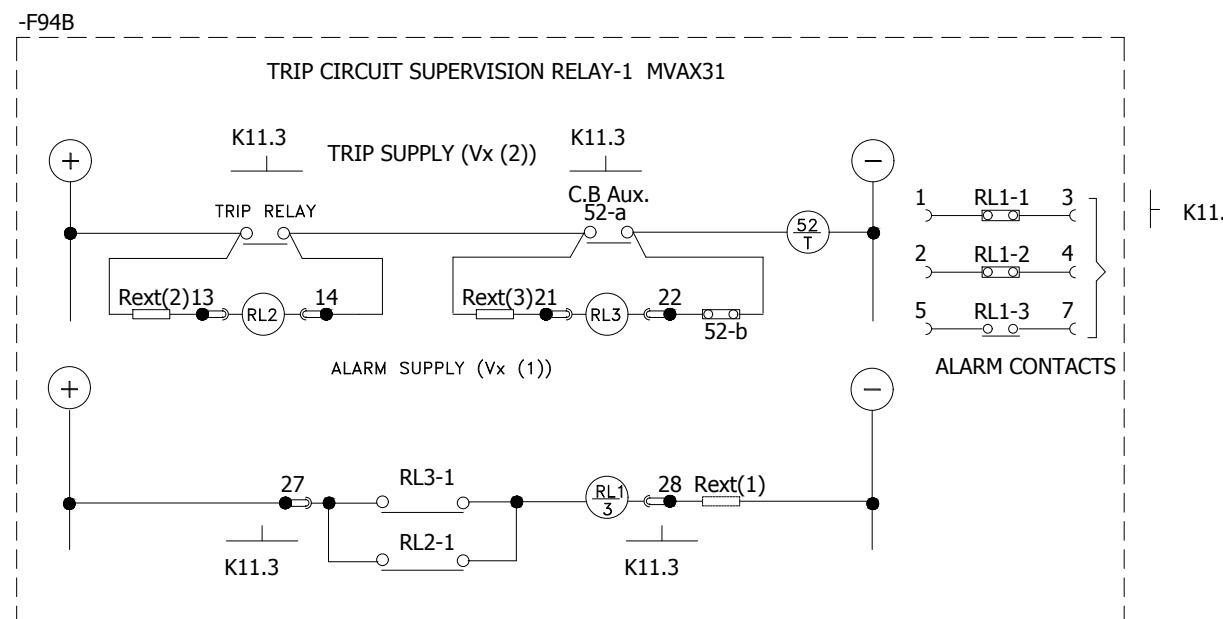
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-XT87B	K1.2	NA1.4		NA1.5		NA1.6,7			
-XT50	H2.6		K1.6		G.7		NA2.5	NA2.7	



-F94-1 K1.2 K11.3 K11.5 PA2.7 PA2.5



-R94B1	K11.3
-R94B2	K11.3
-R94B3	K11.4
-R94C1	K11.6
-R94C2	K11.6
-R94C3	K11.7



0	AS BUILT	20.11.2018	ASJ	Manufacturer  EPESOL 71-B Garden Block, New Garden Town, Lahore, Pakistan	Contractor  Grid Solutions <small>A GE and Alstom joint venture</small>	Client  NATIONAL TRANSMISSION & DISPATCH COMPANY LIMITED <small>(NTDC-WAPDA)</small>	Project 220kV/132kV GIS SUBSTATION GHAZI ROAD, LAHORE	Title 132kV LINE RELAY PANEL <small>(=E03+RP3)</small> COMPONENT DIAGRAM	Drawing no.		
								P60194-E-ELR-SC-002			
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								P-60194	Z4	26	
REV.	DESCRIPTION	DATE	DRAWER	1	2	3	4	5	6	7	8