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14687/2024/EEMRT-ENE51

CUSTOMER : APTRANSCO Drawing approval subject to valid vendor registration

CUSTOMER REF. PO.NO : AS APPLICABLE

SUBSTATION : AS APPLICABLE

EQUIPMENT : 220kV BUS SECTION CONTROL AND RELAY PANEL

DRAWING REF. : General Arrangement : 1MNS500925-AFAB
 Bill of Material : 1MNS500925-FAB
 Schematic Drawings : 1MNS500925-CFAB

STANDARD BAY REF. : =2KRBS

**Chief Engineer/Projects
 APTRANSCO/VS/Vijayawada.**

STATION AUX. SUPPLY:- 220V DC

Based on		Prepared	27.02.2024	MANASA ESHWAR	Title	220kV BUS SECTION Control & Relay Panel Title page	Doc. kind.	Circuit diagram		Ref.Des.	=2KRBS
		Approved	27.02.2024	GOURISH HEGDE				DCC EFS			
		Project	APTRANSCO STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
Rev.	Revision note	Date	Name			Doc. no.	1MNS500925-AFAB		Sheet	1	No.sheets
1MYN691003-102(A3)REV01											

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Based on				Prepared 27.02.2024		MANASA ESHWAR		Title 220kV BUS SECTION		Doc. kind. List of contents		Ref.Des. =2KRBS	
				Approved 27.02.2024		GOURISH HEGDE		List of contents		DCC EAB			
				Project APTRANSCO						Resp. dept. PG-GAS		Rev. ind. 0	
				STANDARD DRAWING						Language en			
Rev. Revision note				Date		Name		HITACHI Hitachi Energy India Limited		Doc. no. 1MNS500925-AFAB		Sheet 2	
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APTRANSCO/VS/Vijayawada.**

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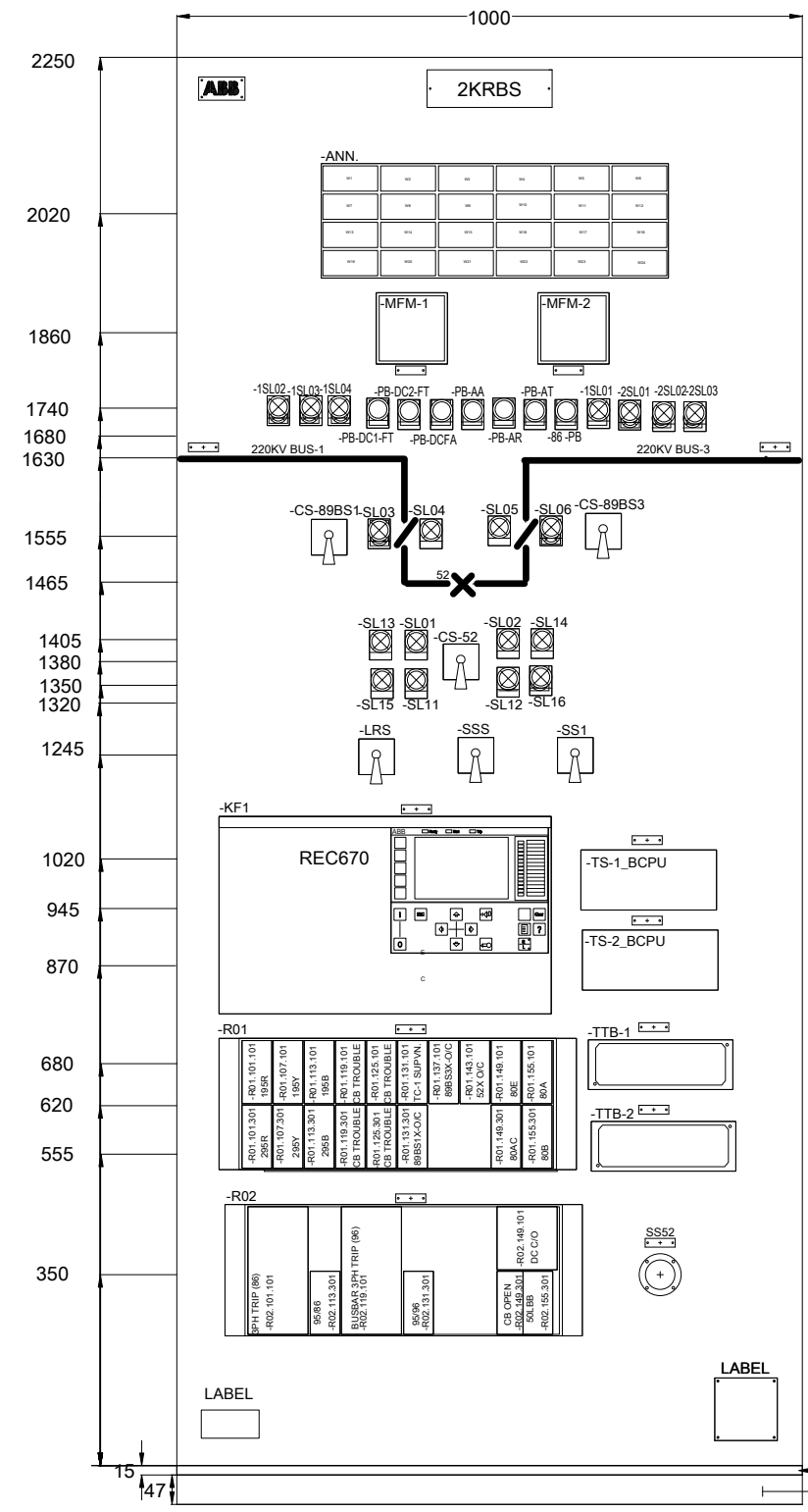
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1006	1007	Parts list	=2KR+BS		
1007	1008	Parts list	=2KR+BS		
1008	1009	Parts list	=2KR+BS		
1009	1010	Parts list	=2KR+BS		
1010	1011	Parts list	=2KR+BS		
1011	1012	Parts list	=2KR+BS		
1012	1013	Parts list	=2KR+BS		
1013	1014	Parts list	=2KR+BS		
1014	1015	Parts list	=2KR+BS		
1015		Parts list	=2KR+BS		

**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Based on		Prepared	27.02.2024	MANASA ESHWAR	Title	220kV BUS SECTION List of contents	Doc. kind.	List of contents DCC EAB	Ref.Des.	=2KRBS		
		Approved	27.02.2024	GOURISH HEGDE								
		Project			APTRANSCO STANDARD DRAWING		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
					HITACHI Hitachi Energy India Limited		Doc. no.		1MNS500925-AFAB		Sheet	3
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PANEL: 2KRBC	
ITEM DESIGNATION	DESCRIPTION
ANN.	ANNUNCIATOR
MFM-1	MULTI FUNCTION METER-1
MFM-2	MULTI FUNCTION METER-2
PB-DC1-FT	DC-1 SUPPLY TEST
PB-DC2-FT	DC-2 SUPPLY TEST
PB-DCFA	DCF ACCEPT
PB-AA	ALARM ACCEPT
PB-AR	ALARM RESET
PB-AT	ALARM TEST
86-PB	PUSH BUTTON FOR 86 RESET
1SL01	I/C DC SUPPLY FAIL
1SL02	BUS-1 VT R-PH
1SL03	BUS-1 VT Y-PH
1SL04	BUS-1 VT B-PH
2SL01	BUS-3 VT R-PH
2SL02	BUS-3 VT Y-PH
2SL03	BUS-3 VT B-PH
CS-52	CB CONTROL SWITCH
CS-89A	89BS1 ISOL. CONTROL SWITCH
CS-89B	89BS3 ISOL. CONTROL SWITCH
LRS	LOCAL / REMOTE SWITCH
SSS	SYNCHRONIZING SELECTOR SWITCH
SS1	SYNCHRONIZING ON/OFF SWITCH
SL01	52 CB OPEN
SL02	52 CB CLOSE
SL03	89BS1 ISOL. OPEN
SL04	89BS1 ISOL. CLOSE
SL05	89BS3 ISOL. OPEN
SL06	89BS3 ISOL. CLOSE
SL11	TC-1 HEALTHY
SL12	TC-2 HEALTHY
SL13	CB SPRING CHARGED
SL14	CB TRIPPED ON CTD
SL15	CB CAPACITOR CHARGED
SL16	CB AUTO TRIP
KF1	BAY CONTROL UNIT
SS	SYNCHRONIZING SOCKET
TTB-1	TEST TERMINAL FOR MFM-1
TTB-2	TEST TERMINAL FOR MFM-2
TS1_BCPU	TEST SWITCH FOR BCPU
TS2_BCPU	TEST SWITCH FOR BCPU

PANEL: 2KRBC	
ITEM DESIGNATION	DESCRIPTION
R01.101.101	TC-1 Supvn (195R)
R01.101.301	TC-2 Supvn (295R)
R01.107.101	TC-1 Supvn (195Y)
R01.107.301	TC-2 Supvn (295Y)
R01.113.101	TC-1 Supvn (195B)
R01.113.301	TC-2 Supvn (295B)
R01.119.101	CB POLE DISC. -152E & CB SF6 GAS PR.LOW ALARM-152A
R01.119.301	CB SF6 GAS PR. LOCK OUT-152B & CB TRIPPED ON CTD-152D
R01.125.101	CB AIR PRESSURE LOW-152C & CB TRIPPED ON CTD-152D
R01.125.301	CB SPRING CHARGED & SPARE
R01.131.101	CB TC-1 SUPVN. HEALTHY & CB TC-2 SUPVN. HEALTHY
R01.131.301	89BS1X-O & 89BS1X-C
R01.137.101	89BS3X-O & 89BS3X-C
R01.143.101	52X-O & SPARE
R01.149.101	DC SUPPLY FAIL ACCEPT RELAY
R01.149.301	AC SUPPLY SUPVN. RELAY
R01.155.101	DC-1 SUPPLY SUPVN.
R01.155.301	DC-2 SUPPLY SUPVN.
R02.101.101	86 TRIP RELAY
R02.101.313	86 TRIP RELAY SUPERVISION
R02.149.101	DC-1 C/O RELAY
R02.149.301	CB MANUAL TRIP-1/2
R02.119.101	BUSBAR TRIP RELAY
R02.131.301	BUSBAR TRIP RELAY SUPERVISION
R02.155.301	LBB RE-TRIP

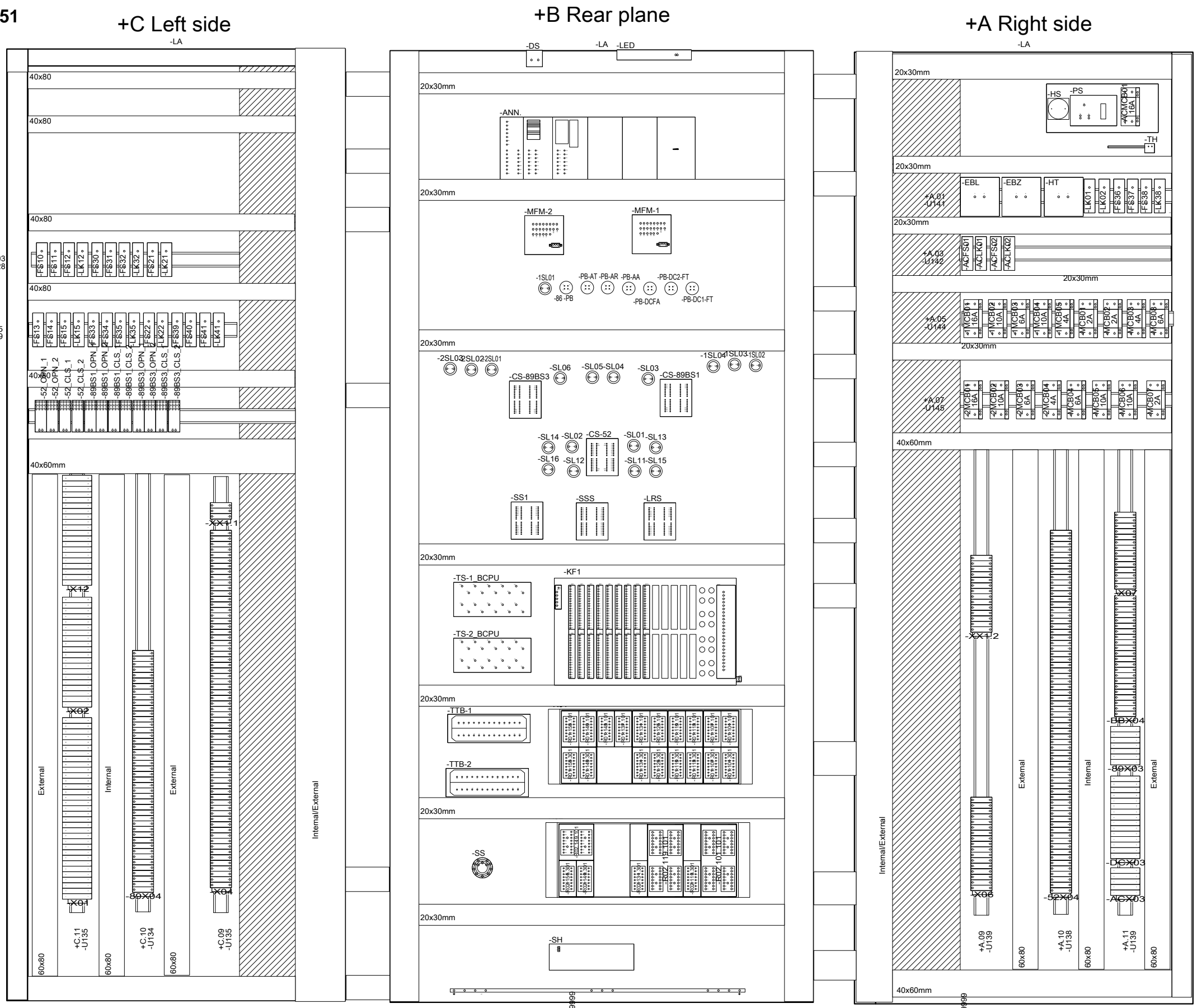
Drawing approval subject to valid vendor registration

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Front View	Doc. kind. Assembly drawing DCC ELU	Ref.Des. =2KR +BS	
		Approved 27.02.2024	GOURISH HEGDE				
		Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-AFAB	Sheet 11	n. sheet 12
1MYN691003-102(A3)REV01							

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NOTE:
INTERNAL VIEW IS FOR INFORMATION ONLY.
(MAY CHANGE DURING MANUFACTURING).

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Inside view	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE		DCC ELU	+BS
		Project APTRANSCO		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING			Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-AFAB	Sheet 12
1MYN691003-102(A3)REV01						n. sheet 13

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Plane: A

Device name	Description (1)	Description (2)	Type designation
-1MCB01	DC SOURCE-1 MCB	16A	-
-1MCB02	CB TC-1 CKT	10A	-
-1MCB03	86 TRIP RELAY CKT.	6A	-
-1MCB04	SPARE MCB	10A	-
-1MCB05	ETHERNET MCB	4A	-
-2MCB01	DC SOURCE-2 MCB	16A	-
-2MCB02	CB TC-2 CKT.	10A	-
-2MCB03	SPARE MCB	6A	-
-2MCB04	ETHERNET MCB	4A	-
-ACFS01	FUSE FOR ANNUN. CKT.	2A	-
-ACFS02	FUSE FOR BELL CKT.	2A	-
-ACLK01	LINK FOR ANNUN. CKT.	15A	NL
-ACLK02	LINK FOR BELL CKT.	15A	NL
-ACMCB01	AC SOURCE MCB	16A	-
-EBL	DC Fail	--	AUH-1122
-EBZ	NON TRIP ALARM	--	Buzzer
-FS36	R-PH BUS-1 VT CORE-1	FOR IND. CKT.	-
-FS37	Y-PH BUS-1 VT CORE-1	FOR IND. CKT.	-
-FS38	B-PH BUS-1 VT CORE-1	FOR IND. CKT.	-
-HS	HEATER SWITCH	--	
-HT	TRIP ALARM	--	Hooter
-LK01	LINK FOR BUZZER	--	NL
-LK02	LINK FOR HOOTER	--	NL
-LK38	NU BUS-1 VT CORE-1	FOR IND. CKT.	NL
-MCB01	ANNUN. CKT.	2A	-
-MCB02	METERING CKT.	2A	-
-MCB03	CONT. MULTI. CKT.	4A	-

**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Device name	Description (1)	Description (2)	Type designation
-MCB04	BCPU CKT.	6A	-
-MCB05	CB CLS CKT	10A	-
-MCB06	ISOL. CONTROL CKT.	10A	-
-MCB07	INDICATION CKT.	2A	-
-MCB08	ISOL I/L DC	6A	-
-PS	Outlet	--	SW
-TH	Thermostat	--	TH

Plane: B

Device name	Description (1)	Description (2)	Type designation
-1SL01	I/C DC SUPPLY FAIL	--	-
-1SL02	BUS-1 VT R-PH	--	-
-1SL03	BUS-1 VT Y-PH	--	-
-1SL04	BUS-1 VT B-PH	--	-
-2SL01	BUS-3 VT R-PH	--	-
-2SL02	BUS-3 VT Y-PH	--	-
-2SL03	BUS-3 VT B-PH	--	-
-86 -PB	PB - 86	--	-
-ANN.	Annunciator unit	--	SAN 200 - 24 Window
-CS-52	CB CONTROL SWITCH	--	22-4-pos. contacts with 0 position, Pos1:T,Pos2:A/
-CS-89BS1	89BS1 ISOL. CONTROL SWITCH	--	6-3-pos. contacts with 0 position
-CS-89BS3	89BS3 ISOL. CONTROL SWITCH	--	6-3-pos. contacts with 0 position
-KF1	BAY CONTROL & PROTECTION UNIT	REC670	REC670
-LED	Lamp	--	LED
-LRS	LOCAL / REMOTE SWITCH	--	12-2-pos. contacts

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Legend list	DCC ELU	+BS
		Project APTRANSCO		Legend list	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
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Device name	Description (1)	Description (2)	Type designation
-MFM-1	MULTI FUNCTION METER	--	Rish Master 3430
-MFM-2	MULTI FUNCTION METER	--	Rish Master 3430
-PB-AA	ALARM ACCEPT	--	-
-PB-AR	ALARM RESET	--	-
-PB-AT	ALARM TEST	--	-
-PB-DC1-FT	DC-1 SUPPLY TEST	--	-
-PB-DC2-FT	DC-2 SUPPLY TEST	--	-
-PB-DCFA	DCF ACCEPT	--	-
-R01.101.101	TC-1 Supvn (195R)	195R	TSR-B
-R01.101.301	TC-2 Supvn (295R)	295R	TSR-B
-R01.107.101	TC-1 Supvn (195Y)	195Y	TSR-B
-R01.107.301	TC-2 Supvn (295Y)	295Y	TSR-B
-R01.113.101	TC-1 Supvn (195B)	195B	TSR-B
-R01.113.301	TC-2 Supvn (295B)	295B	TSR-B
-R01.119.101	CB POLE DISCREPANCY -152E CB SF6 GAS PRESSURE LO	RXSF1	RXSF1
-R01.119.301	CB SF6 GAS PRESSURE LOCK OUT-152B CB TRIPPED ON	RXSF1	RXSF1
-R01.125.101	CB AIR PRESSURE LOW-152C SPARE	RXSF1	RXSF1
-R01.125.301	CB SPRING CHARGED SPARE	RXSF1	RXSF1
-R01.131.101	CB TC-1 SUPVN. HEALTHY	RXSF1	RXSF1
-R01.131.301	89BS1X-O	89BS1X-C	RXMM1
-R01.137.101	89BS3X-O	89BS3X-C	RXMM1
-R01.143.101	52X CLOSE CMD	SPARE	RXMM1

Device name	Description (1)	Description (2)	Type designation
-R01.149.101	DC Supply Fail Accept Relay	80E	RXMA1
-R01.149.301	AC SUPPLY SUPERVISION	80AC	RXMA1
-R01.155.101	DC-1 Supply Supervision	--	TSR-B
-R01.155.301	DC-2 Supply Supervision	--	TSR-B
-R02.101.101	86 TRIP RELAY	--	RXMVB4
-R02.113.301	3-Ph. Trip relay Supvn.	--	TSR-B
-R02.119.101	BB / LBB TRIP RELAY	--	RXMVB4
-R02.131.301	BB/LBB Trip relay Supvn.	--	TSR-B
-R02.149.101	DC-1 C/O RELAY	RXMH2	RXMH2
-R02.149.301	CB MANUAL TRIP-1	CB MANUAL TRIP-2	RXMM1
-R02.155.301	LBB RE-TRIP	LBB RE-TRIP	RXMM1
-SH	Heating	--	SPHT
-SL01	52 CB OPEN	--	-
-SL02	52 CB CLOSE	--	-
-SL03	89BS1 ISOL. OPEN	--	-
-SL04	89BS1 ISOL. CLOSE	--	-
-SL05	89BS3 ISOL. OPEN	--	-
-SL06	89BS3 ISOL. CLOSE	--	-
-SL11	TC-1 HEALTHY	--	-
-SL12	TC-2 HEALTHY	--	-
-SL13	CB SPRING CHARGED	--	-
-SL14	CB TRIPPED ON CTD	--	-
-SL15	CB CAPACITOR CHARGED	--	-
-SL16	CB AUTO TRIP	--	-
-SS	Synchronizing socket	--	SS Type
-SS1	SYN ON/OFF SW	--	16-2-pos. contacts

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		Approved 27.02.2024	GOURISH HEGDE	Legend list	DCC ELU	+BS
		Project APTRANSCO		Legend list	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI		Sheet 14
1MYN691003-102(A3)REV01						Doc. no. 1MNS500925-AFAB

Device name	Description (1)	Description (2)	Type designation
-SSS	Synchronizing selector switch	--	8 2-pos. contacts
-TS-1_BCPU	TS-1_BCPU	--	MPG
-TS-2_BCPU	TS-2_BCPU	--	MPG
-TTB-1	Test Terminal Block for MFM-1	--	TTB
-TTB-2	Test Terminal Block for MFM-2	--	TTB

Plane: C

Device name	Description (1)	Description (2)	Type designation
-52_CLS_1	CB POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-52_CLS_2	CB POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-52_OPN_1	CB POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-52_OPN_2	CB POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89BS1_CLS_1	89BS1 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89BS1_CLS_2	89BS1 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89BS1_OPN_1	89BS1 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89BS1_OPN_2	89BS1 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89BS3_CLS_1	89BS3 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89BS3_CLS_2	89BS3 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89BS3_OPN_1	89BS3 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89BS3_OPN_2	89BS3 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-FS10	R-PH BUS-1 PT CORE-1	FOR BCPU CKT.	-
-FS11	Y-PH BUS-1 PT CORE-1	FOR BCPU CKT.	-
-FS12	B-PH BUS-1 PT CORE-1	FOR BCPU CKT.	-
-FS13	R-PH BUS-3 PT CORE-1	FOR BCPU CKT.	-
-FS14	Y-PH BUS-3 PT CORE-1	FOR BCPU CKT.	-
-FS15	B-PH BUS-3 PT CORE-1	FOR BCPU CKT.	-

Device name	Description (1)	Description (2)	Type designation
-FS21	R-PH BUS-1 VT	FUSE FOR SYNC. CKT	-
-FS22	R-PH BUS-2 VT	FUSE FOR SYNC. CKT	-
-FS30	R-PH BUS-1 PT CORE-1	FOR MFM-1 CKT.	-
-FS31	Y-PH BUS-1 PT CORE-1	FOR MFM-1 CKT.	-
-FS32	B-PH BUS-1 PT CORE-1	FOR MFM-1 CKT.	-
-FS33	R-PH BUS-2 PT CORE-1	FOR MFM-2 CKT.	-
-FS34	Y-PH BUS-2 PT CORE-1	FOR MFM-2 CKT.	-
-FS35	B-PH BUS-2 PT CORE-1	FOR MFM-2 CKT.	-
-FS39	R-PH BUS-3 VT CORE-1	FOR IND. CKT.	-
-FS40	Y-PH BUS-3 PT CORE-1	FOR IND. CKT.	-
-FS41	B-PH BUS-3 PT CORE-1	FOR IND. CKT.	-
-LK12	NU BUS-1 PT CORE-1	FOR BCPU CKT.	NL
-LK15	NU BUS-3 PT CORE-1	FOR BCPU CKT.	NL
-LK21	NU BUS-1 VT	FUSE FOR SYNC. CKT	15A
-LK22	NU BUS-2 VT	FUSE FOR SYNC. CKT	15A
-LK32	NU BUS-1 PT CORE-1	FOR MFM-1 CKT.	NL
-LK35	NU BUS-2 PT CORE-1	FOR MFM-2 CKT.	NL
-LK41	NU BUS-3 VT CORE-1	FOR IND. CKT.	NL

Drawing approval subject to valid vendor registration

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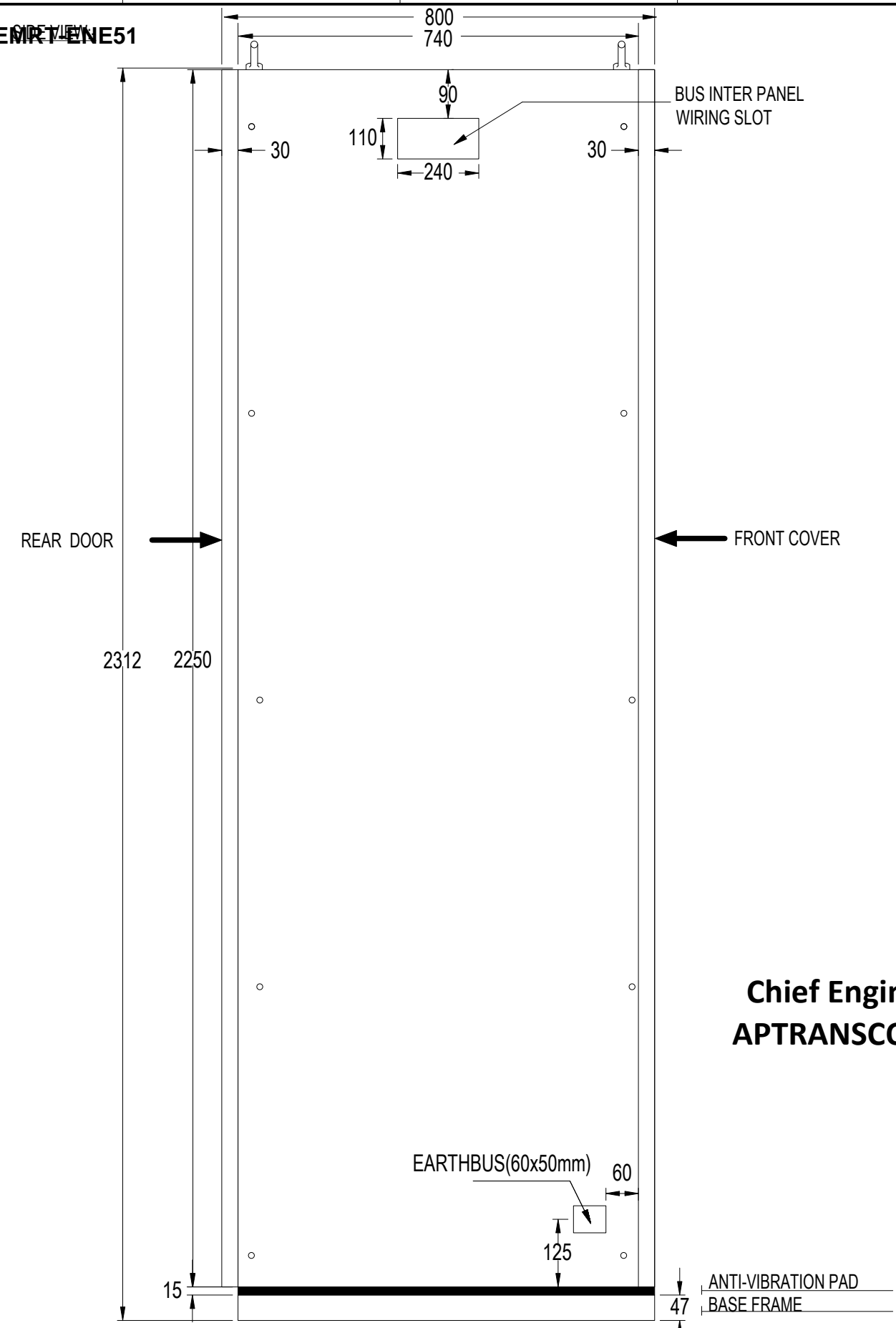
Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Legend list	DCC ELU	+BS
		Project APTRANSCO		Legend list	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAB		Sheet 15
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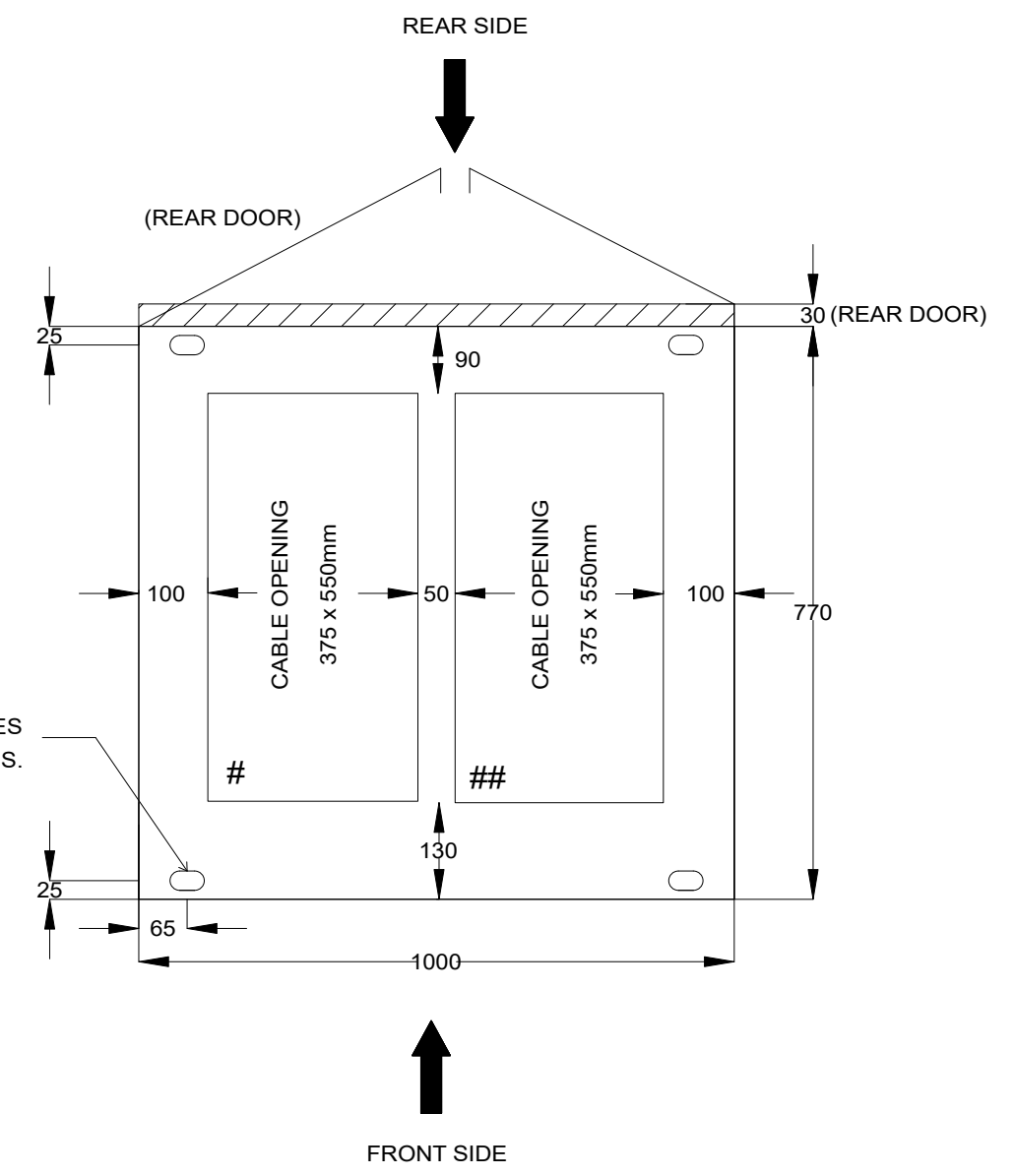
8814687/2024/EEM/ENE51

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FOUNDATION DETAILS:-



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APTRANSCO/VS/Vijayawada.**



BASE FRAME SIZE :- 1000mm X 770mm

NOTES:-

1. ALL DIMENSIONS ARE IN mm
2. COUPLING HOLE, BUS BAR CUT OUT SHALL BE AS PER STANDARD DRAWING.
3. WIRING : FRLS, MULTI STRANDED COPPER WIRE OF VOLTAGE 1100V4.
4. # GLAND PLATE WITH 21 Nos. KNOCKOUT PUNCH HOLES OF 19mm DIA. TO BE PROVIDED.
5. ## GLAND PLATE WITH 21 Nos. KNOCKOUT PUNCH HOLES OF 25mm DIA. TO BE PROVIDED.

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Side View & Foundation Details	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE		DCC ELU	+BS
		Project APTRANSCO		Hitachi Energy India Limited	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI	Doc. no. 1MNS500925-AFAB	Language en
Rev.	Revision note	Date	Name			Sheet 16
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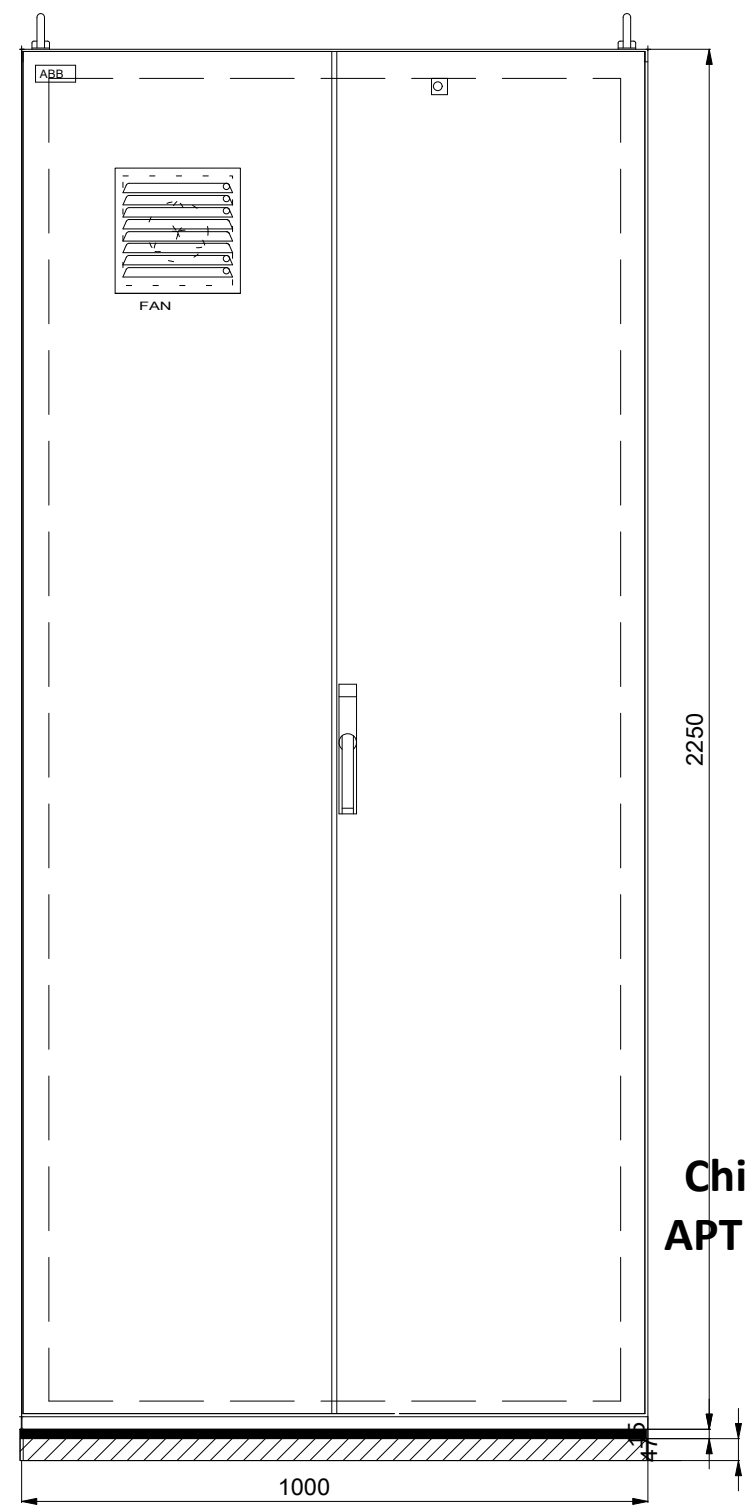
PANEL DETAILS:-

TYPE:- VTG - Simplex Panel, W=1000mm, D=800mm, H=2312mm (2250 + 47 (BF) + 15 (AVP))

Technical data:

Height	2312mm
Width	1000mm
Depth	800mm
Weight	400 kg Approx.
Thickness of material	
: Front Cover (Load Bearing Member)	3mm
: Rear door	2mm (Double leaf door with lock&1no exhaust fan)
: Roof / Bottom plate	2mm
: Gland plate	3mm
: Side covers	2mm
: Base frame	3mm
Mimic color: 220kV:-Light Orange to shade 557 as per IS:5	
Busbar mimic (paint overlaid)	Main busbar - 12mm Aluminium strip Other busbar - 10mm Aluminium strip
Protection class	IP54
Cubicle Illumination	9W LED lamp
Earth Bar	Tinned Copper Strip of 25 x 6mm
Bottom Plate	With Two opening 375mmx550mm
Gland Plate	2 nos of plates - Fixing cable glands 415 x 590mm
Cubicle Colour	
Powder Coating : Exterior	Light Grey to shade 631 of IS:5,Semi glossy finish
: Interior	White Glossy finish
: Base frame	Black Glossy
: Thickness	60-80 microns for powder coating
Wires & Ferrules (FRLS)	1100V Grade PVC Insulation Multi Strand Wires
Wire size for CT Circuits	2.5 Sqmm, Phase : RYB, Neutral : Black
Wire size for PT Circuits	1.5mm ² , Phase : RYB, Neutral : Black, 2x2.5mm ² for TVM P
Wire size for DC Circuits	1.5 Sqmm, Grey
Wire size for Aux.AC Circuit	1.5mm ² , Grey
Wire size for Earthing	2.5mm ² , Green
Ferrules	
Wire directly connected to TRIP COIL	Red Coloured "T"
All other ferrules	White Sleeve with Nos.marked in Black letters
Terminal blocks (20% spare terminal blocks)	PROVIDED
Terminal Make	Elmex
Terminal CT / VT	Disconnecting type (CATD M4)
Terminal AC/DC incoming	Disconnecting type (CATD M4)
Terminal Earthing	Disconnecting type (CATD M4)
Terminal Trip	Non-Disconnecting type (CAT M4)
Terminal Interpanel,General	Disconnecting type, Non-Disconnecting type
LABELS	DIMENSIONS(mm) LETTER HEIGHT(mm)
1:Main Label(Front)	200 x 60 10
MATERIAL : Lamicoid	TYPE OF INSCRIPTION : Engraving-white letters on black background
2A : Apparatus Label (Inside)	33 x 80 3
MATERIAL : Aluminium anodised	TYPE OF INSCRIPTION :Engraving-white letters on black background
2B : Apparatus Label (Front)	48 x 14 3
MATERIAL : Aluminium anodised	TYPE OF INSCRIPTION : Engraving-white letters on black background
3:Item Designation Stickers(Inside)	20 x 10 5
MATERIAL : Self adhesive yellow stickers	TYPE OF INSCRIPTION : Engraving-white letters on black background
4:Flag Relay Labels	29 x 29 2
MATERIAL : Aluminium anodised	TYPE OF INSCRIPTION : Engraving-white letters on black background
5:PB/Lamp Labels	30 x 40 3
MATERIAL : Aluminium anodised	TYPE OF INSCRIPTION :Engraving-white letters on black background

REAR VIEW



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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC ELU	+BS
		Project APTRANSCO		Panel Details & Rear Door Details	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAB		Sheet 17
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TERMINAL BLOCK DESIGNATION FOR EXTERNAL WIRING	
AX01, BX01, CX01,DX01	CT CIRCUITS
AX02, BX02, CX02,DX02	CVT/PT CIRCUITS
DCX03, ACX03	DC/AC INCOMING CIRCUITS
X04	CONTROL CIRCUITS
X05	INDICATION CIRCUITS
X06	ANNUNCIATION CIRCUITS
X07	SPARE CONTACTS
X08	SCADA/DAS/EVENT LOGGER CKTS
52*X04	CB CIRCUITS
89*X04	ISOLATOR CIRCUITS
BBX04	BUSBAR CIRCUIT
TRX04	TRANSFORMER TROUBLE/ RTCC/FIRE FIGHTING
PLX04	PLCC CIRCUIT
AXX1.1,AXX1.2, BXX1.1,BXX1.2	DC CIRCUITS FOR LOOPING

TERMINAL BLOCK DESIGNATION FOR INTERPANEL BUS WIRING	
AX11,BX11 CX11,DX11	CT CIRCUITS
AX12,BX12 CX12,DX12	CVT CIRCUITS
DCX13, ACX13	DC/AC INCOMING CIRCUITS
X14	CONTROL CIRCUITS
BBX14	BUSBAR CIRCUIT

TERMINAL BLOCKS	
	NON DISCONNECTING TB
	DIS CONNECTING TB
	CT/CVT JUNCTION BOX TERMINAL
	BREAKER TERMINAL
	ISOLATOR TERMINAL
	MARSHALLING KIOSK TB
	PLCC/FOTE TERMINALS
	ACDB/DCDB TERMINALS

SYMBOL LIST	
	MCB
	FUSE
	LINK
	RELAY COIL
	RELAY REVERSE FLAG
	RELAY MANUAL RESET FLAG
	PUSH BUTTON ON CONTACT
	NO CONTACT
	NC CONTACT
	EARTH
	SWITCH CONTACT
	LED LAMP
	SPACE HEATER
	DIODE
	RESISTOR
	VARISTOR

SYMBOL LIST	
	BINARY I/P
	BINARY O/P
	CHANGE OVER OUTPUT
	CT/PT INPUT
	mA INPUT
	POWER SUPPLY INPUT
	IEC61850 COMM. PORT
	RS232/485 COMM. PORT
	RJ45 COMM. PORT
	CURRENT TRANSFORMER
	CVT
	PT
	CIRCUIT BREAKER
	LIGHTNING ARRESTOR

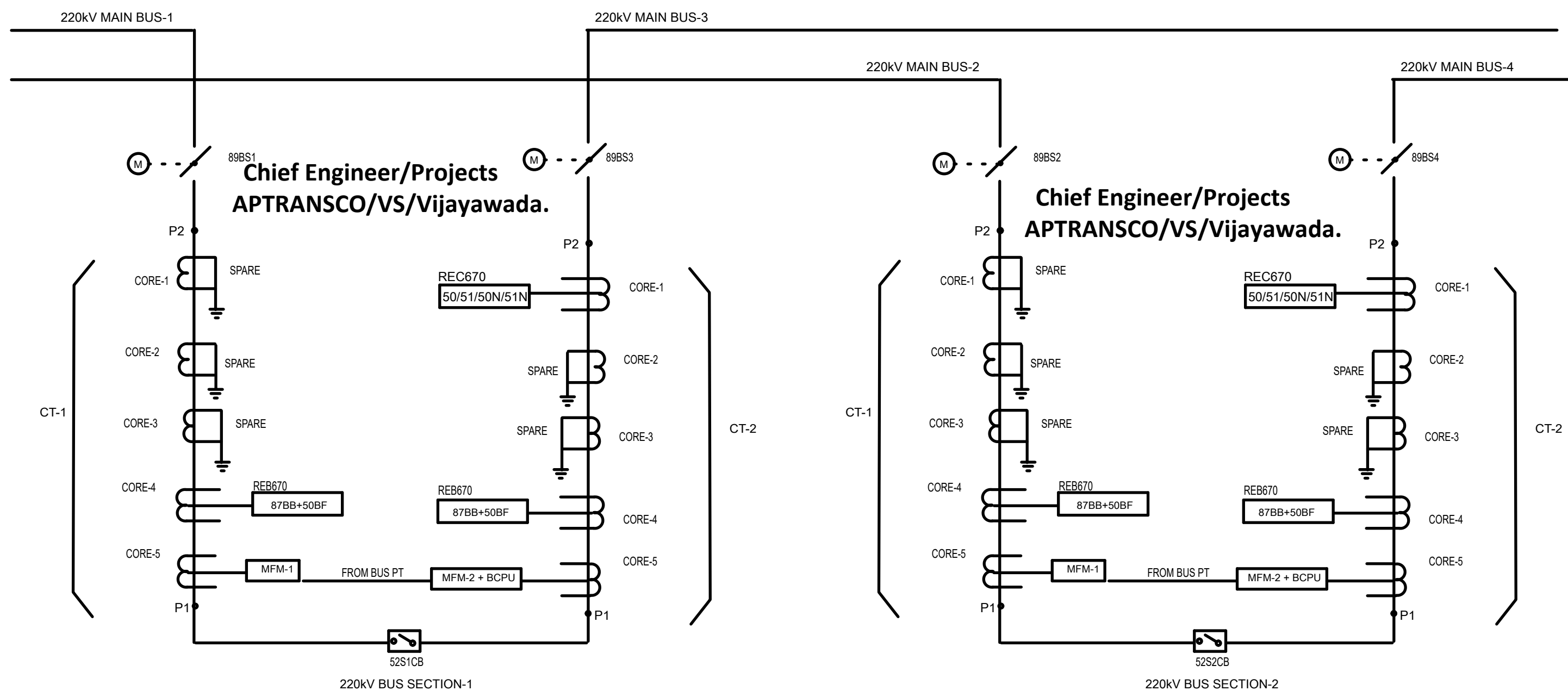
FERRULE NOMENCLATURE			
FERRULE 'A' : CT CIRCUIT- MAIN PROTECTION	FERRULE 'B' : CT CIRCUIT- BUSBAR PROTECTION	FERRULE 'C' : CT CIRCUIT- BACKUP PROTECTION	
FERRULE 'D' : CT CIRCUIT- METERING	FERRULE 'E' : PT CKTS	FERRULE 'H' : AUXILIARY AC CKTS	
FERRULE 'J' : AUXILIARY DC CKTS	FERRULE 'K' : CONTROL CKTS	FERRULE 'L' : INDICATION CKTS	
FERRULE 'P' : DC CKT- BUSBAR PROTECTION	FERRULE 'U' : SPARE CONTACTS		

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		List Of Symbols	PG-GAS	Rev. ind. 0
		STANDARD DRAWING			Language en	
Rev.	Revision note	Date	Name	HITACHI Hitachi Energy India Limited	Doc. no. 1MNS500925-CFAB	Sheet 21
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CT-1 DETAILS FOR 220kV BUS SECTION

APPLICATION	CORE NO.	RATIO	ACCURACY CLASS	RCT	Vk (V)	I EX (mA)
SPARE	1	1600-1200-800/1A	--	--	--	--
SPARE	2	1600-1200-800/1A	--	--	--	--
SPARE	3	1600-1200-800/1A	--	--	--	--
BUS DIFF	4	1600-1200-800/1A	--	--	--	--
METERING	5	1600-1200-800/1A	--	--	--	--

CT-2 DETAILS FOR 220kV BUS SECTION

APPLICATION	CORE NO.	RATIO	ACCURACY CLASS	RCT	Vk (V)	I EX (mA)
PROTECTION	1	1600-1200-800/1A	--	--	--	--
SPARE	2	1600-1200-800/1A	--	--	--	--
SPARE	3	1600-1200-800/1A	--	--	--	--
BUS DIFF	4	1600-1200-800/1A	--	--	--	--
METERING	5	1600-1200-800/1A	--	--	--	--

NOTE: CT RATIOS AND DETAILS TO BE FURNISHED ADOPTED CT RATIOS TO BE FURNISHED.

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Single Line Diagram	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAB	Sheet 22	n. sheet 23
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PROTECTION FUNCTION	OUTPUT	3PH (86) TRIP RELAY	BUSBAR TRIP RELAY	TO CB TRIP COIL-1	TO CB TRIP COIL-2	TO CLOSE COIL	Remark
OVERCURRENT PROTECTION (50/51)	3 Ph	(IP)					BUILT IN REC670
EARTH FAULT PROTECTION (50N/51N)	3 Ph	(IP)					BUILT IN REC670
LBB PROTECTION (50BF)	3 Ph		(IP)				BUILT IN REB670
3PH TRIP RELAY	3 Ph			(TP)	(TP)	(RS)	RXMVB4
BUSBAR / LBB TRIP RELAY	3 Ph			(TP)	(TP)	(RS)	RXMVB4(Part of BB Panel)

(IP) INDICATES INITIATION FROM PROTECTION FUNCTION (TP) INDICATES TRIP FROM PROTECTION FUNCTION (RS) INDICATES RESET STATUS FOR CB CLOSING

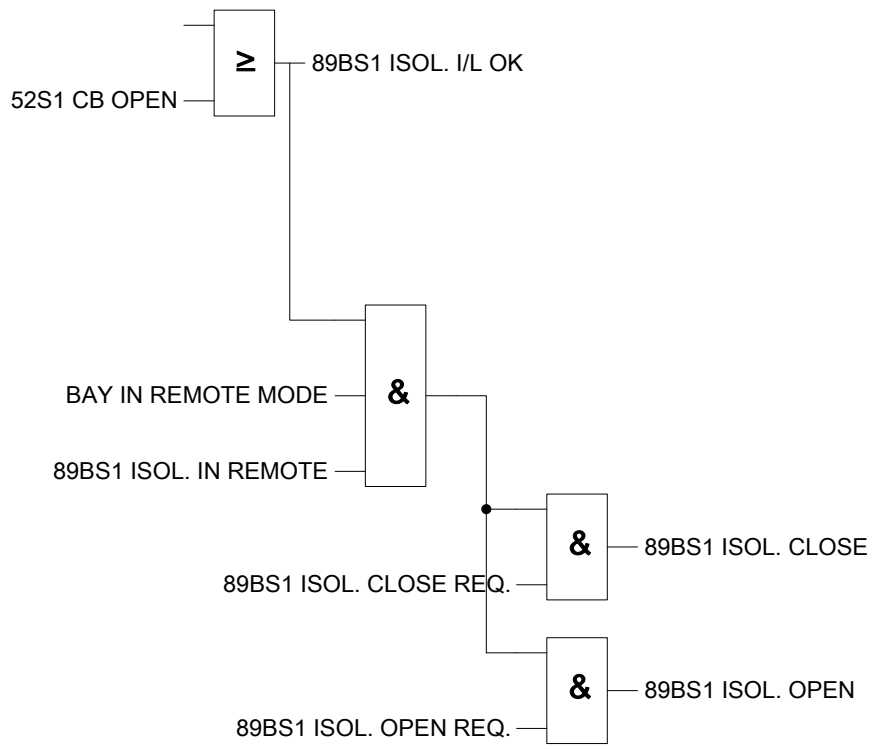
**Chief Engineer/Projects
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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Trip Logics	Doc. kind. Circuit diagram	Ref.Des. =2KR	
		Approved 27.02.2024	GOURISH HEGDE		DCC EFS		
		Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 23	n. sheet 24
1MYN691003-102(A3)REV01							

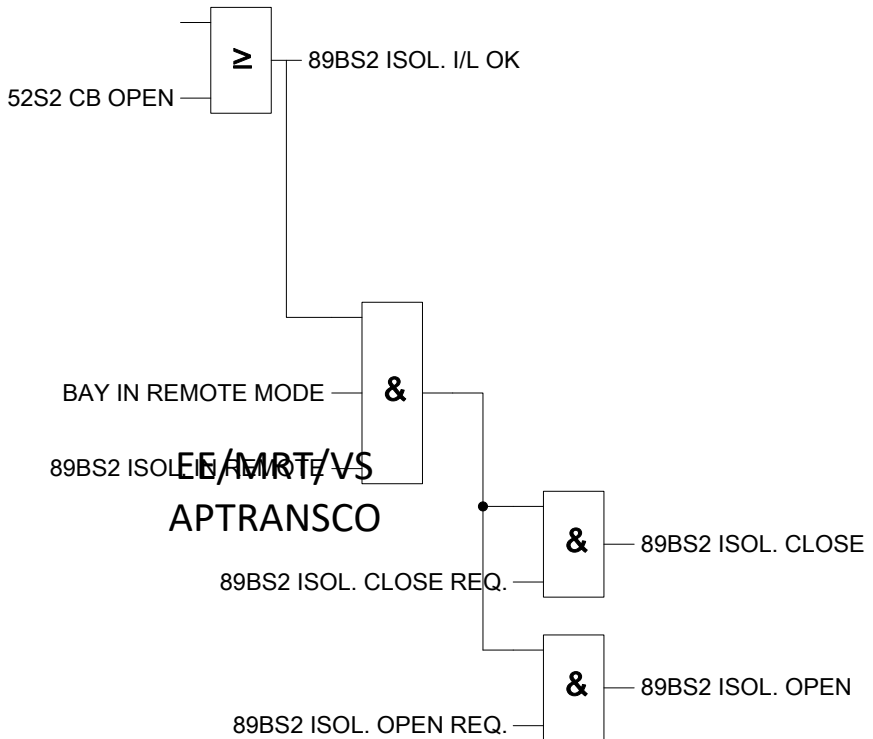
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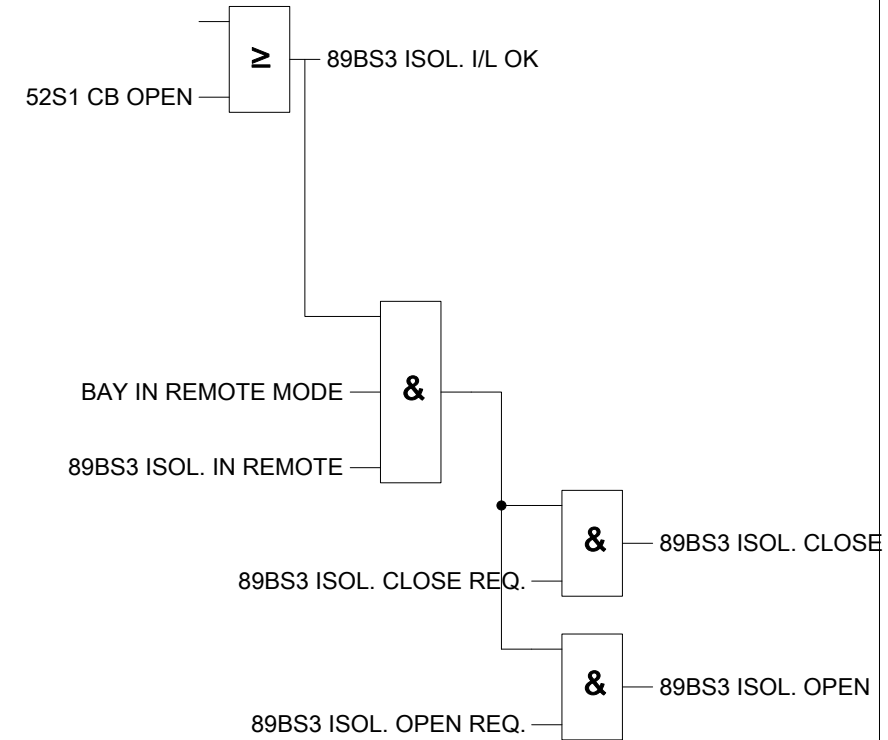
89BS1 ISOL. OPEN/CLOSE INTERLOCK



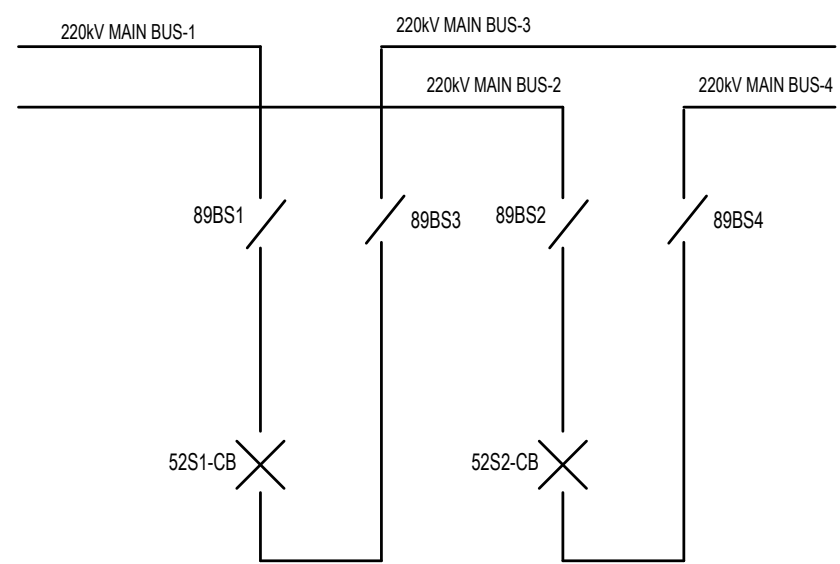
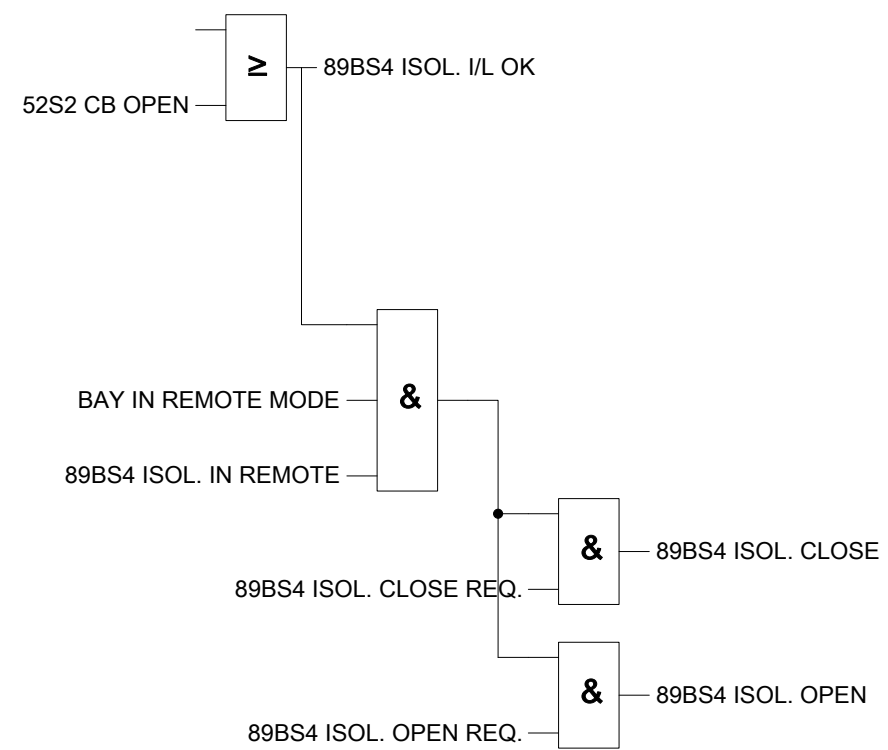
89BS2 ISOL. OPEN/CLOSE INTERLOCK



89BS3 ISOL. OPEN/CLOSE INTERLOCK



89BS4 ISOL. OPEN/CLOSE INTERLOCK



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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Interlocking Logics	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
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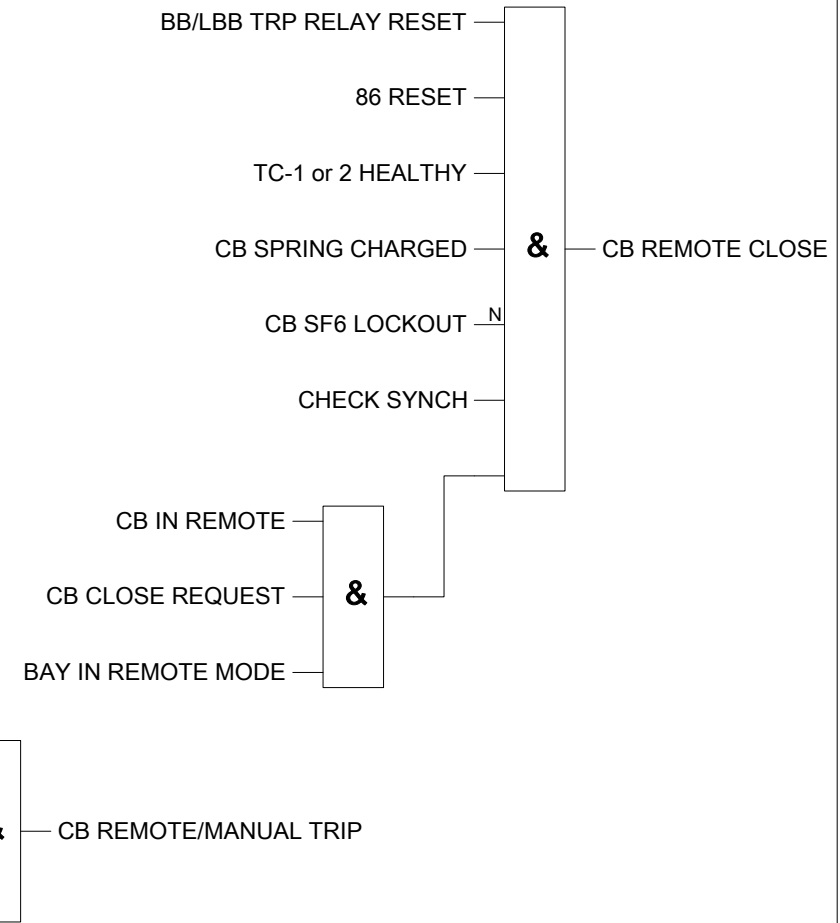
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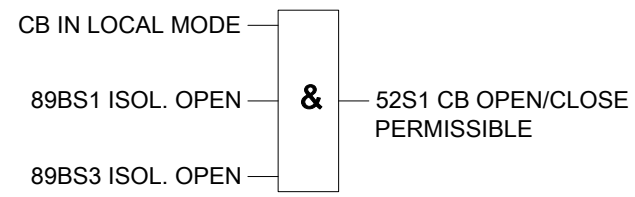
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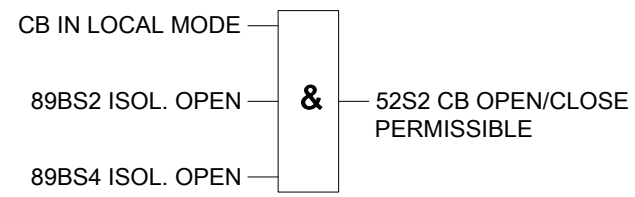
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52 CB REMOTE OPERATION



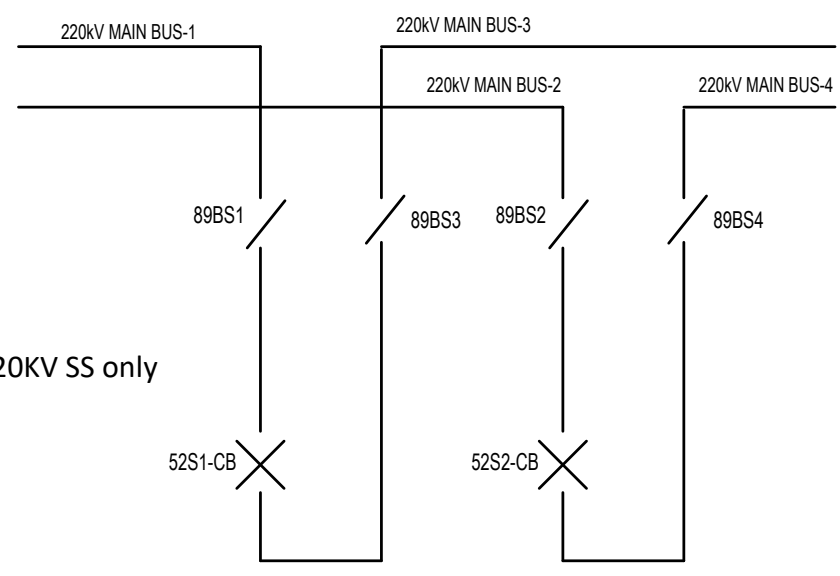
52S1 CB LOCAL OPERATION



52S2 CB LOCAL OPERATION



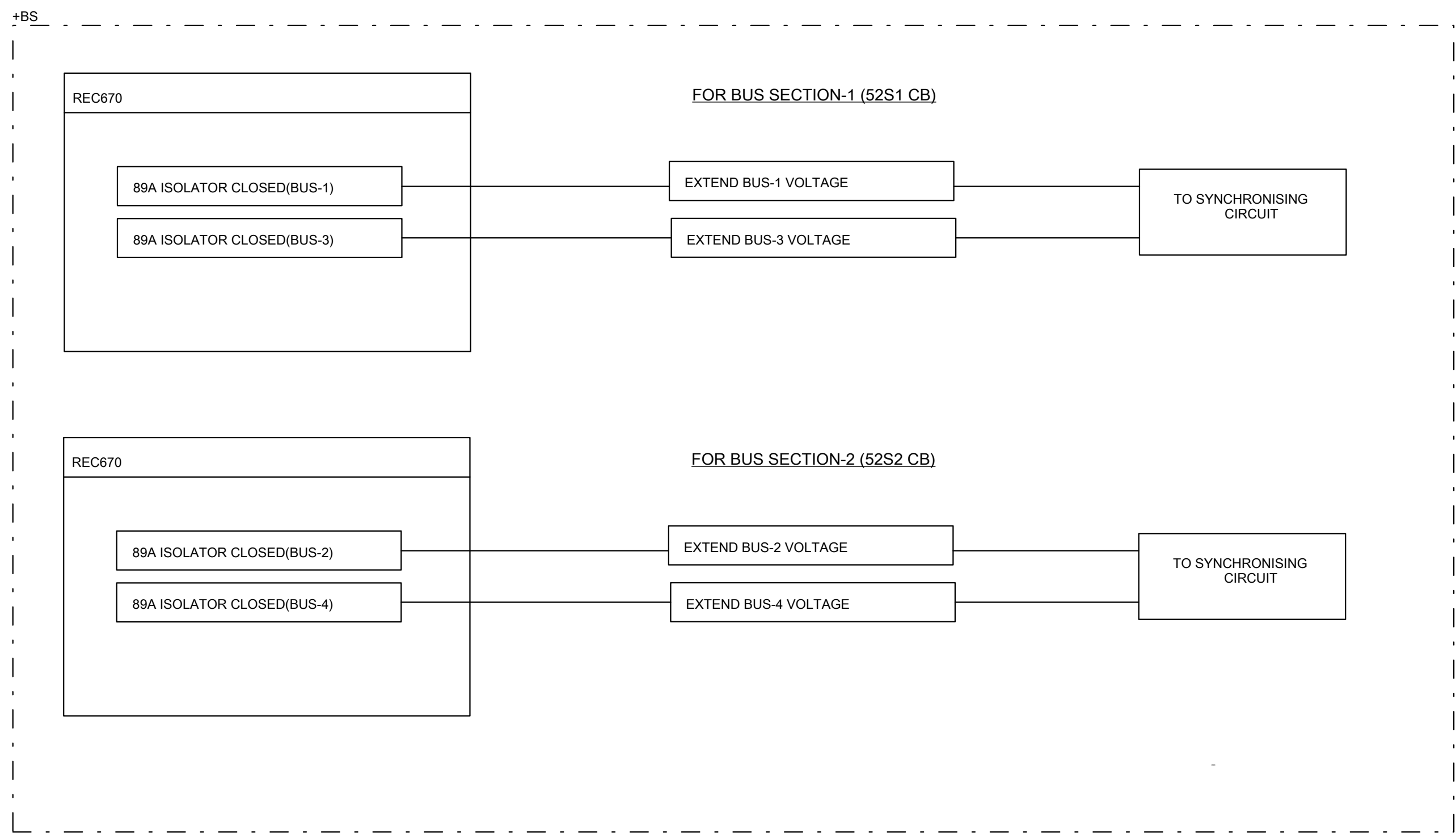
Suitable for conventional 220KV SS only



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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Interlocking Logics	Doc. kind. Circuit diagram	Ref.Des. =2KR	
		Approved 27.02.2024	GOURISH HEGDE		DCC EFS		
		Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 24.1	n. sheet 25
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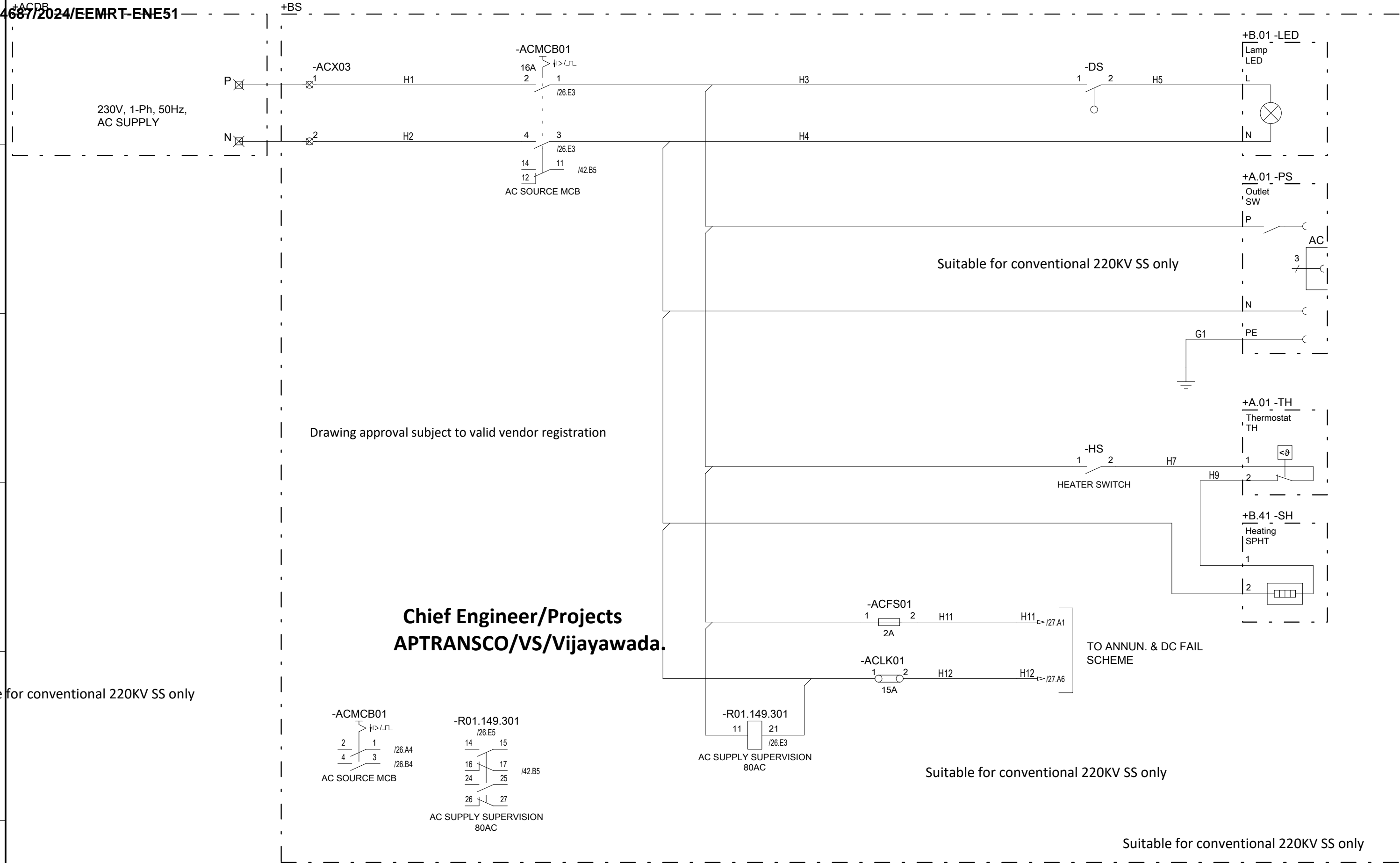
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		Approved 27.02.2024	GOURISH HEGDE		DCC EFS		
		Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 25	n. sheet 26
1MYN691003-102(A3)REV01							

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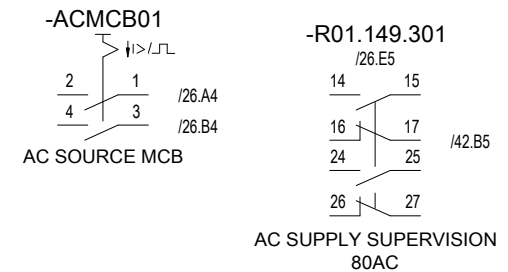
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Drawing approval subject to valid vendor registration

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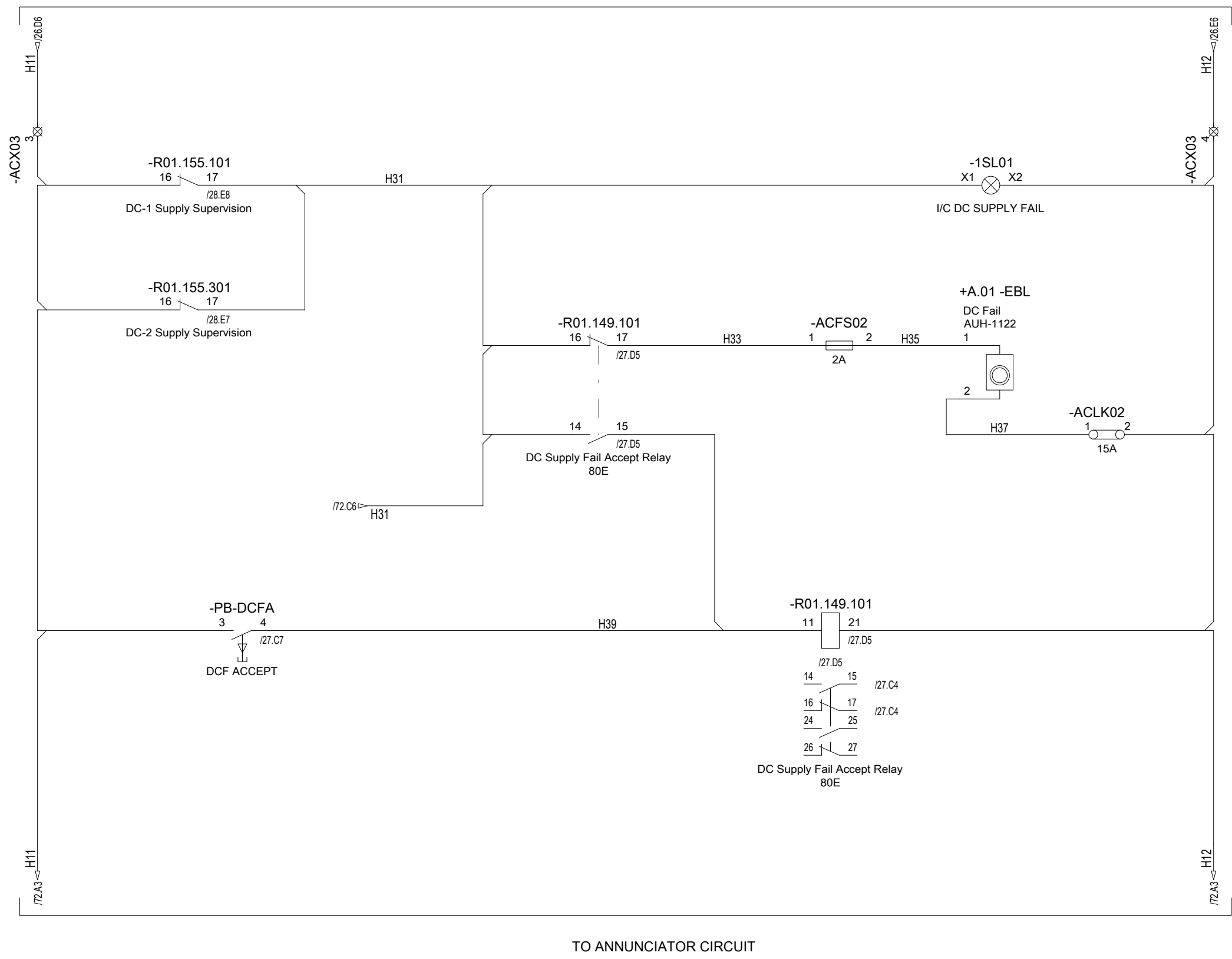
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		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		AC Distribution Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	Sheet 26
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1MYN691003-102(A3)REV01						

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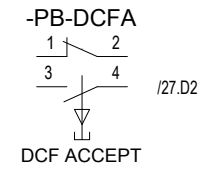
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FROM 230V AC SUPPLY



TO ANNUNCIATOR CIRCUIT



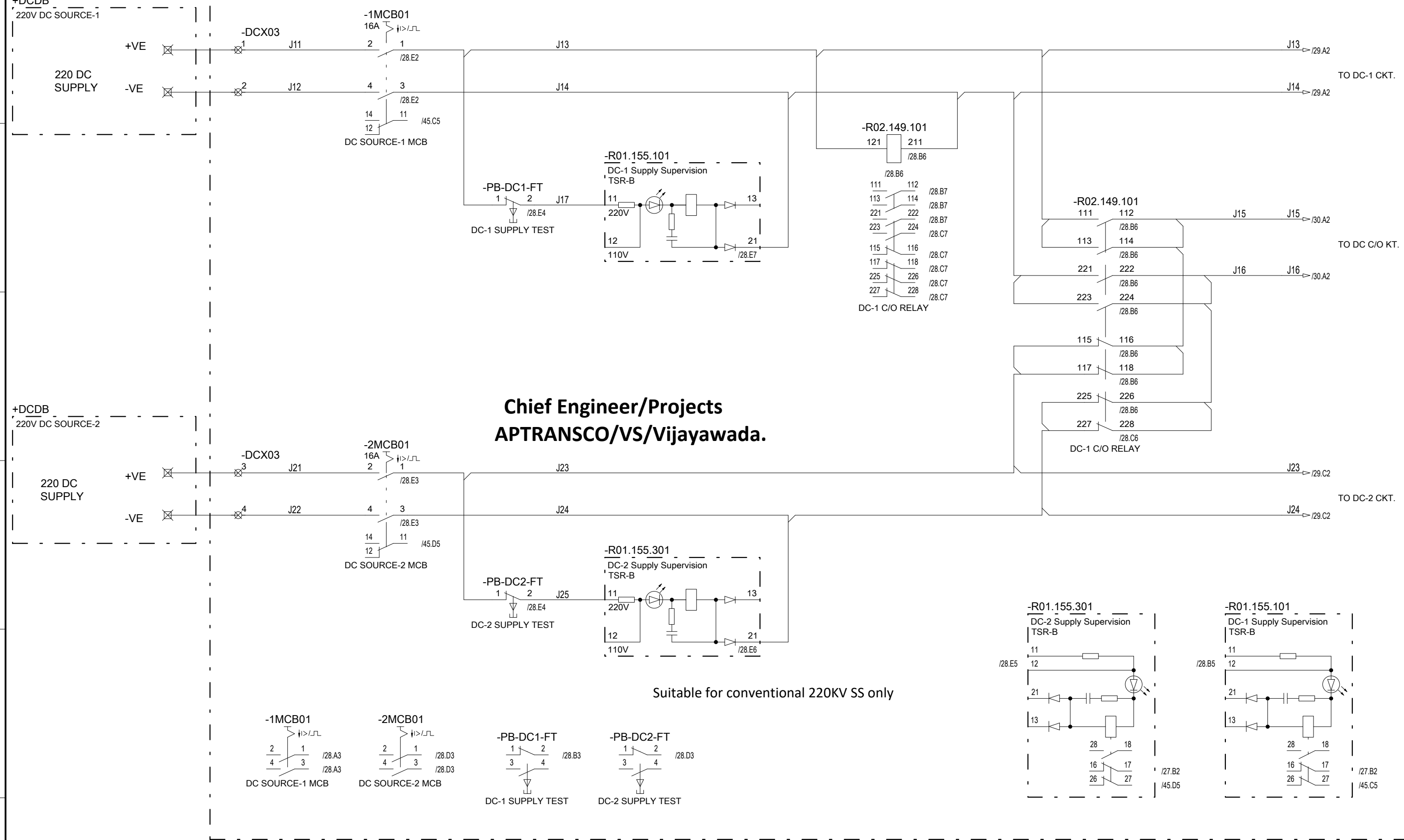
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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		DC Fail Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 27
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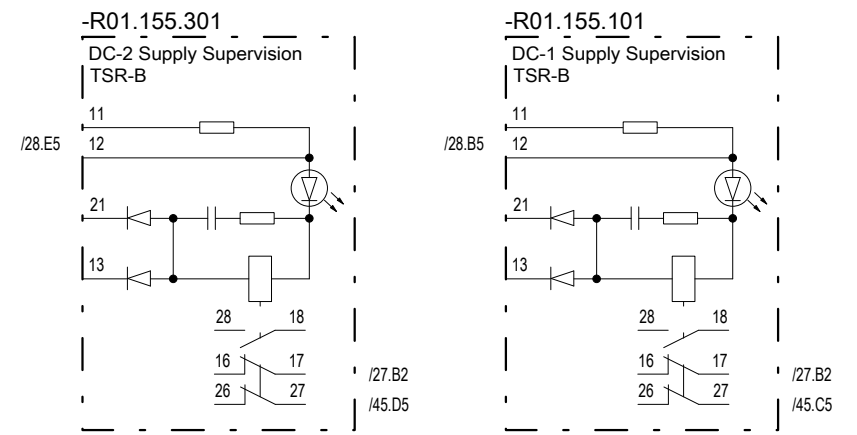
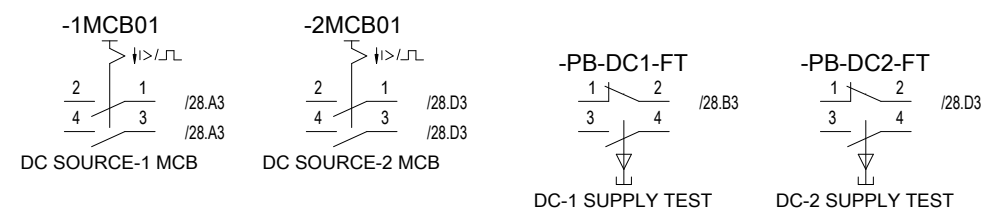
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Suitable for conventional 220KV SS only



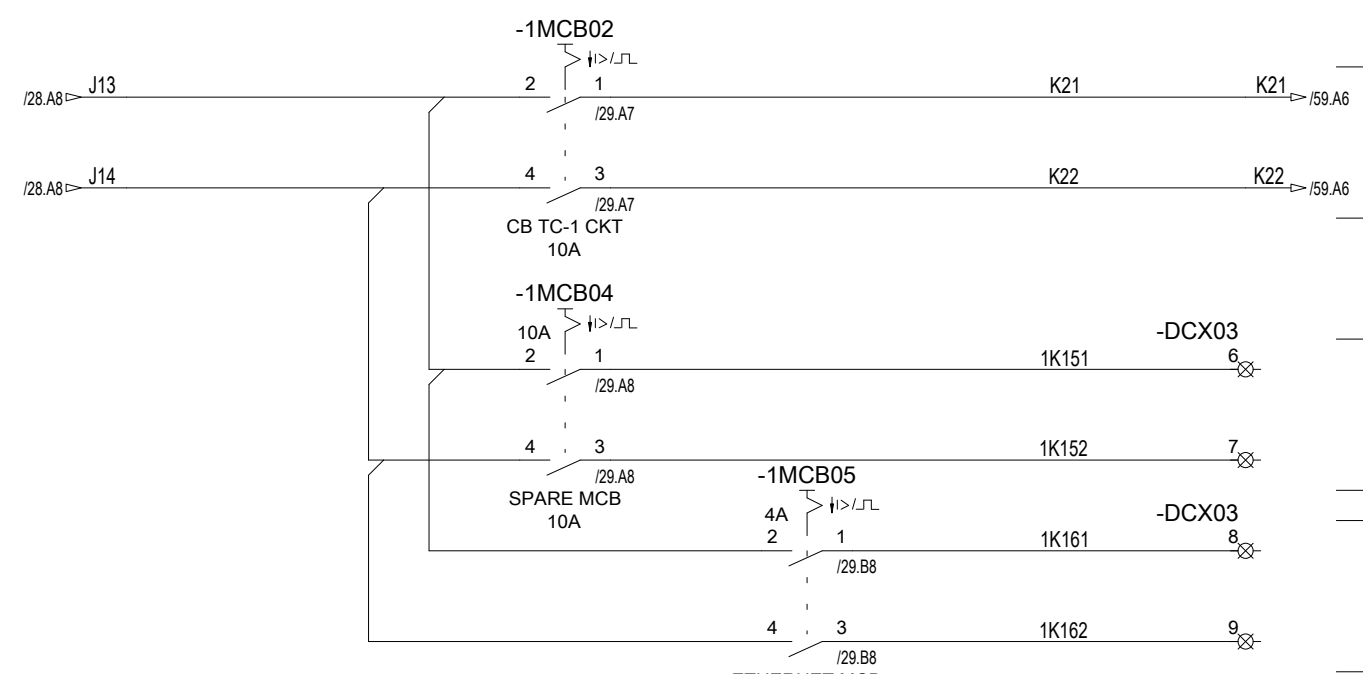
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		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		DC Distribution Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
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						n. sheet 29

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FROM DC-1 SUPPLY

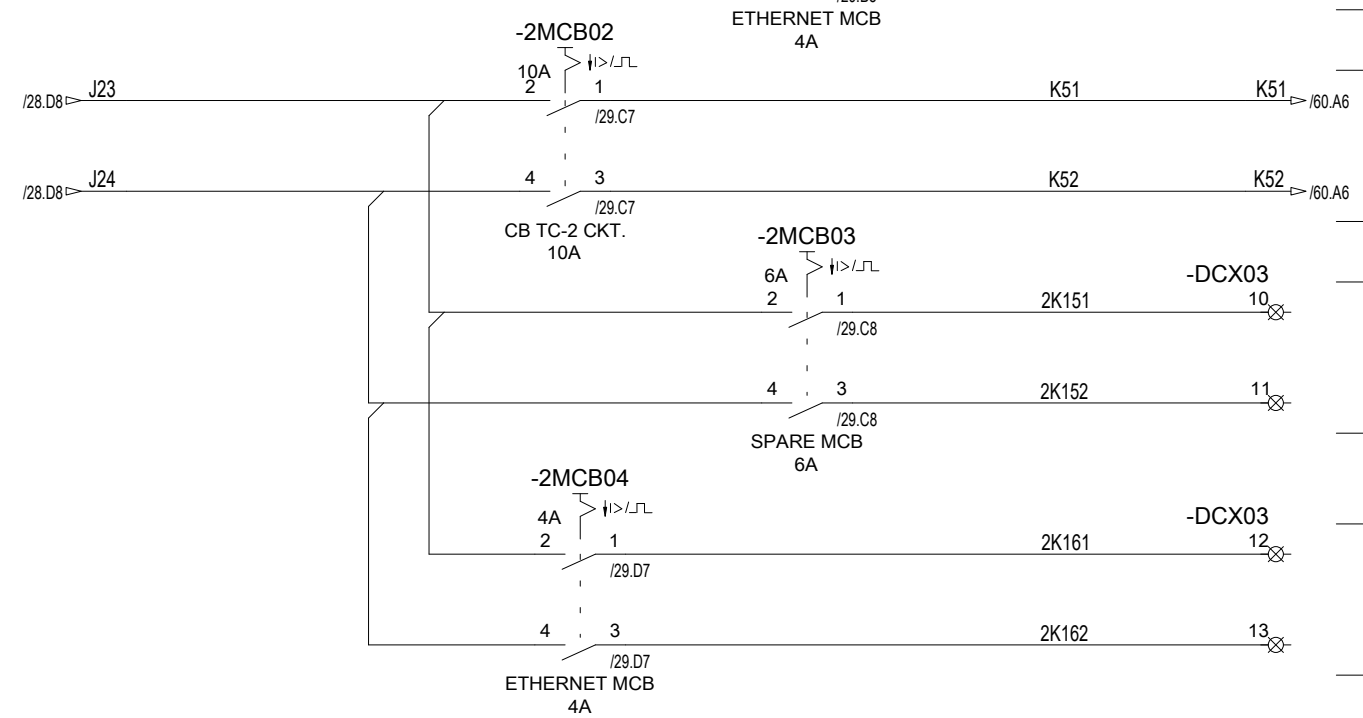


TO CB TC-1 CKT.

SPARE MCB

ETHERNET MCB

FROM DC-2 SUPPLY

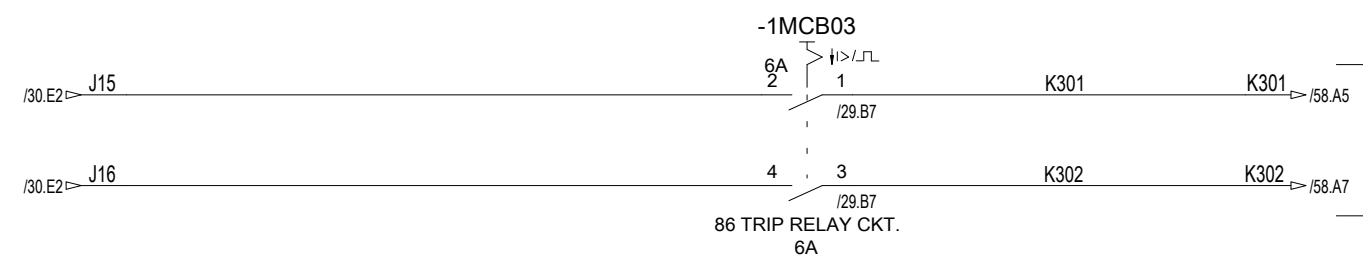


TO CB TC-2 CKT.

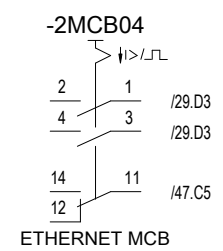
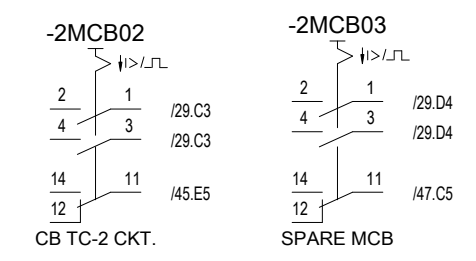
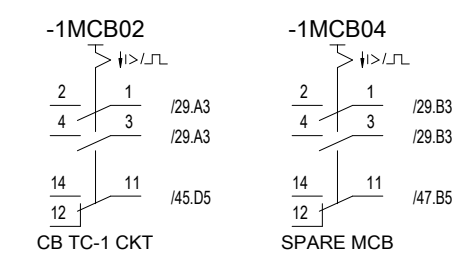
SPARE MCB

ETHERNET MCB

FROM DC C/O SUPPLY



TO 86 TRIP RELAY CKT.



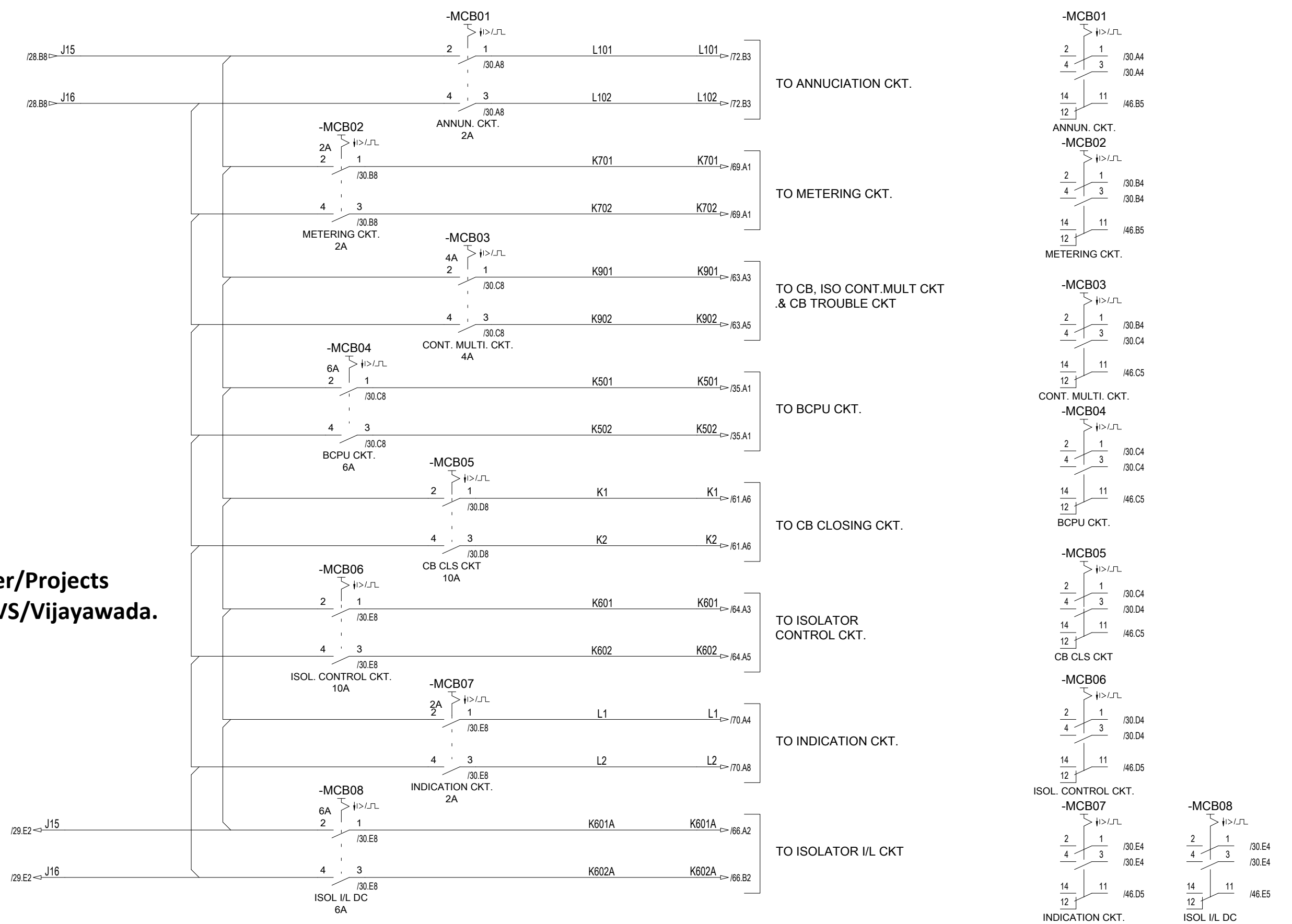
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		DC Distribution Circuit	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 29
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FROM C/O DC SUPPLY

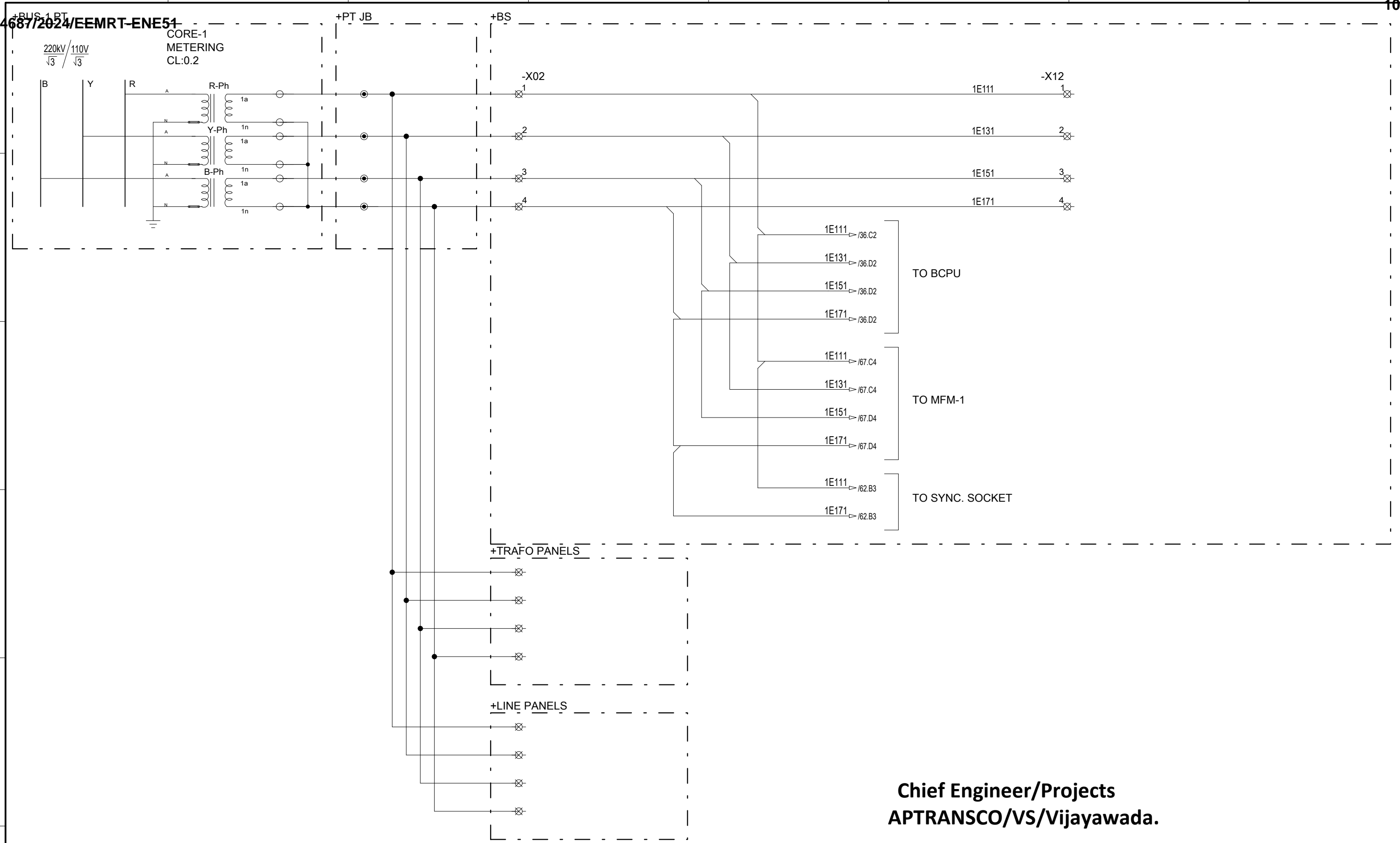
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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
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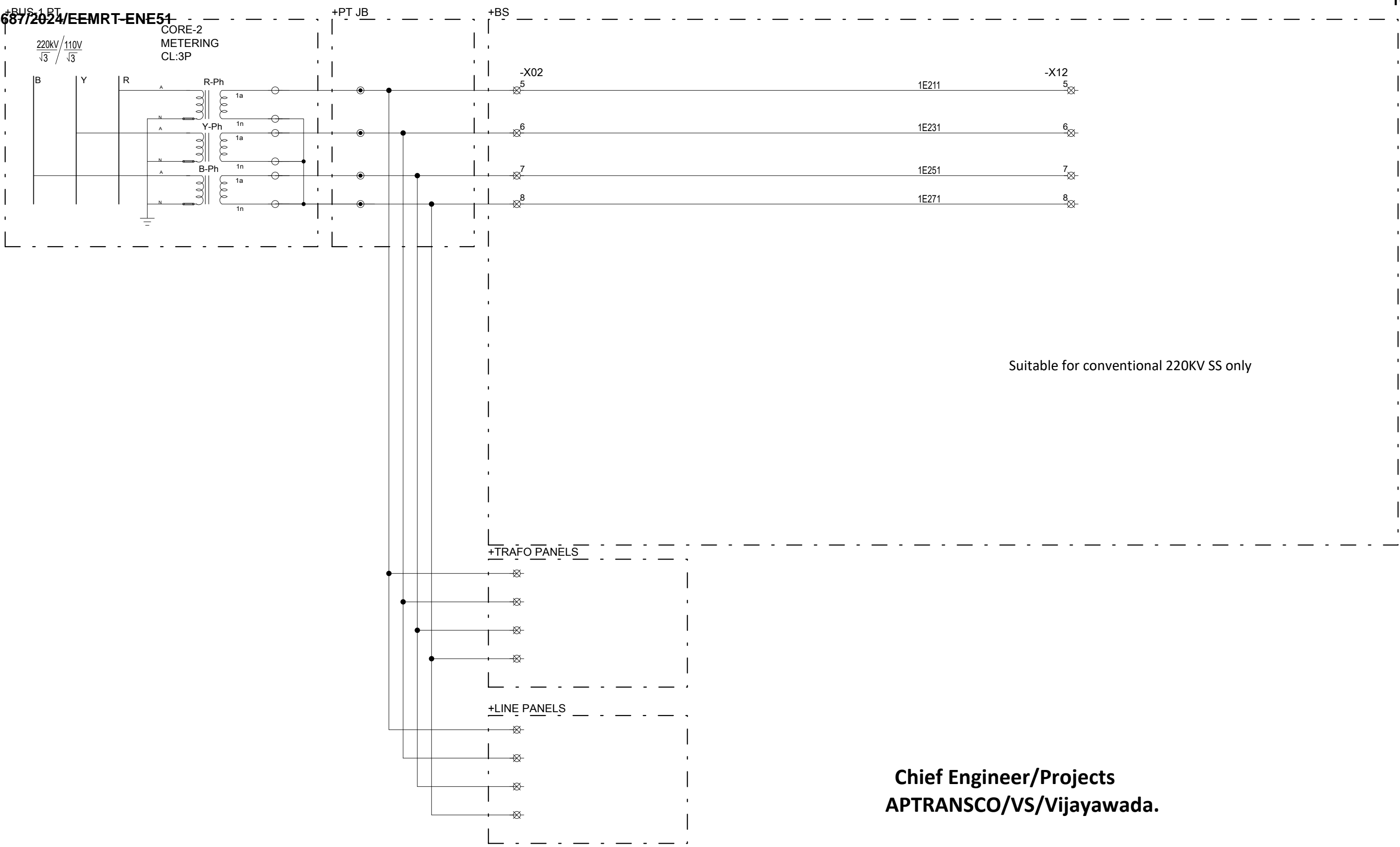
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB		Sheet 31 n. sheet 32
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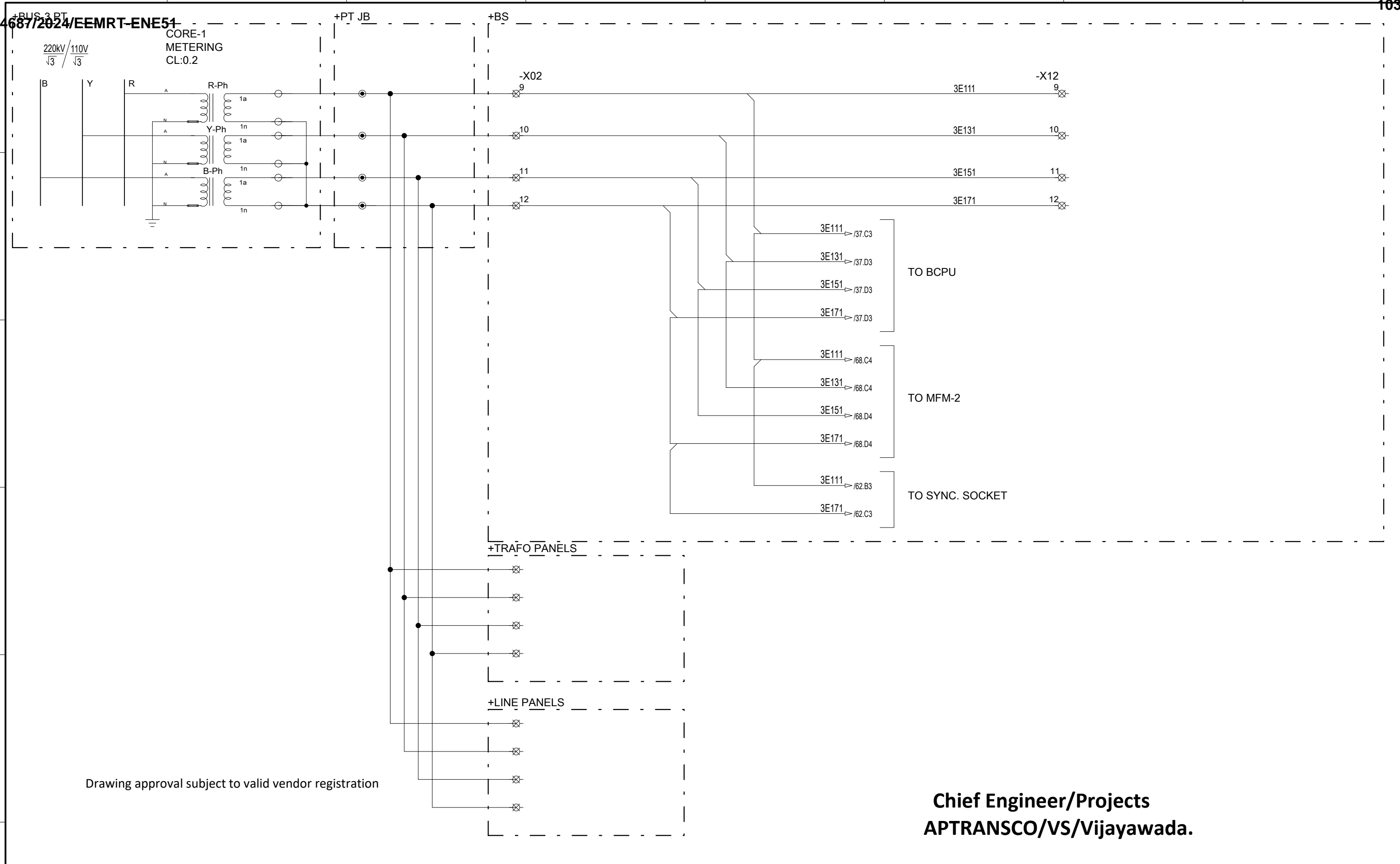
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Rev.	Revision note	Date	Name	HITACHI			Hitachi Energy India Limited	Doc. no.		1MNS500925-CFAB	Sheet
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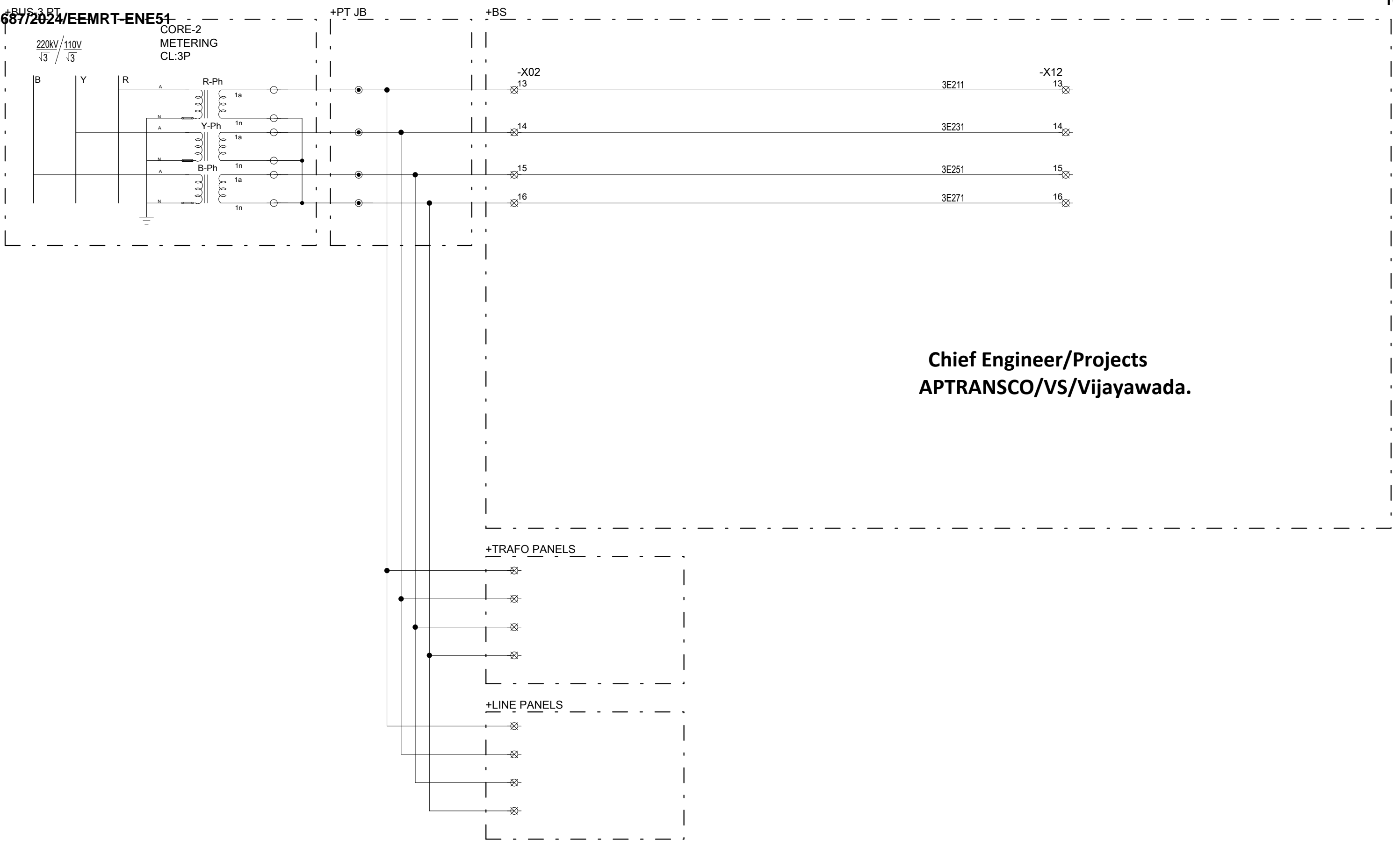
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB		Sheet 33
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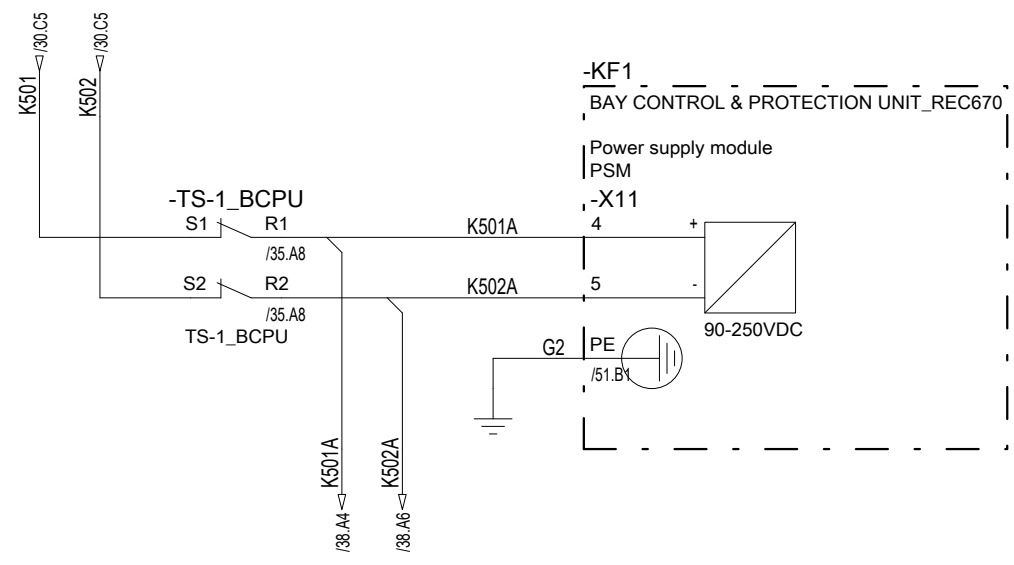
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Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 34	n. sheet 35
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LIST OF FUNCTIONS AVAILABLE IN RELAY

- Over Current Protection (50/51)
- E/F Protection (50N/51N)
- Synchrocheck,25
- Measurements
- Control
- Tripping Logic
- Local HMI
 - Integrated HMI with 4 line display
 - 15 freely configurable LEDs
 - Settings and disturbance Information
 - Front port for communication with indication

RED - TRIP SIGNALS
 YELLOW - ALARM SIGNALS
 GREEN - COMMUNICATION SIGNALS

+B.25 -KF1
 Indication HMI LED

RED INDICATION (GR-1)

- CB OPEN
- CB CLOSE
- R-PH OC OPTD
- Y-PH OC OPTD
- B-PH OC OPTD
- E/F OPTD
- 86 OPTD
- 96 OPTD
- CB TC-1 / 2 FAULTY

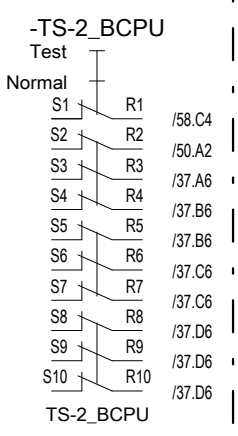
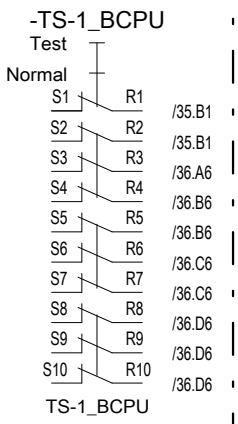
+B.25 -KF1
 Indication HMI LED

YELLOW INDICATION (GR-2)

- 89BS1 OPEN
- 89BS1 CLOSE
- 89BS3 OPEN
- 89BS3 CLOSE
- SPARE
- SPARE
- SPARE
- SPARE
- SPARE
- 89BS1 IN REMOTE
- 89BS3 IN REMOTE
- CB IN LOCAL
- CB IN REMOTE

+B.25 -KF1
 Indication HMI LED

GREEN INDICATION (GR-3)



List of Functional Key Indication

- FK1. SPARE
- FK2. SPARE
- FK3. SPARE
- FK4. SPARE
- FK5. LED RESET

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APTRANSCO/VS/Vijayawada.

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BCPU-Power supply Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 35
1MYN691003-102(A3)REV01						n. sheet 36

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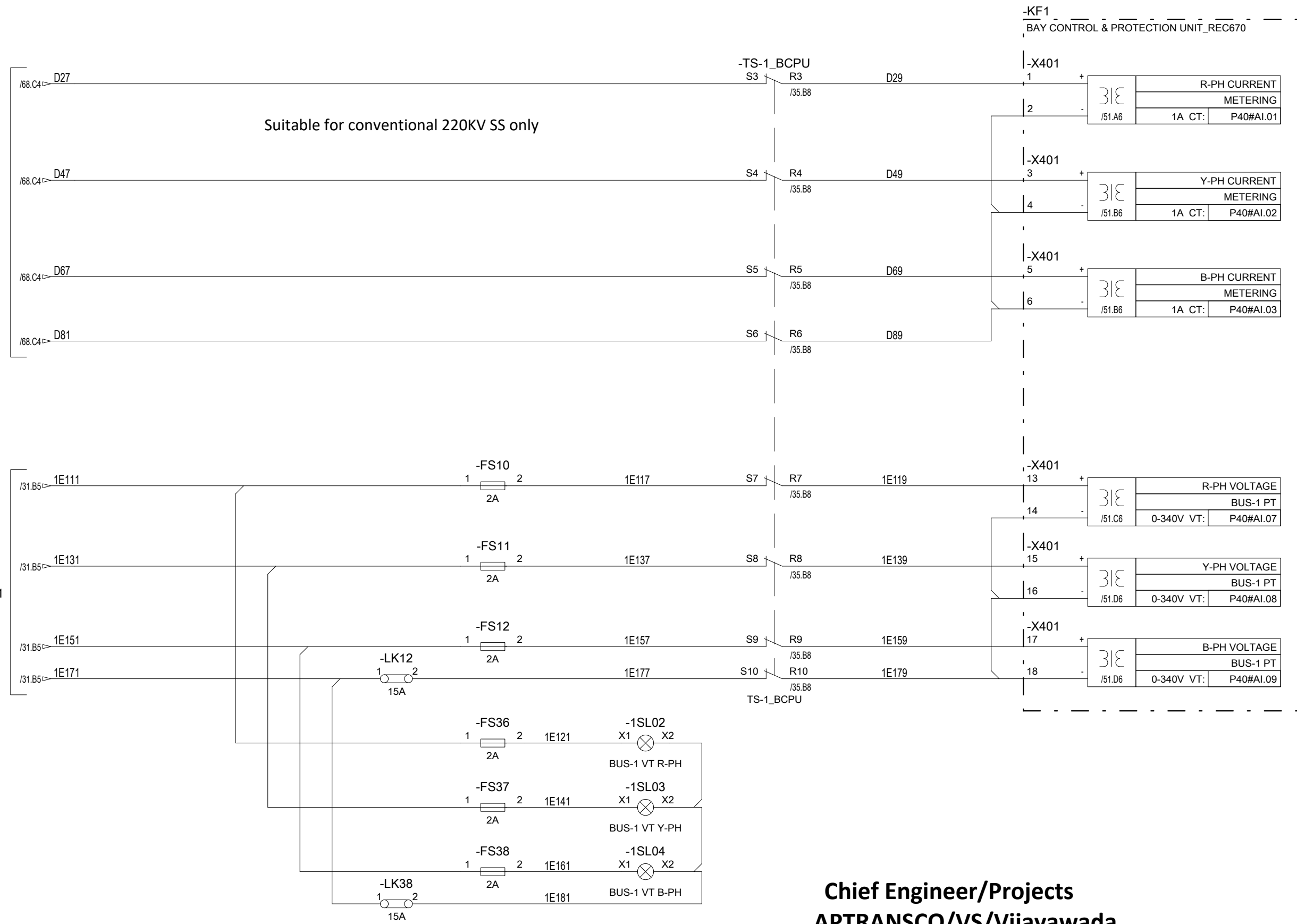
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88146872024/EEMRT-ENE51

Suitable for conventional 220KV SS only

FROM MFM CKT.
CT-2 CORE-5

FROM
BUS-1 PT CORE-1



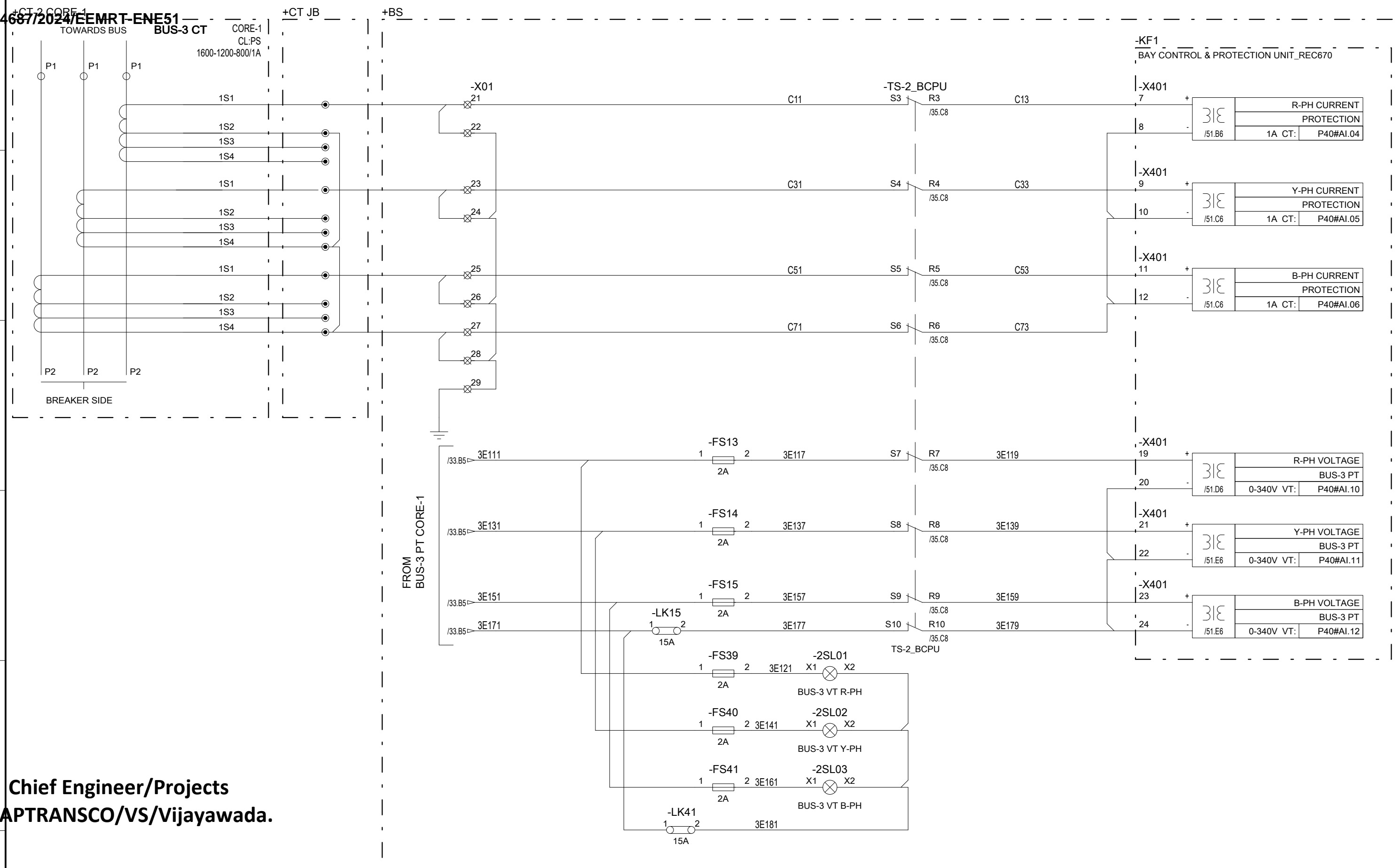
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

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		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 36
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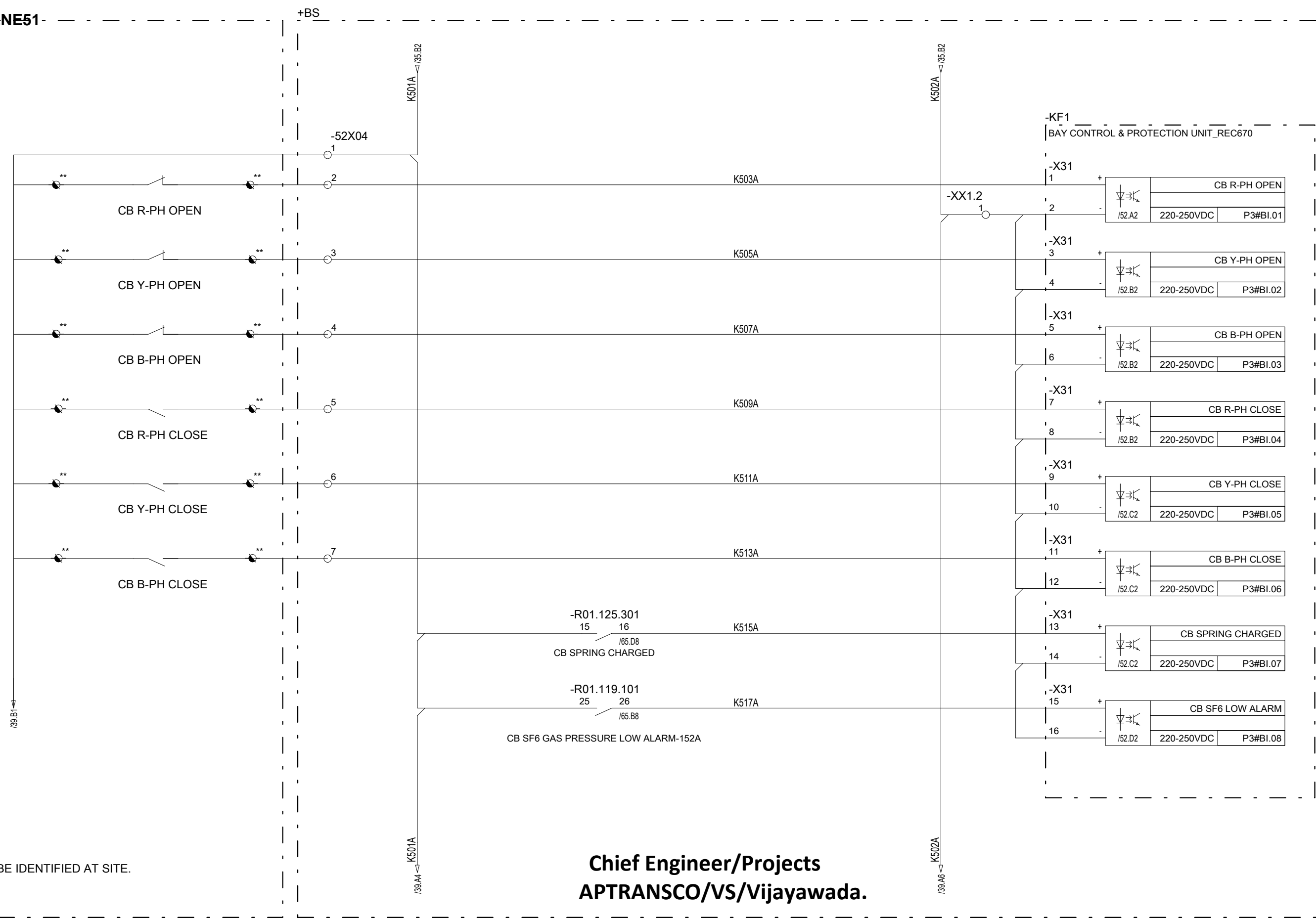
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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 37
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
1MYN691003-102(A3)REV01						Sheet 38
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8814687/2024/EEMRT-ENE51-

A

B

C

D

E

F

138.D1

EE/MRT/VS
APTRANSCO

CB DC-1 FAIL

CB DC-2 FAIL

CB TROUBLE

CB IN LOCAL

CB TROUBLE

+BS

-52X04

9

10

11

12

K501A

K501A

K502A

K502A

-R01.119.301
15 16 /65.C7
CB SF6 GAS PRESSURE LOCK OUT-152B

-R01.125.101
15 16 /65.C7
CB AIR PRESSURE LOW-152C

-R01.119.101
15 16 /65.B7
CB POLE DISCREPANCY -152E

-R01.119.301
27 28 /65.C8
CB TRIPPED ON CTD-152D

-KF1
BAY CONTROL & PROTECTION UNIT_REC670

-XX1.2
2
-X32
1 2
+
-
/52.A4
CB SF6 GAS PR. L/O
220-250VDC P3#BI.09

-X32
3 4
+
-
/52.B4
CB AIR PRESSURE LOW
220-250VDC P3#BI.10

-X32
5 6
+
-
/52.B4
CB DC-1 FAIL
220-250VDC P3#BI.11

-X32
7 8
+
-
/52.B4
CB DC-2 FAIL
220-250VDC P3#BI.12

-X32
9 10
+
-
/52.C4
CB TROUBLE
220-250VDC P3#BI.13

-X32
11 12
+
-
/52.C4
CB L/R IN LOCAL
220-250VDC P3#BI.14

-X32
13 14
+
-
/52.C4
CB PD OPTD
220-250VDC P3#BI.15

-X32
15 16
+
-
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CB TRIPPED ON CTD
220-250VDC P3#BI.16

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		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
1MYN691003-102(A3)REV01						Sheet 39
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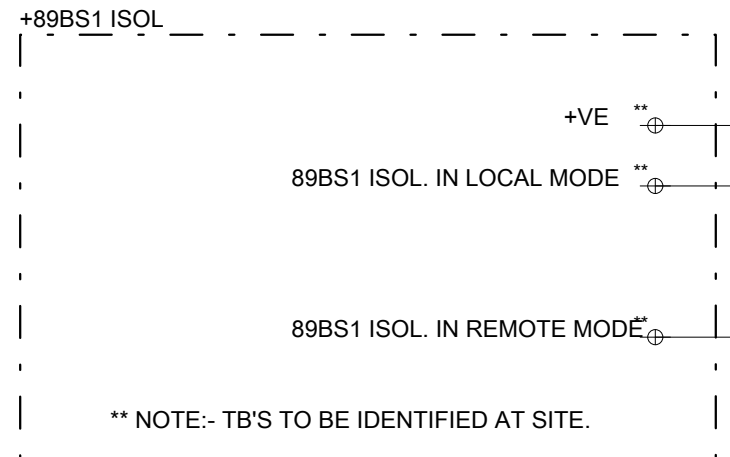
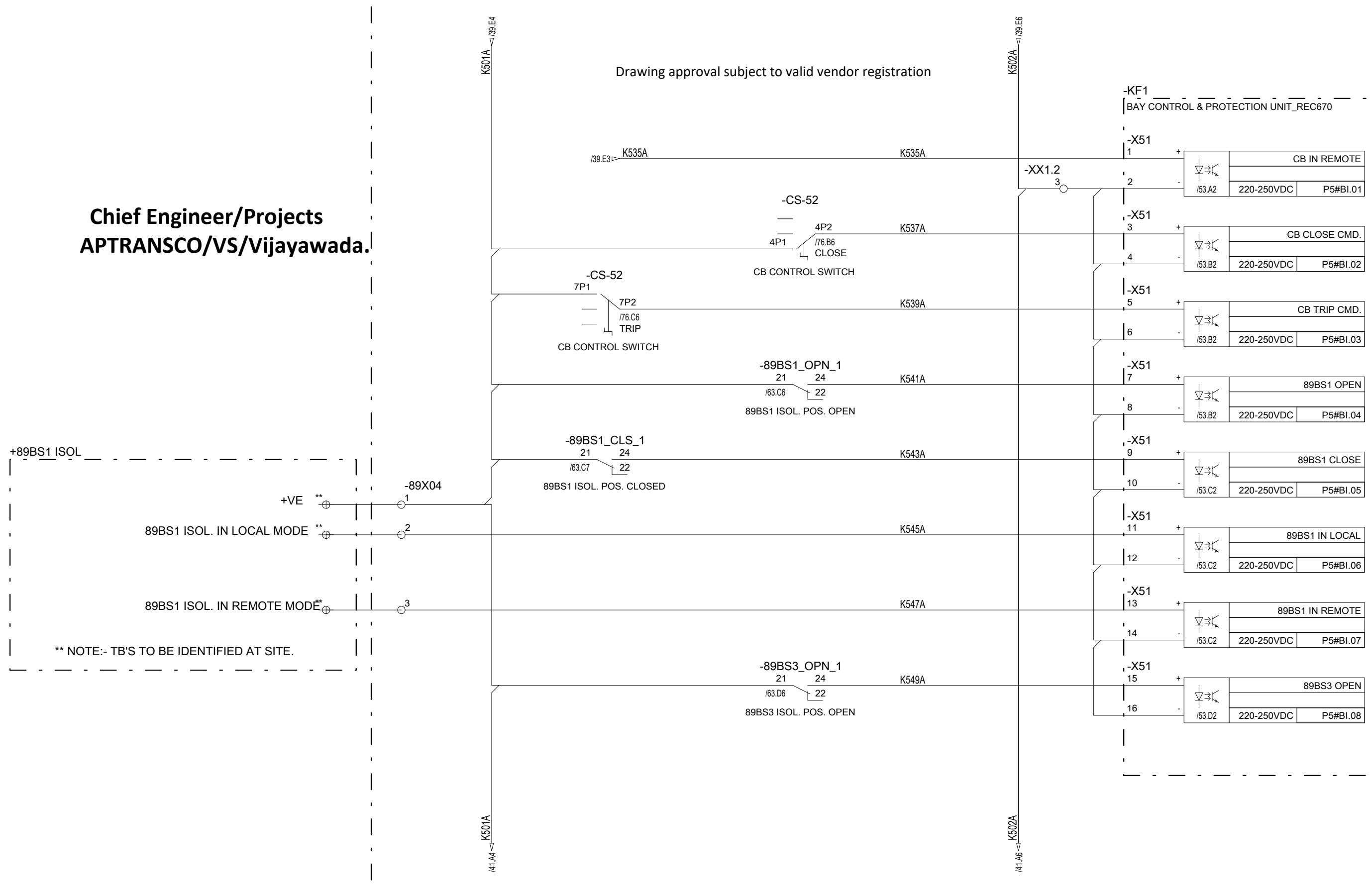
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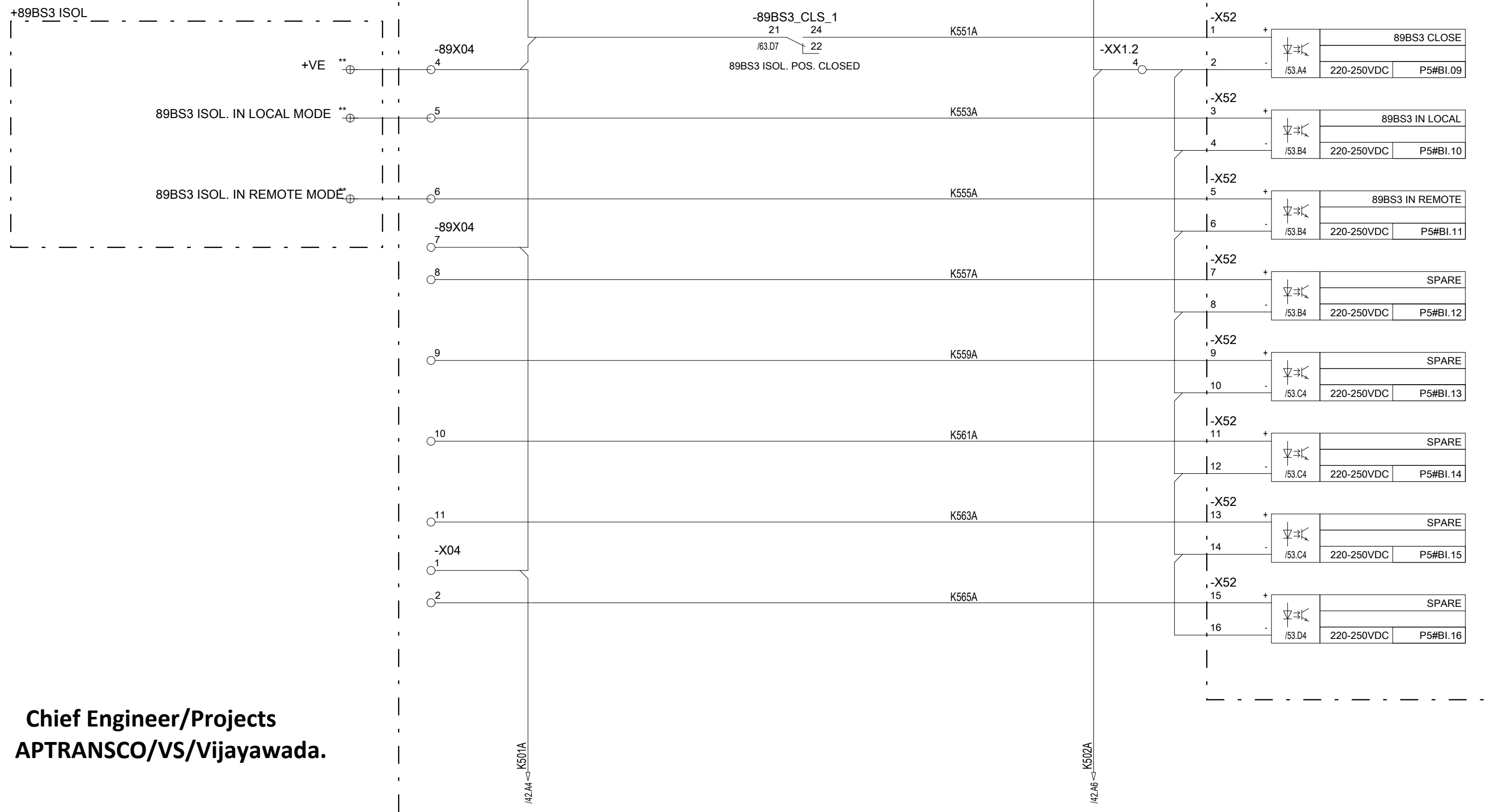
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
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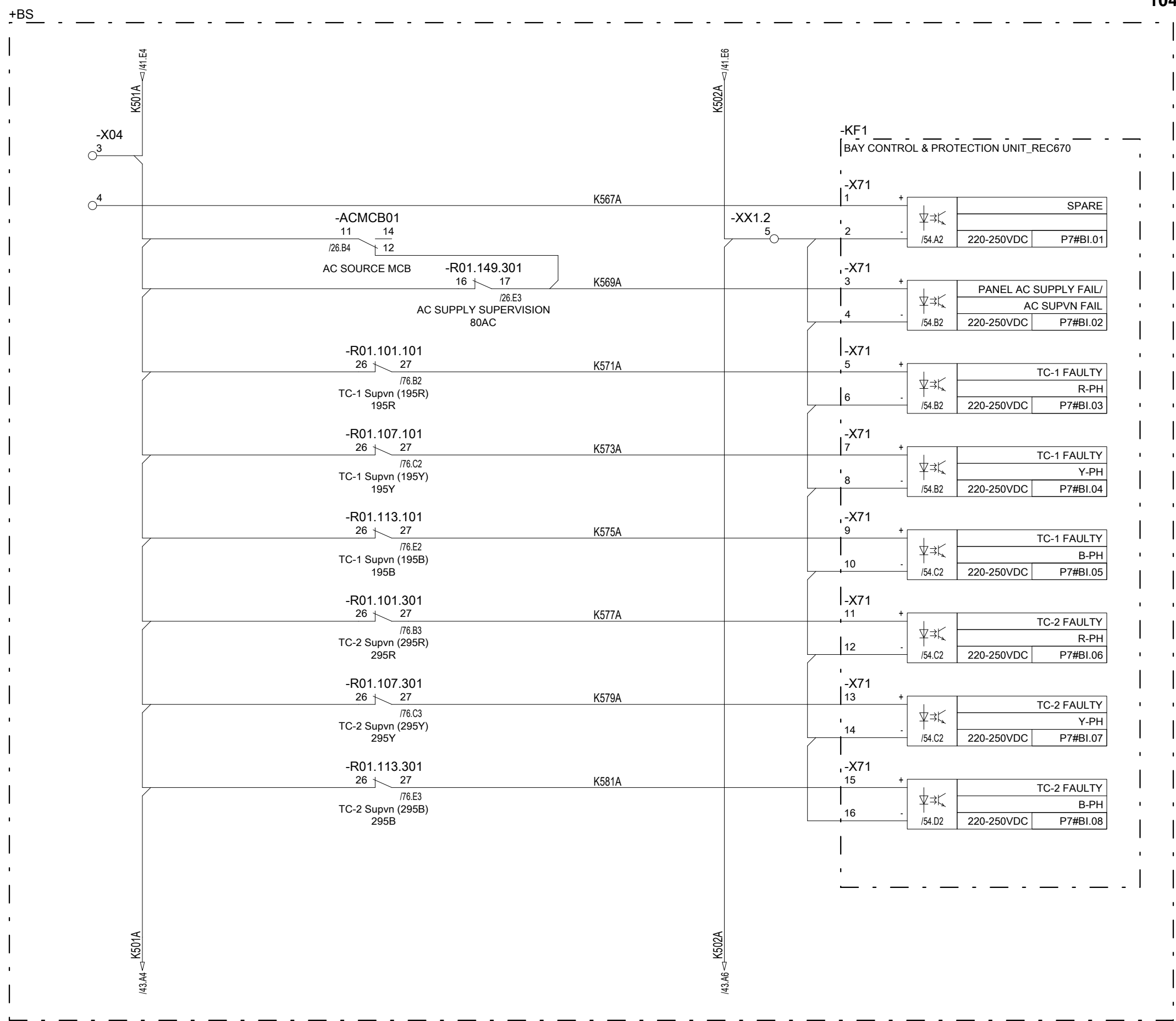
Chief Engineer/Projects
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 41
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1MYN691003-102(A3)REV01						Sheet 42
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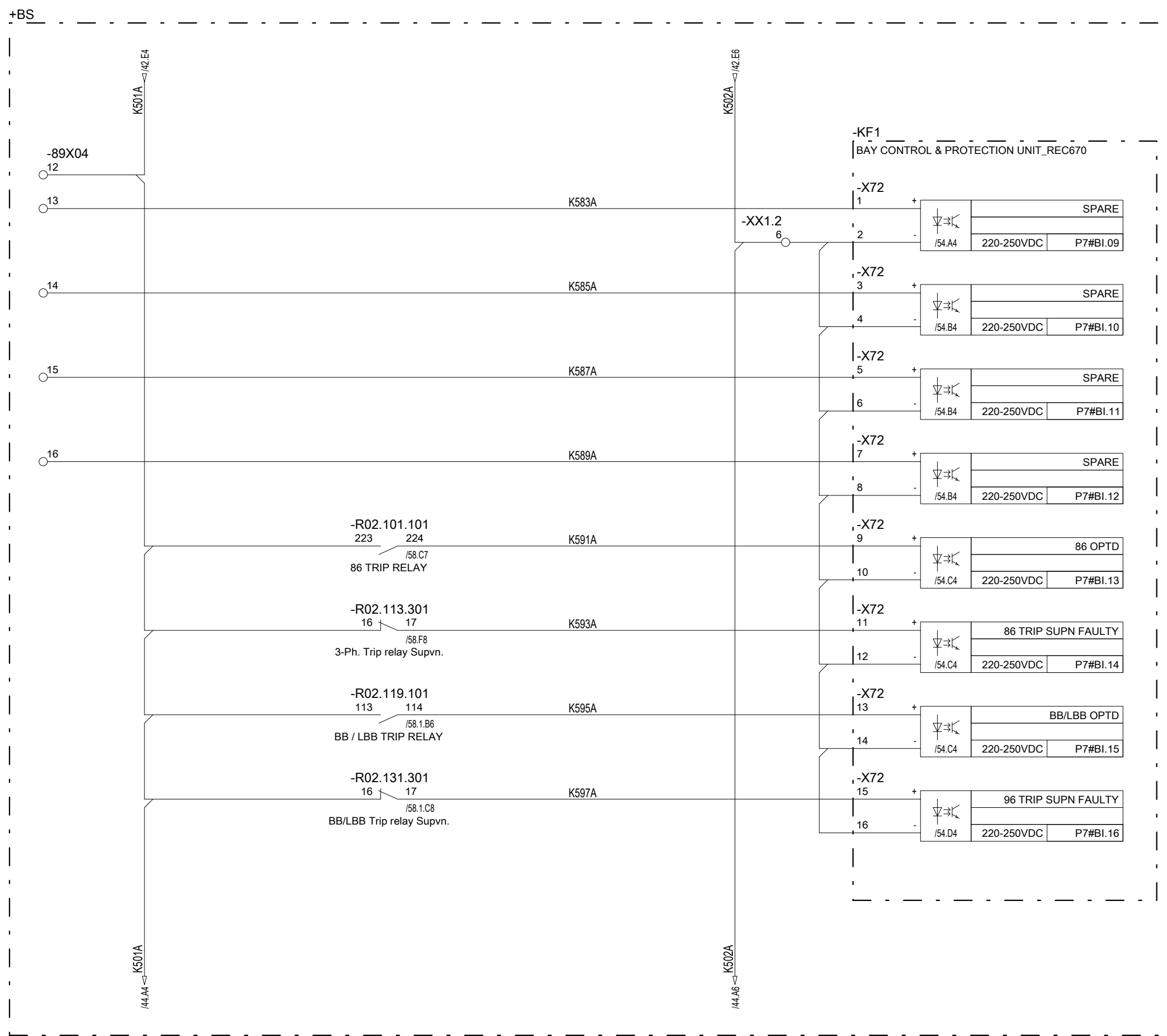
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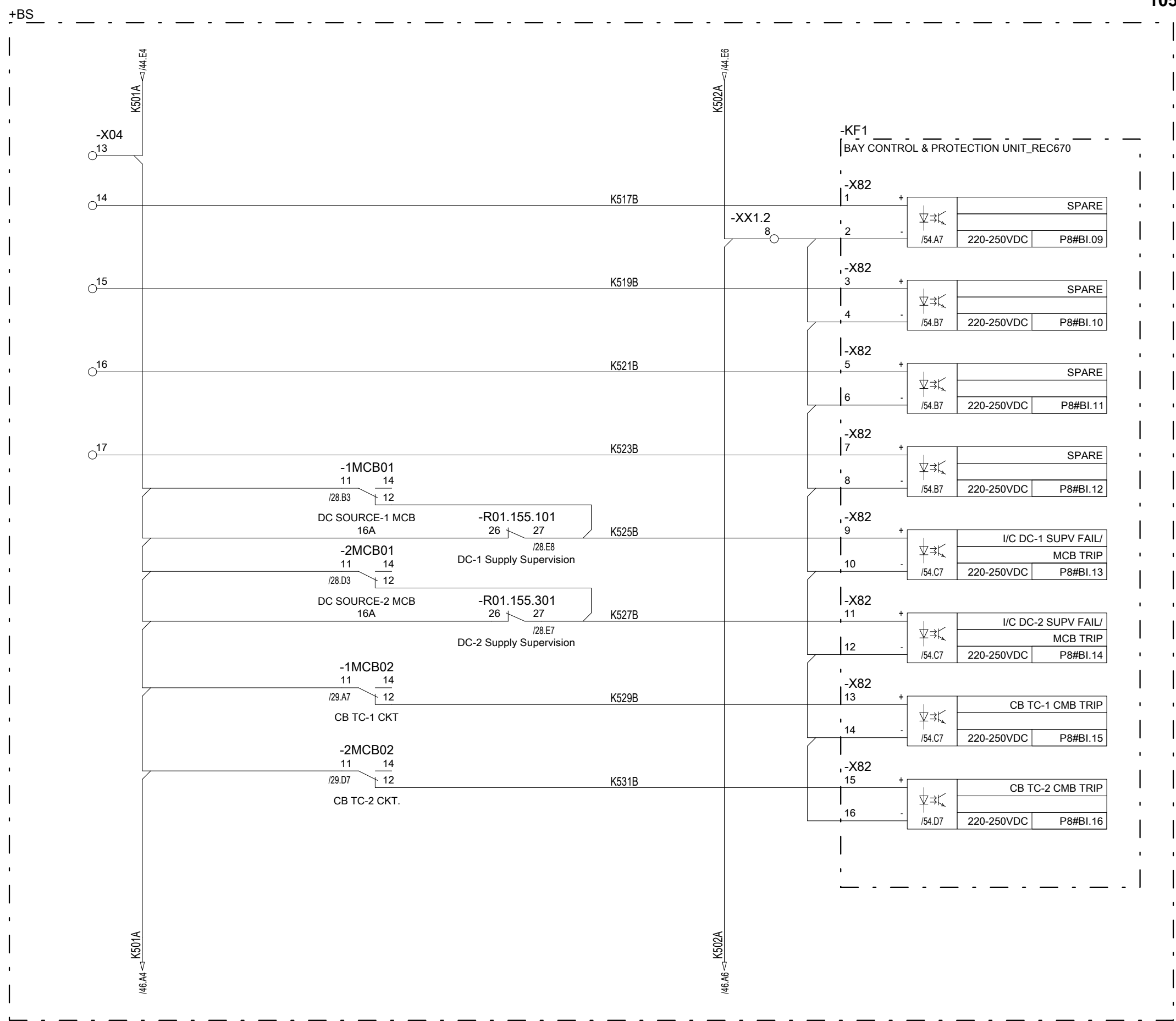
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
1MYN691003-102(A3)REV01						Sheet 43
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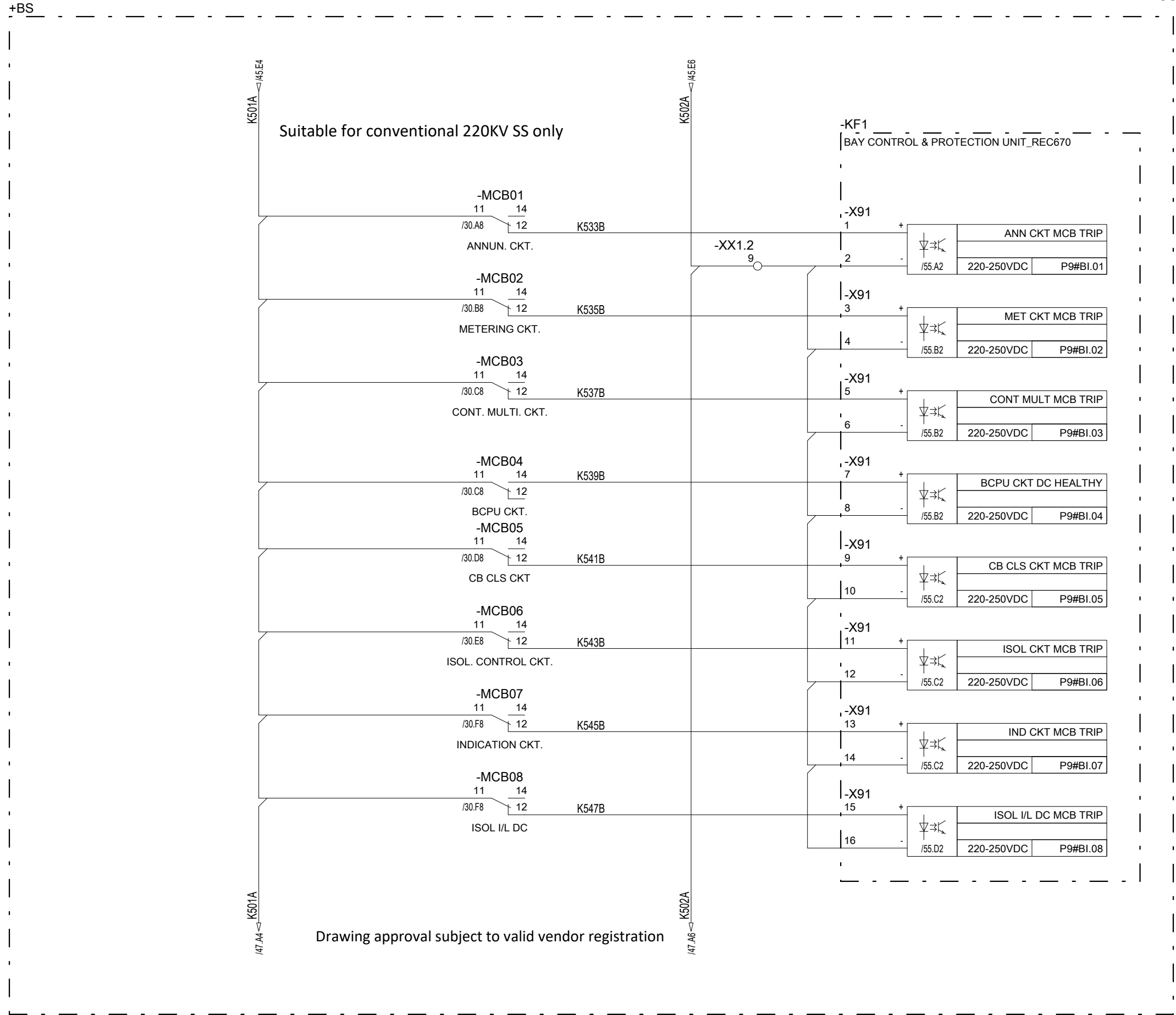
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
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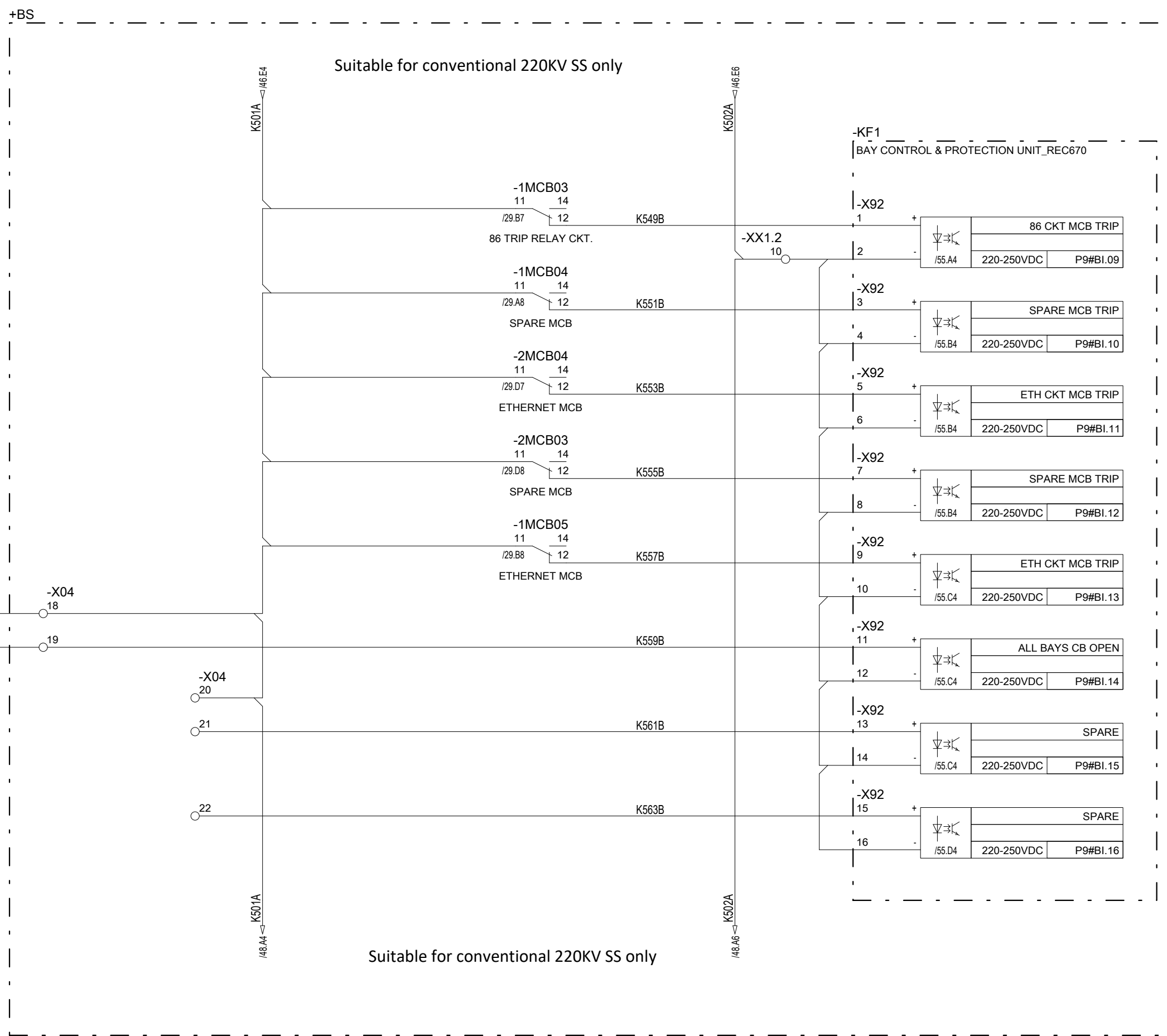
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**Chief Engineer/Projects
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ALL BAYS CB OPEN

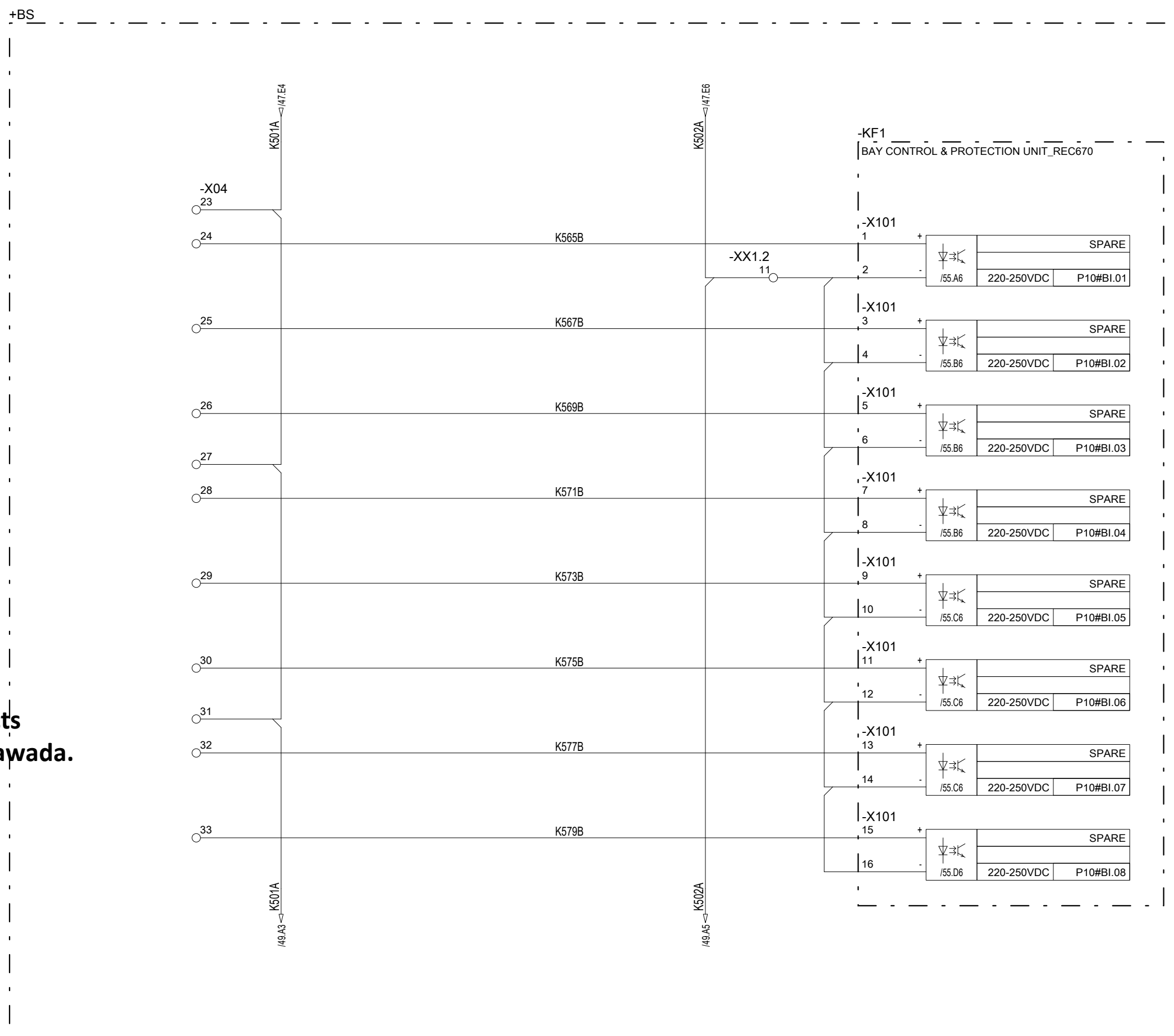
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	
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**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

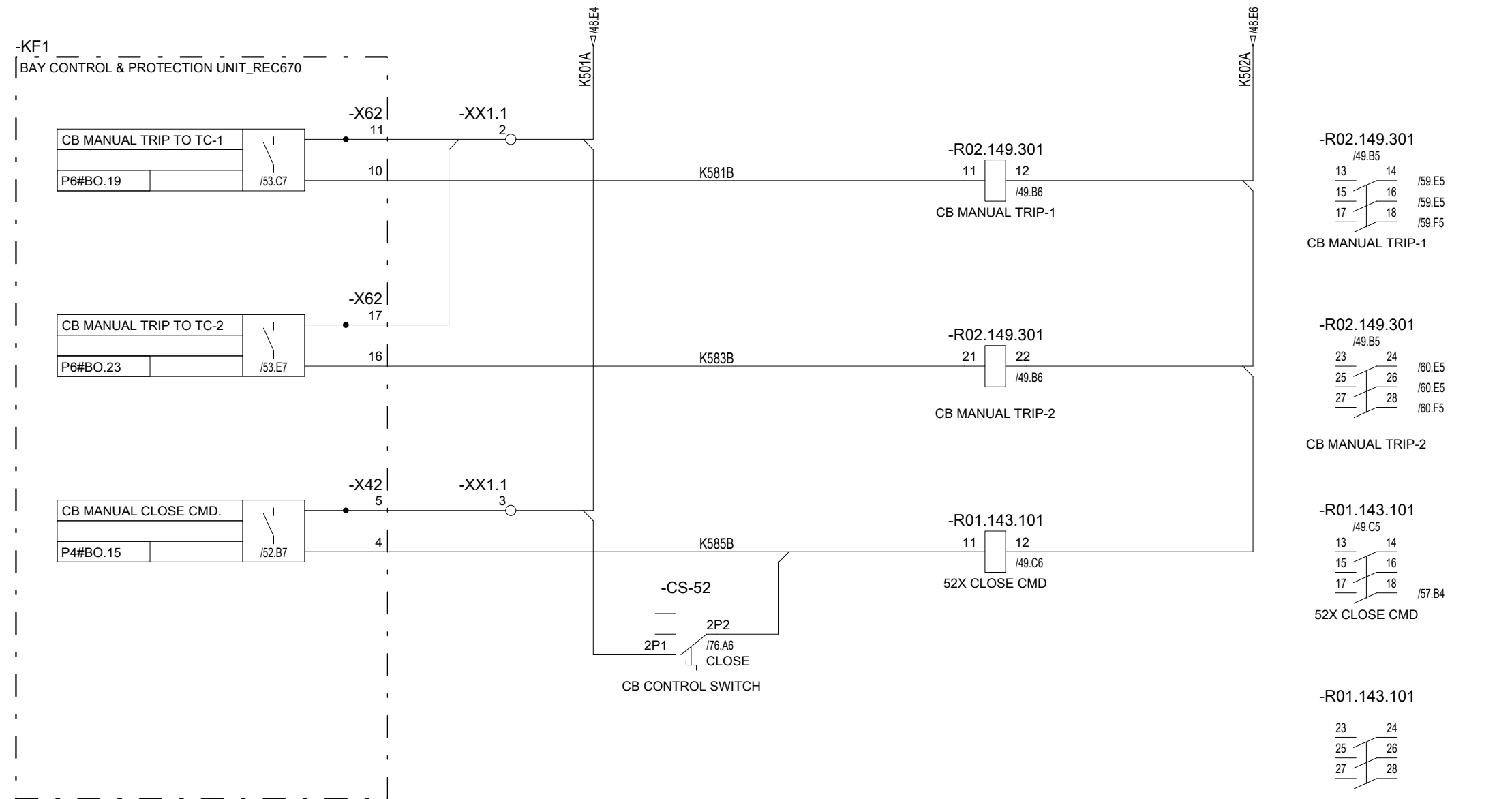


Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		Project APTRANSCO		BCPU-Binary Input Ckt.	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 48
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Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

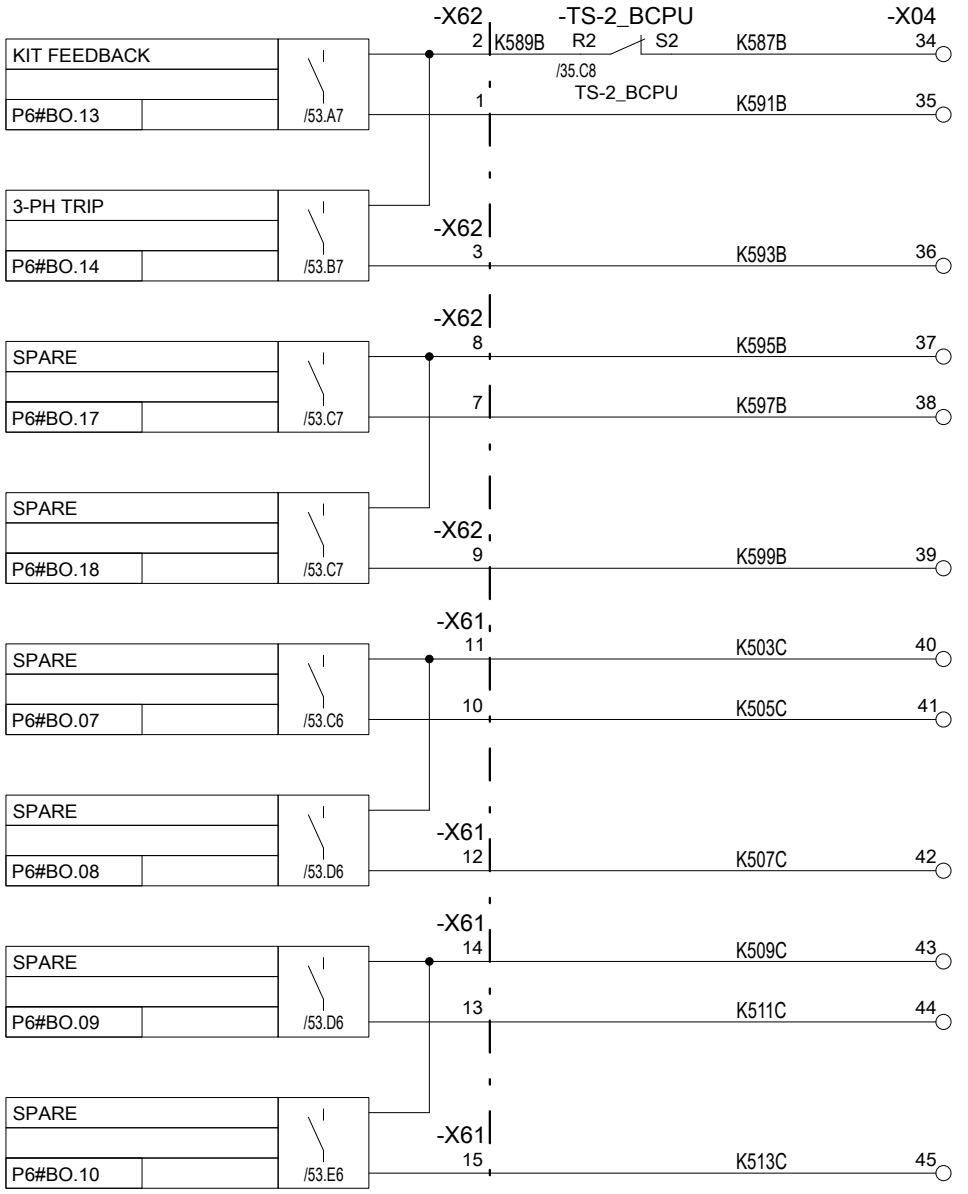
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		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAB		Sheet 49
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-KF1
BAY CONTROL & PROTECTION UNIT_REC670

Drawing approval subject to valid vendor registration



Suitable for conventional 220KV SS only

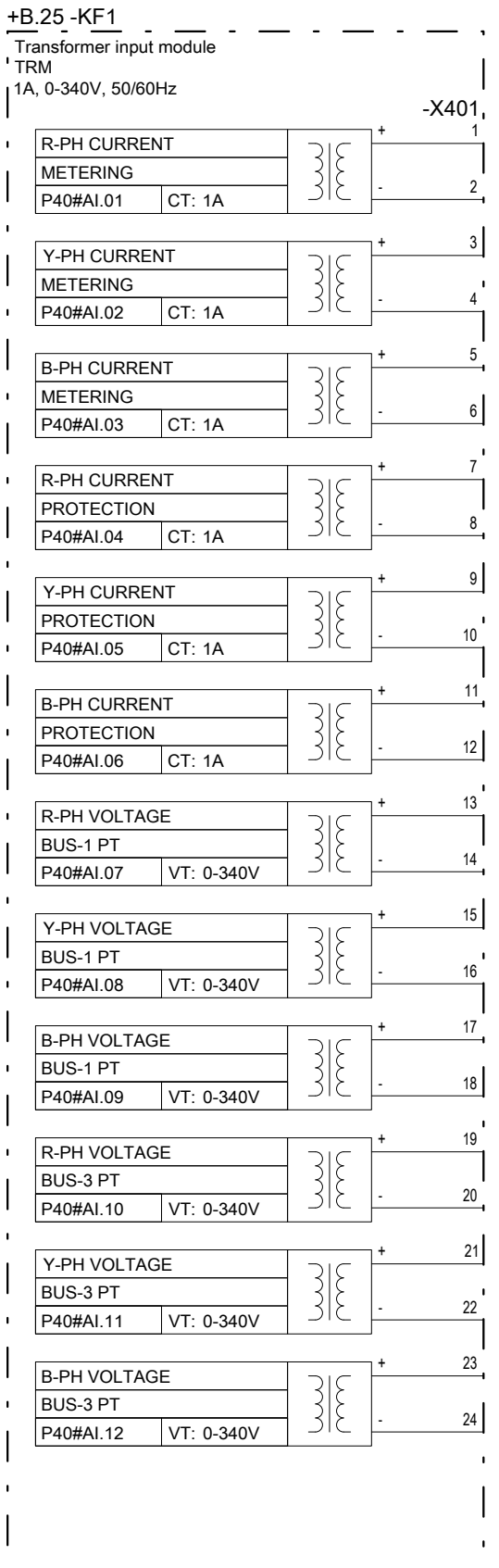
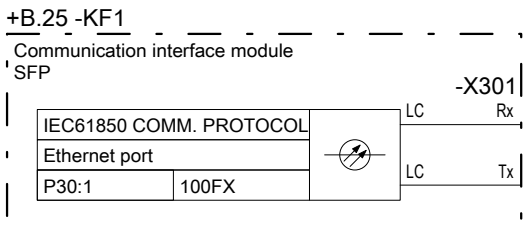
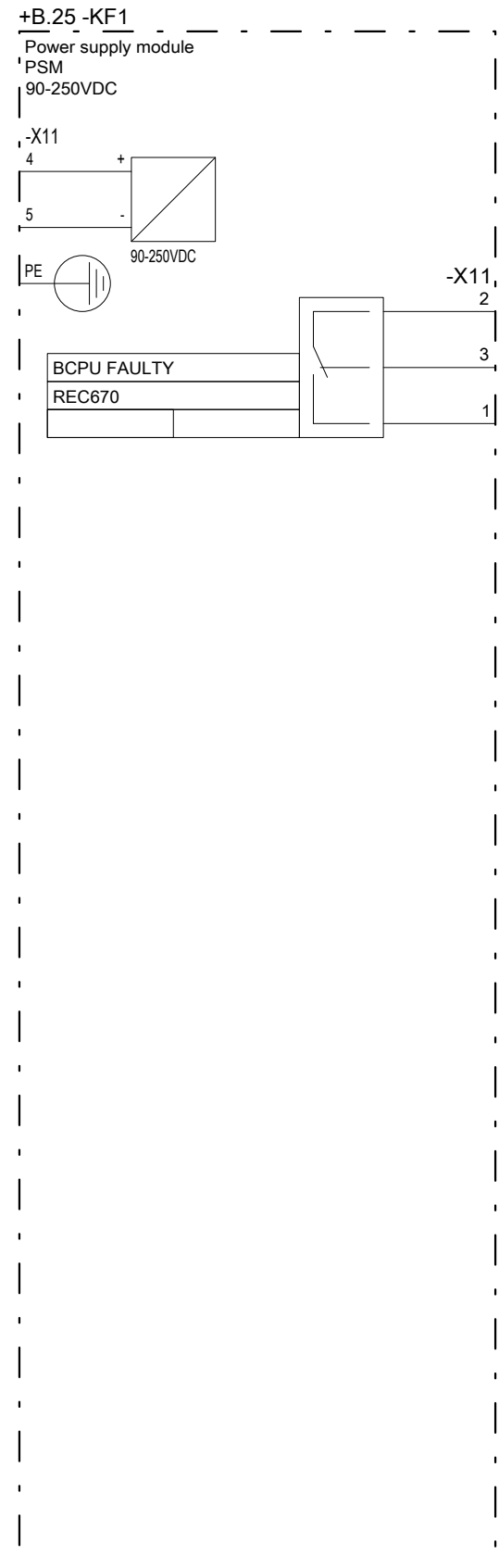
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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		Project APTRANSCO		BCPU-Binary Output Ckt.		Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en	
Rev.	Revision note	Date	Name	HITACHI		Doc. no. 1MNS500925-CFAB	Sheet 50
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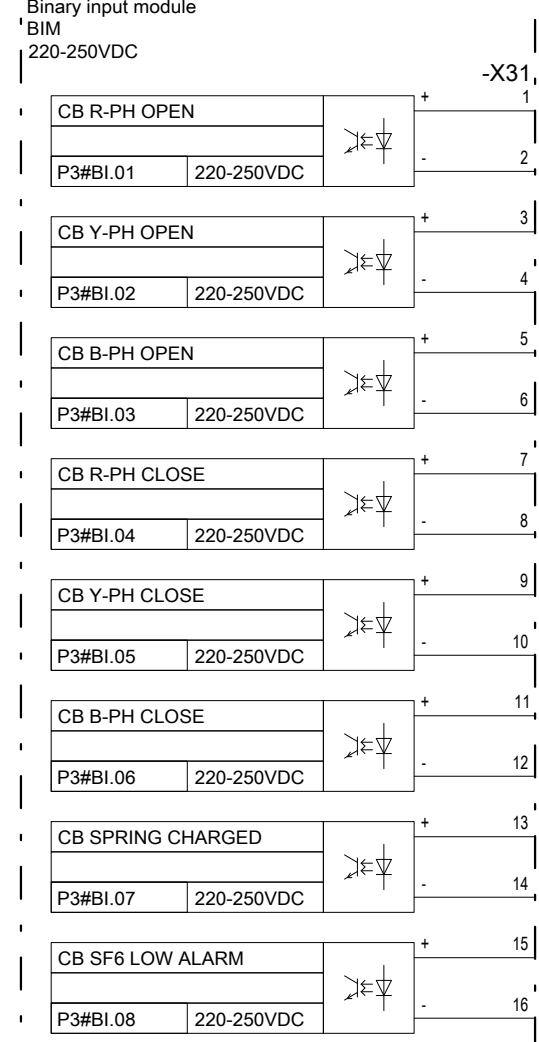
Suitable for conventional 220KV SS only

**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

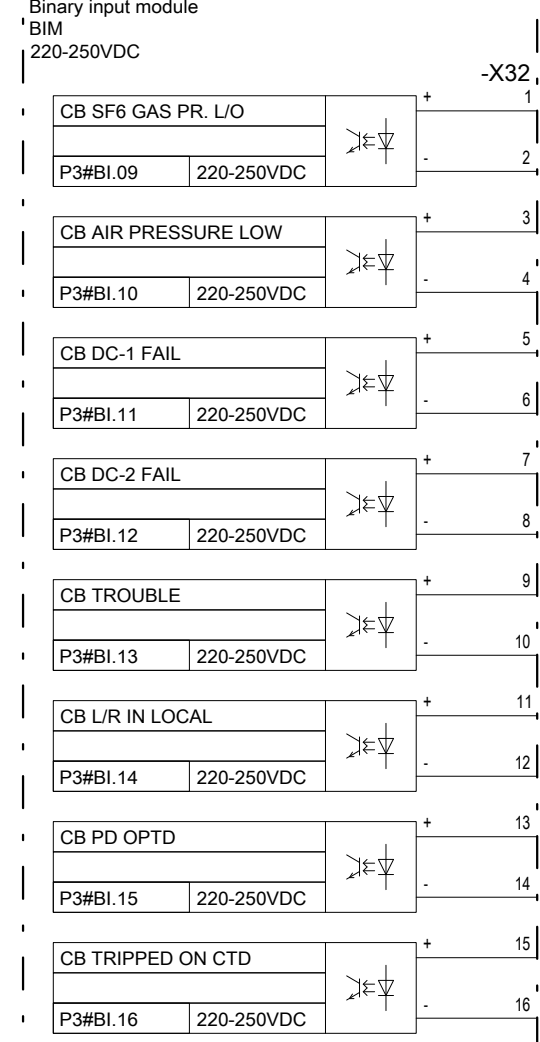
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Rev.	Revision note	Date	HITACHI	Doc. no. 1MNS500925-CFAB	
1MYN691003-102(A3)REV01				Sheet 51	n. sheet 52

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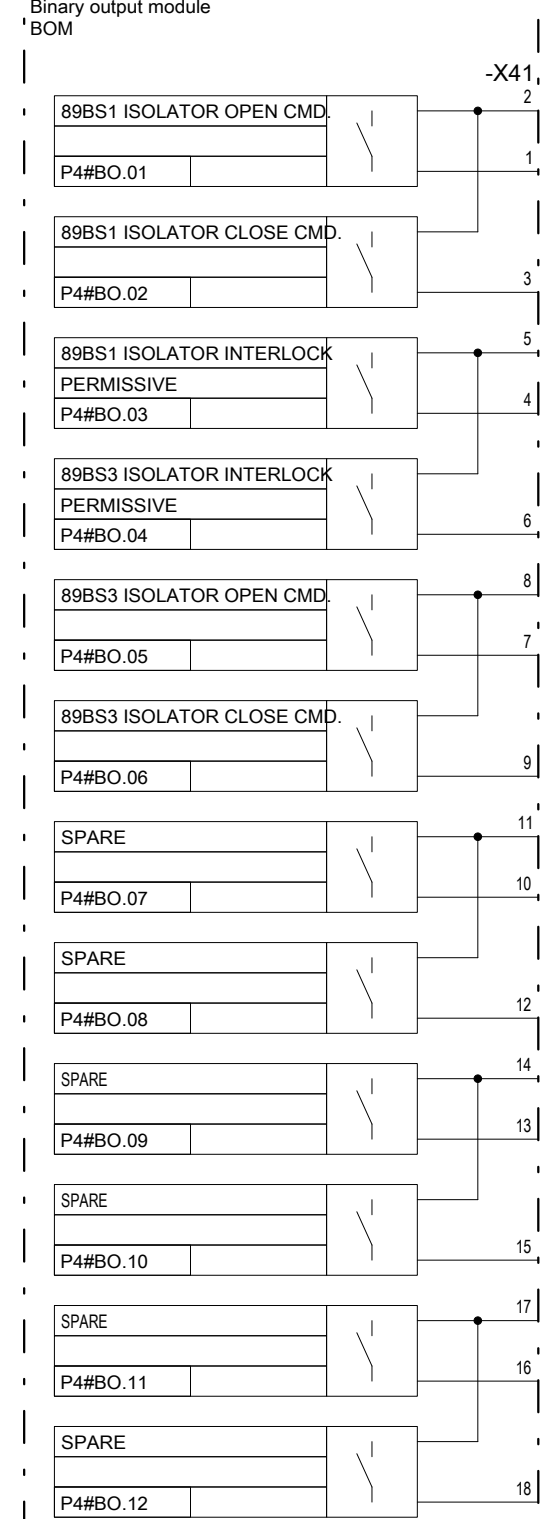
+B.25 -KF1
Binary input module
BIM
220-250VDC



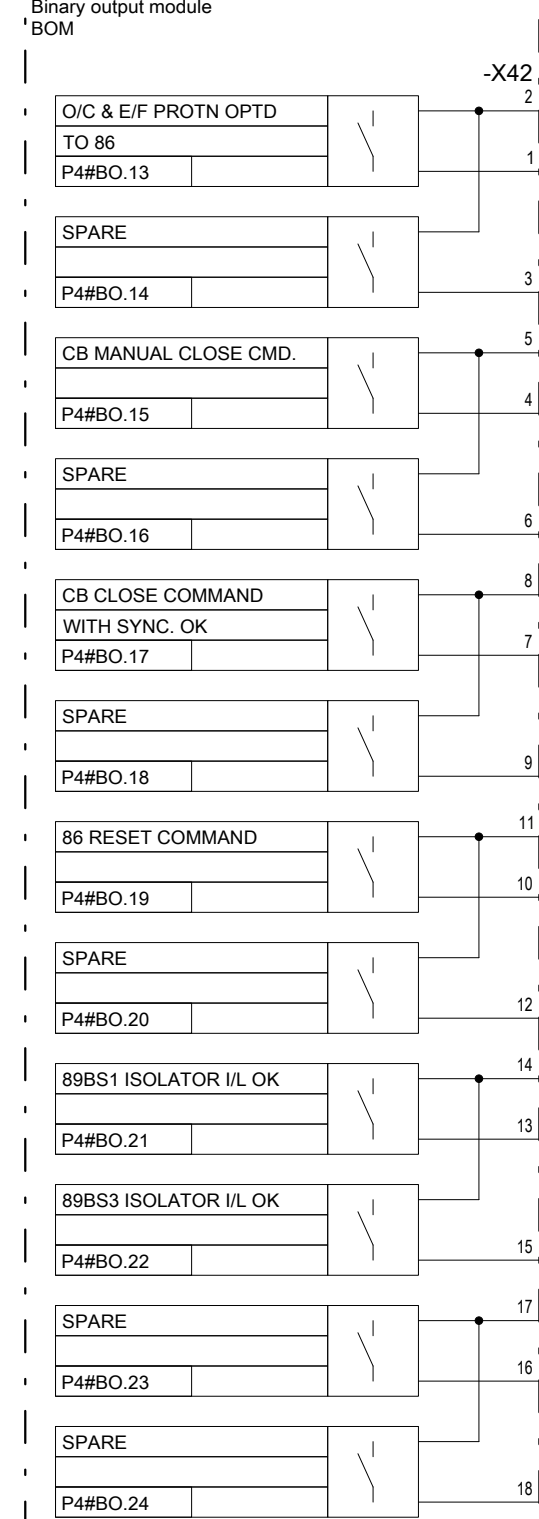
+B.25 -KF1
Binary input module
BIM
220-250VDC



+B.25 -KF1
Binary output module
BOM
220-250VDC

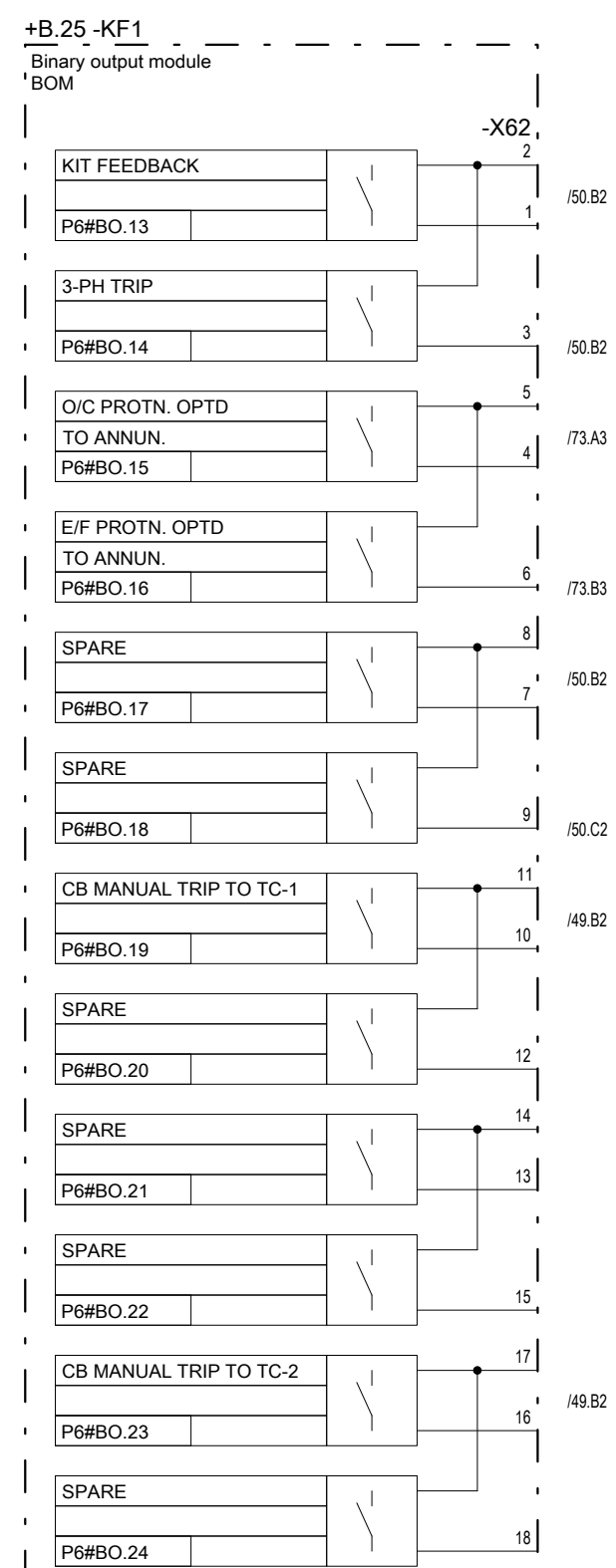
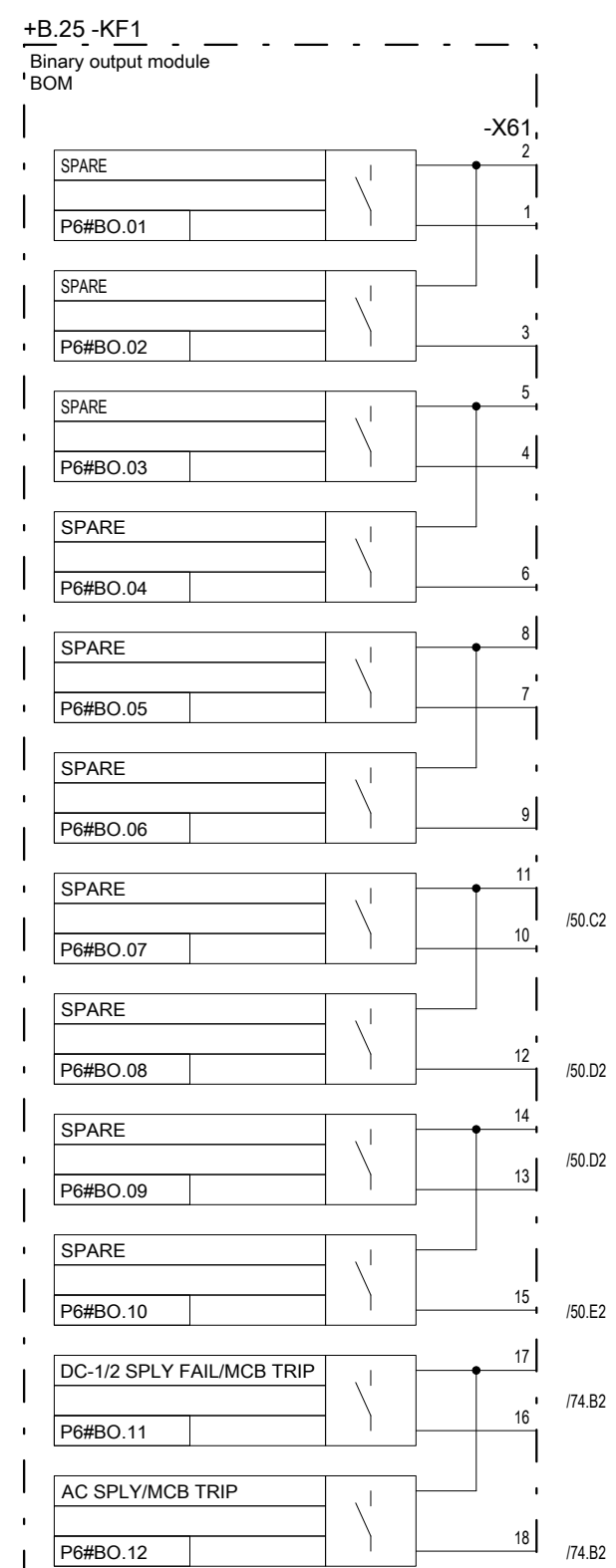
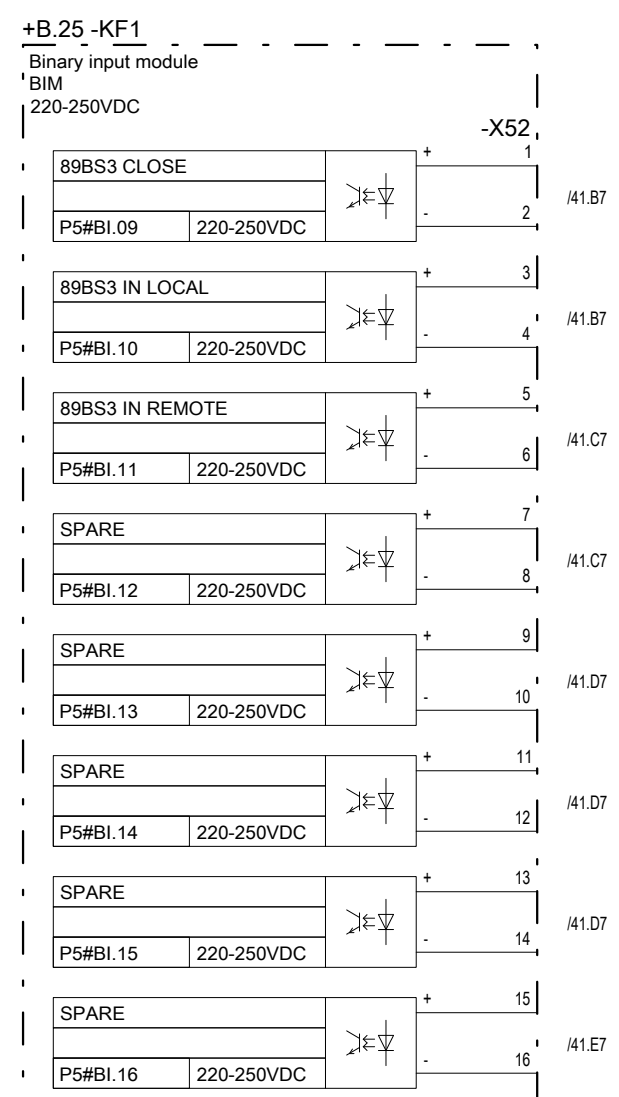
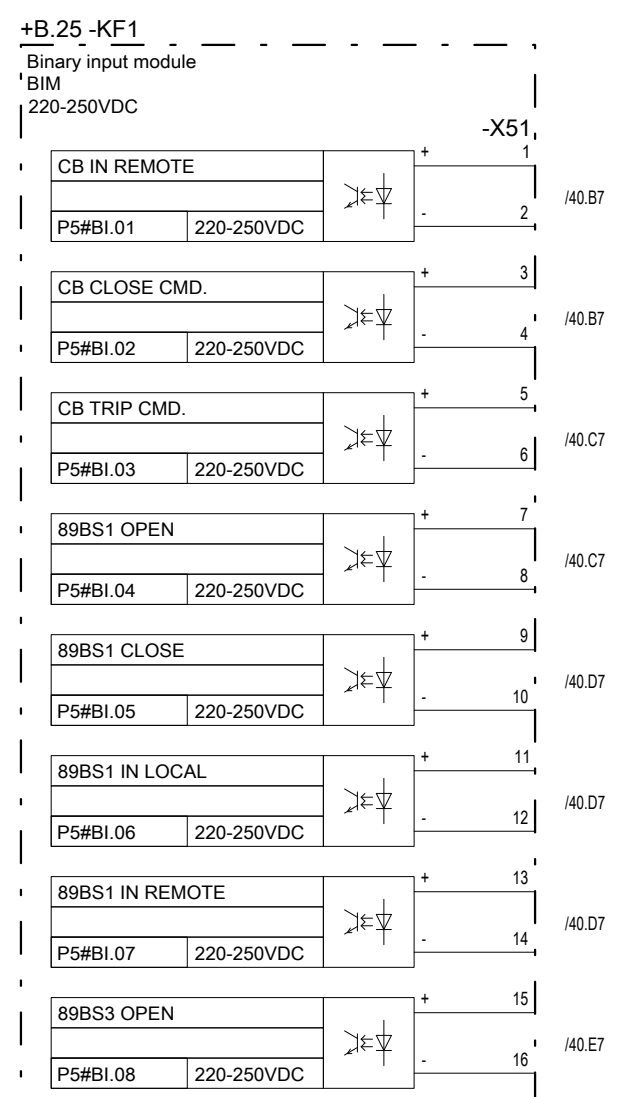


+B.25 -KF1
Binary output module
BOM
220-250VDC



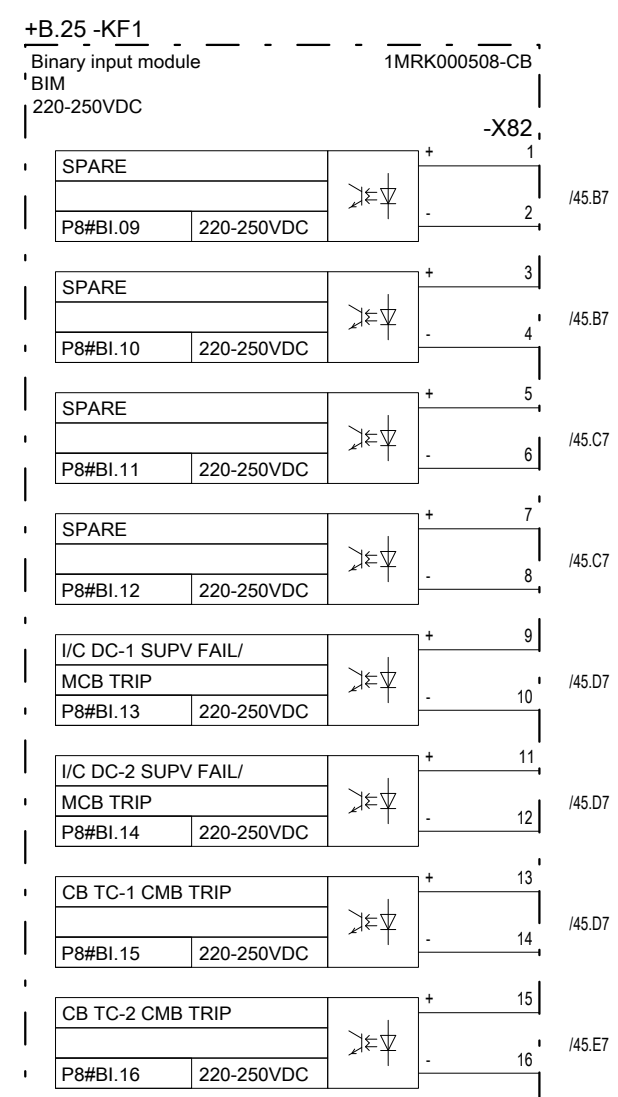
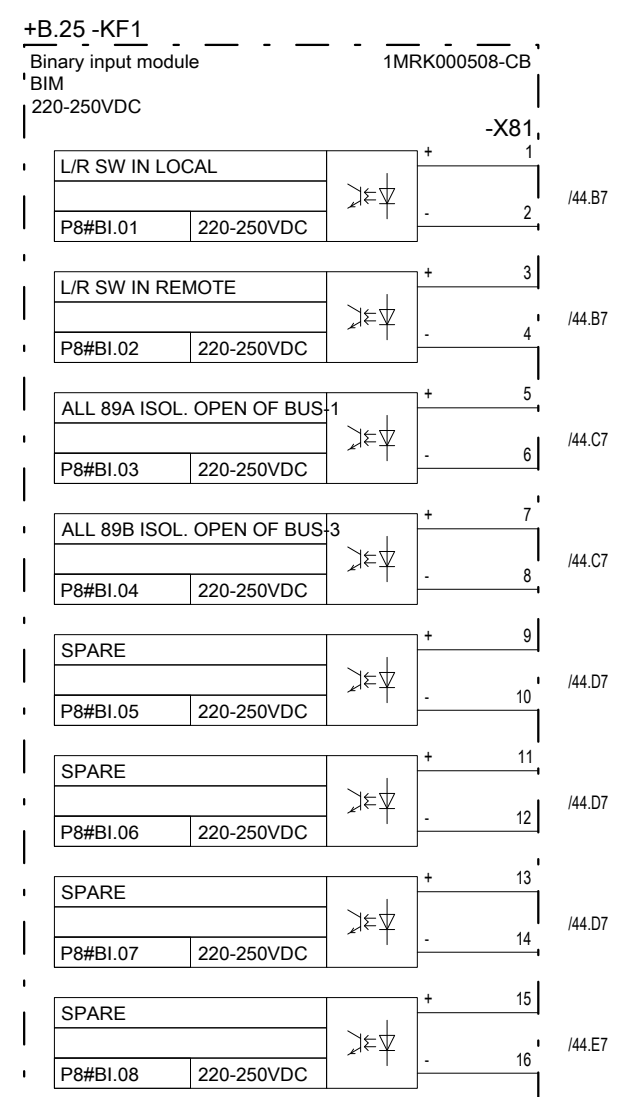
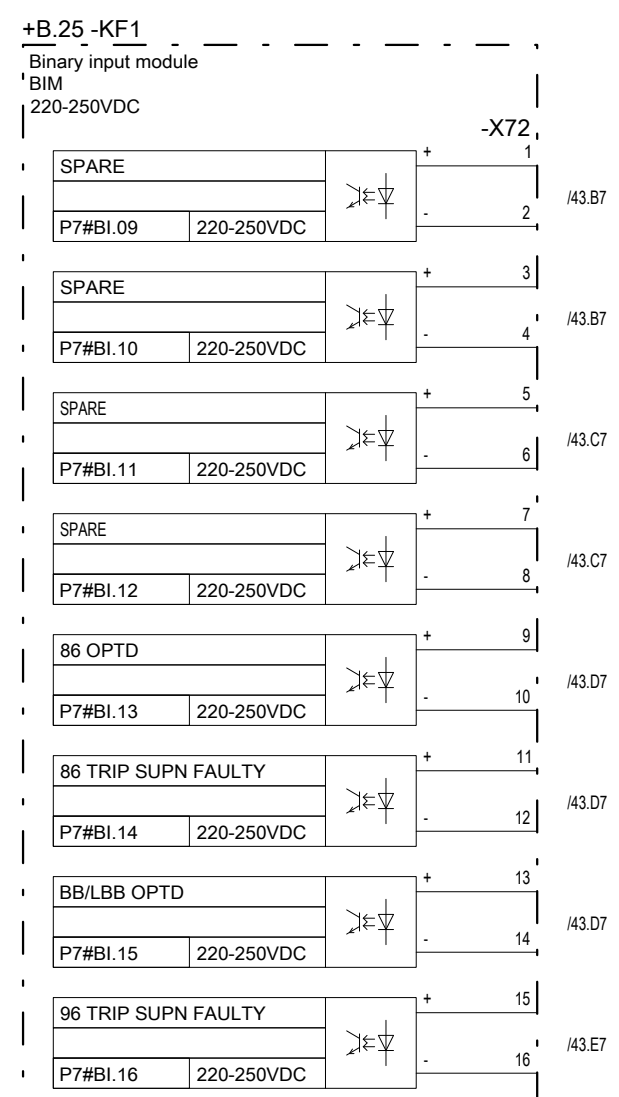
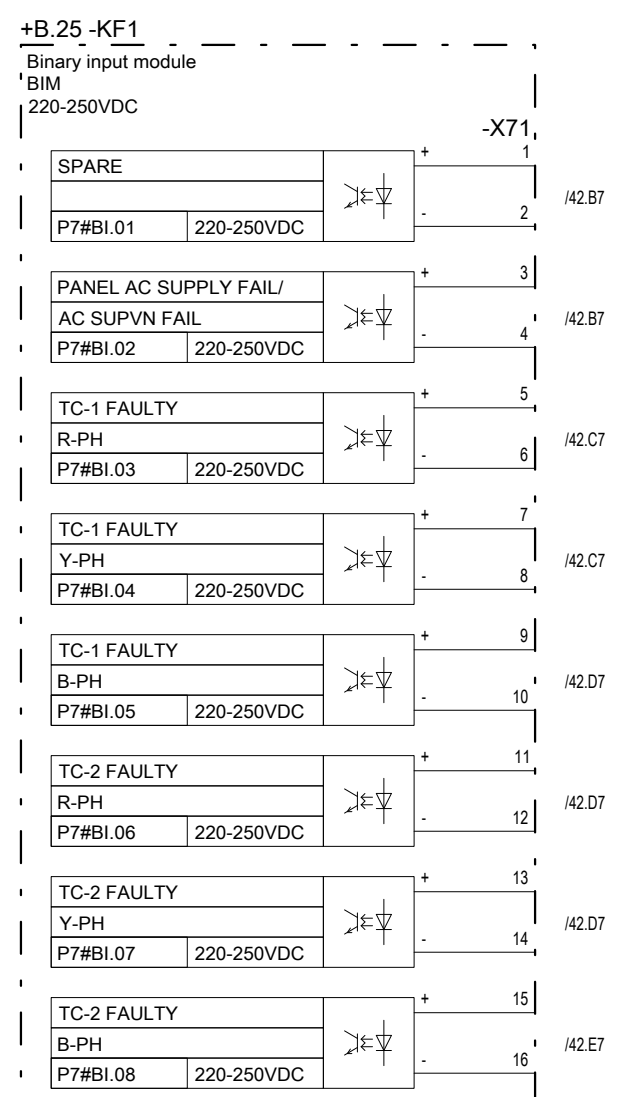
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
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1MYN691003-102(A3)REV01						n. sheet 54



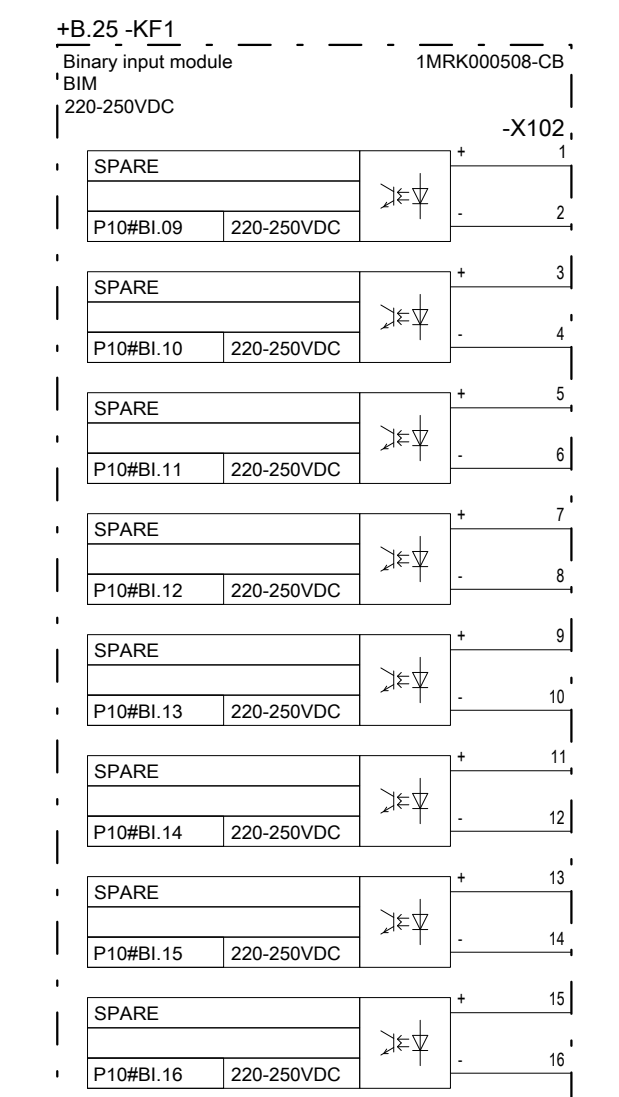
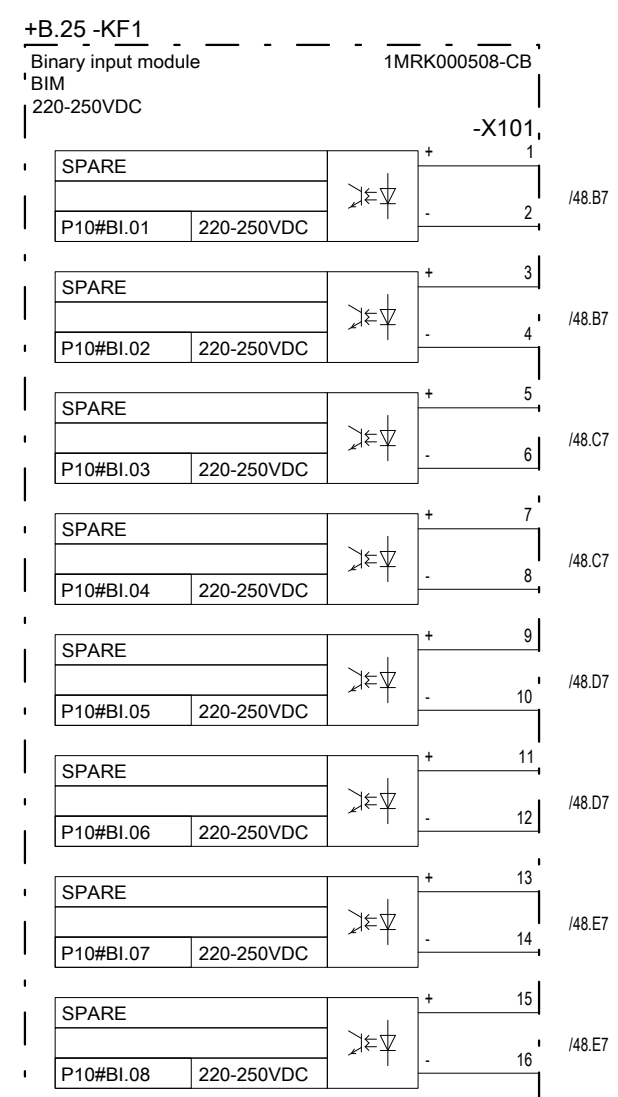
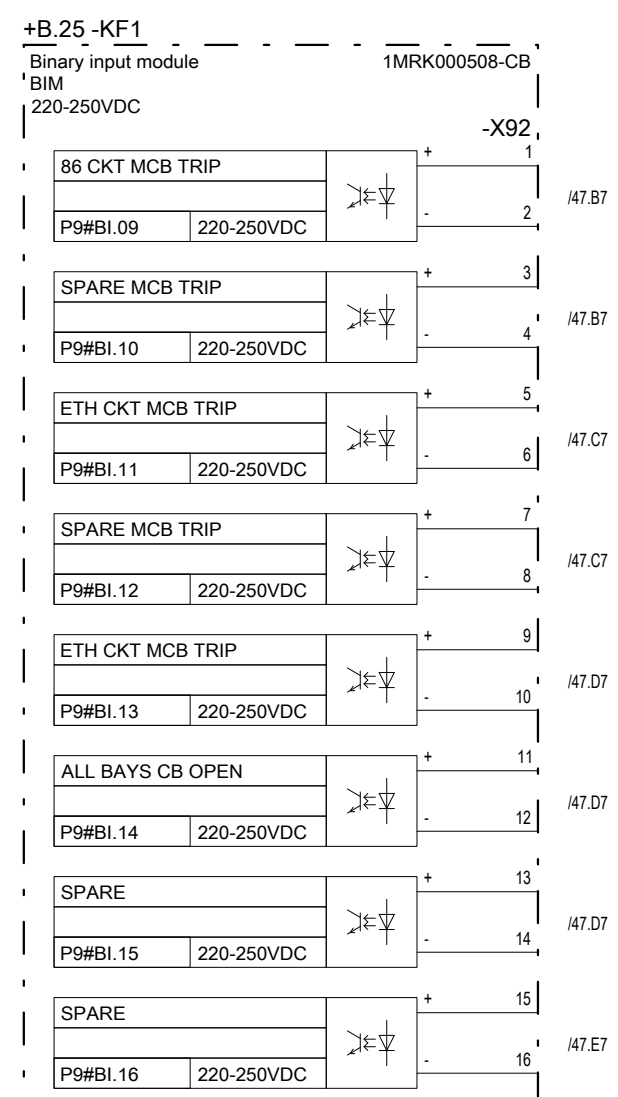
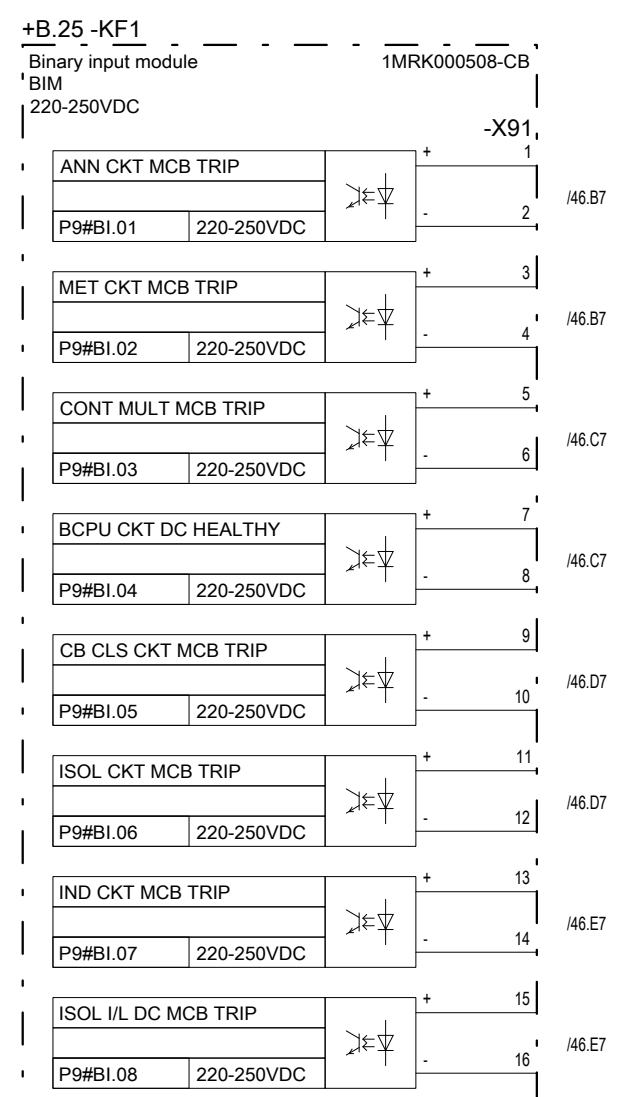
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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		Project APTRANSCO		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING			Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 54
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Suitable for conventional 220KV SS only

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		STANDARD DRAWING		Hitachi Energy India Limited		Language en	
Rev.	Revision note	Date	Name	HITACHI		Doc. no. 1MNS500925-CFAB	Sheet 55
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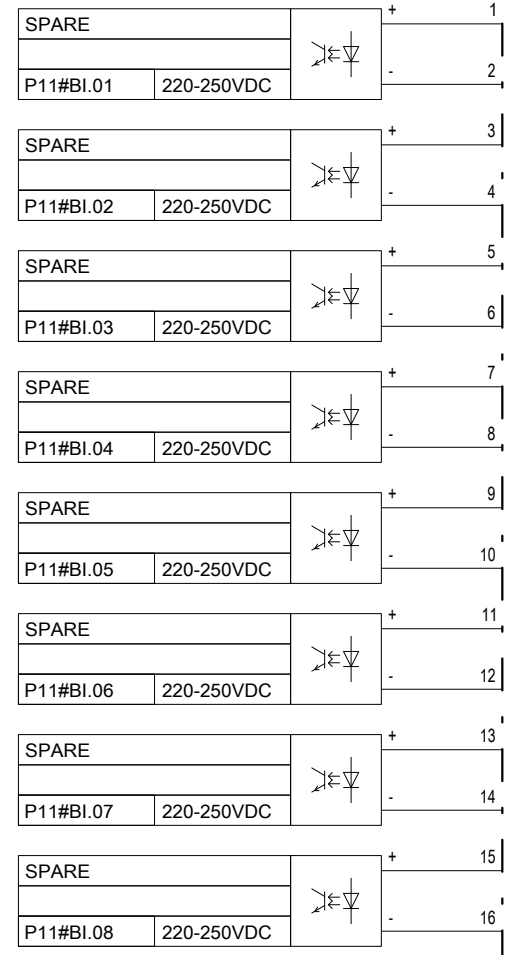
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+B.25 -KF1

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220-250VDC

1MRK000508-CB

-X111

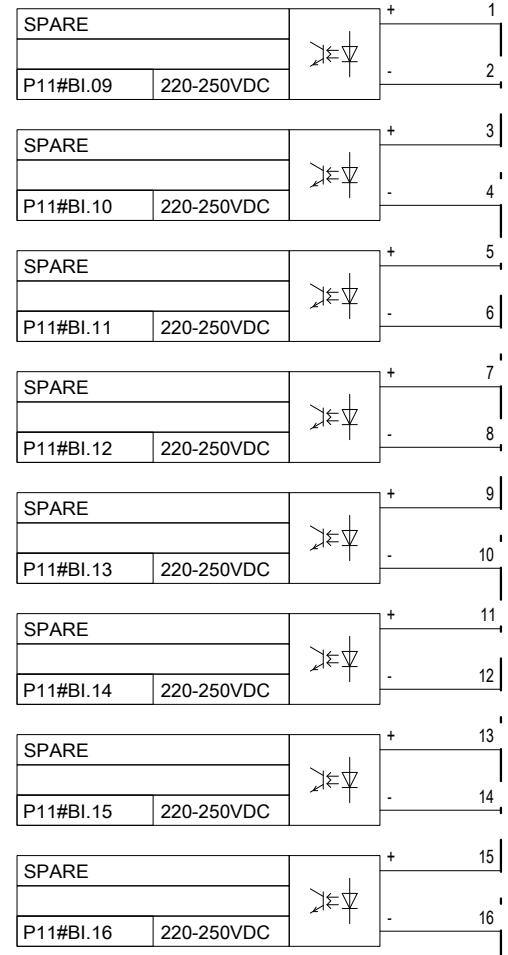


+B.25 -KF1

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220-250VDC

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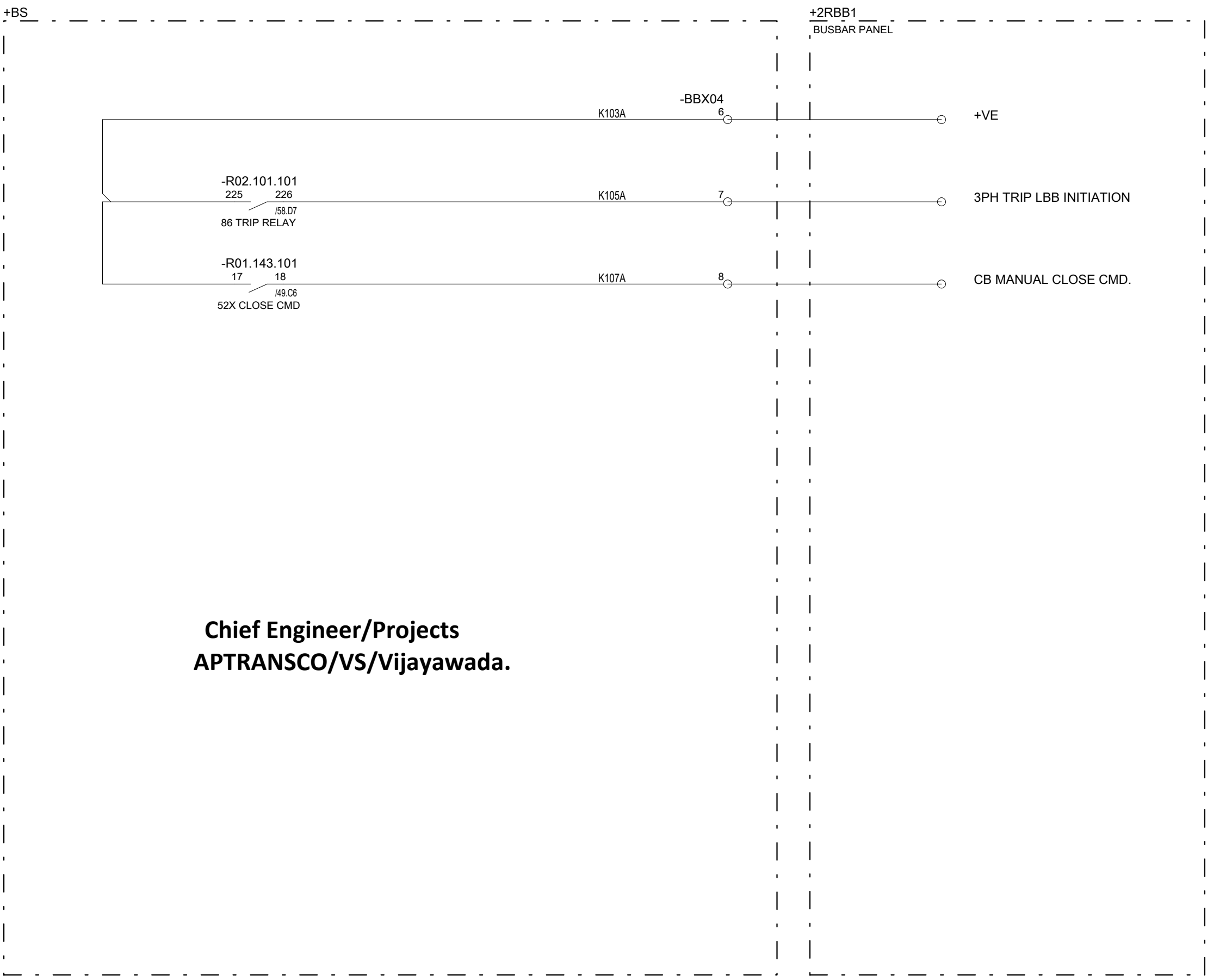
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Drawing approval subject to valid vendor registration

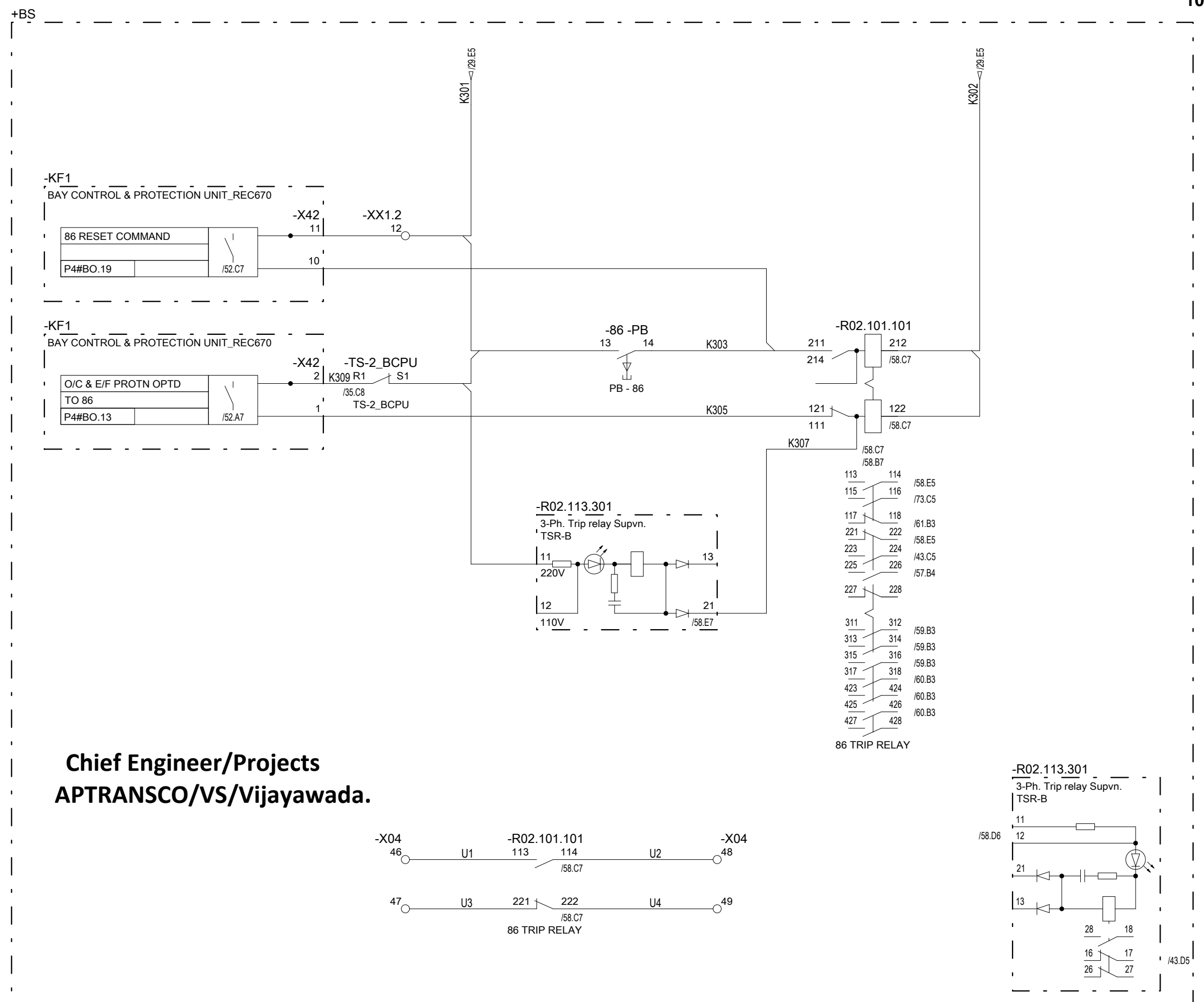
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APTRANSCO/VS/Vijayawada.**

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Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAB		Sheet 56
1MYN691003-102(A3)REV01						n. sheet 57

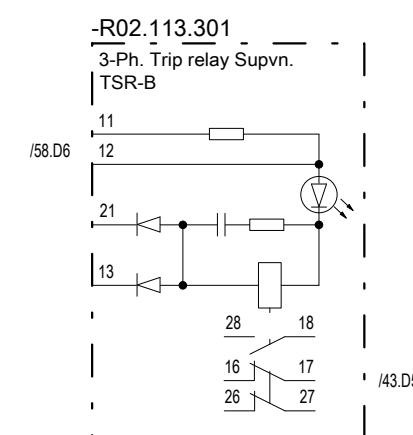
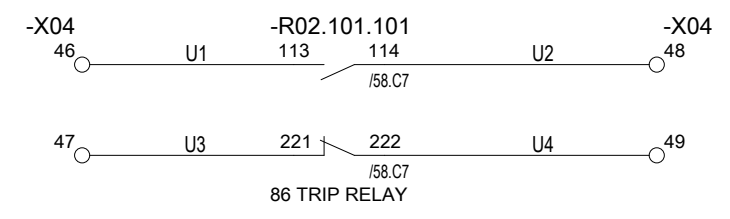


**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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		Project	APTRANSCO STANDARD DRAWING		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en	
Rev.	Revision note	Date	Name		HITACHI Hitachi Energy India Limited	Doc. no.	1MNS500925-CFAB		Sheet	57	
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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 58
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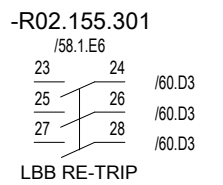
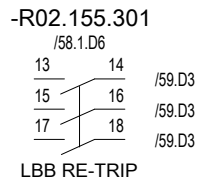
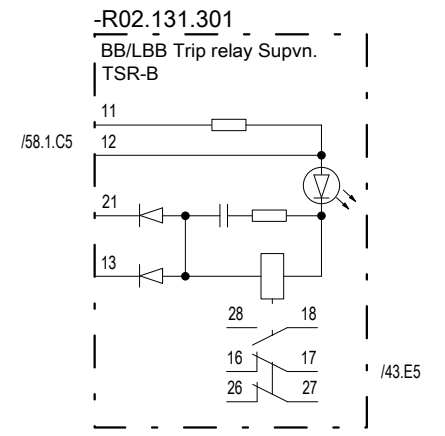
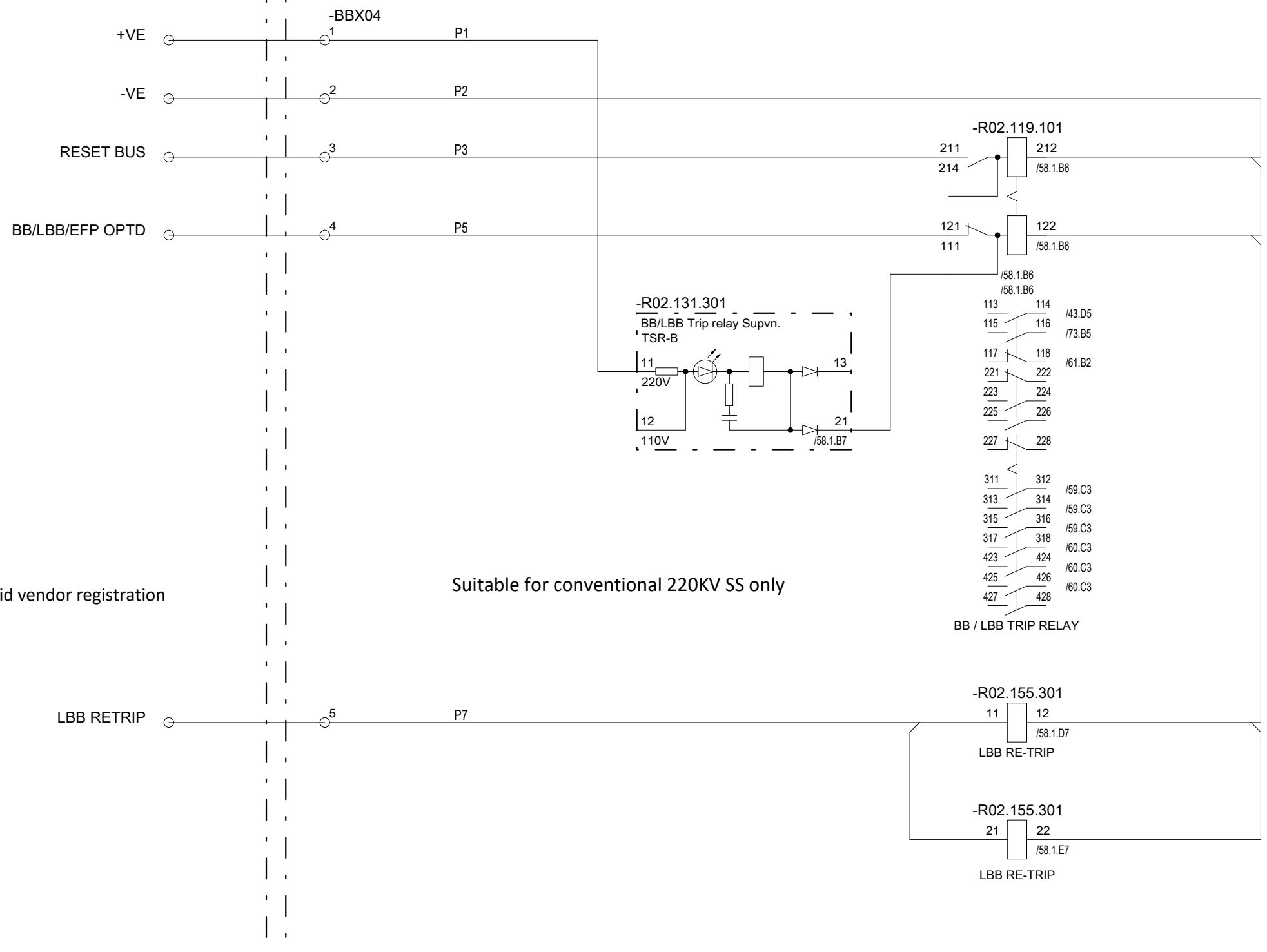
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BB BUSBAR PANEL

+BS



Drawing approval subject to valid vendor registration

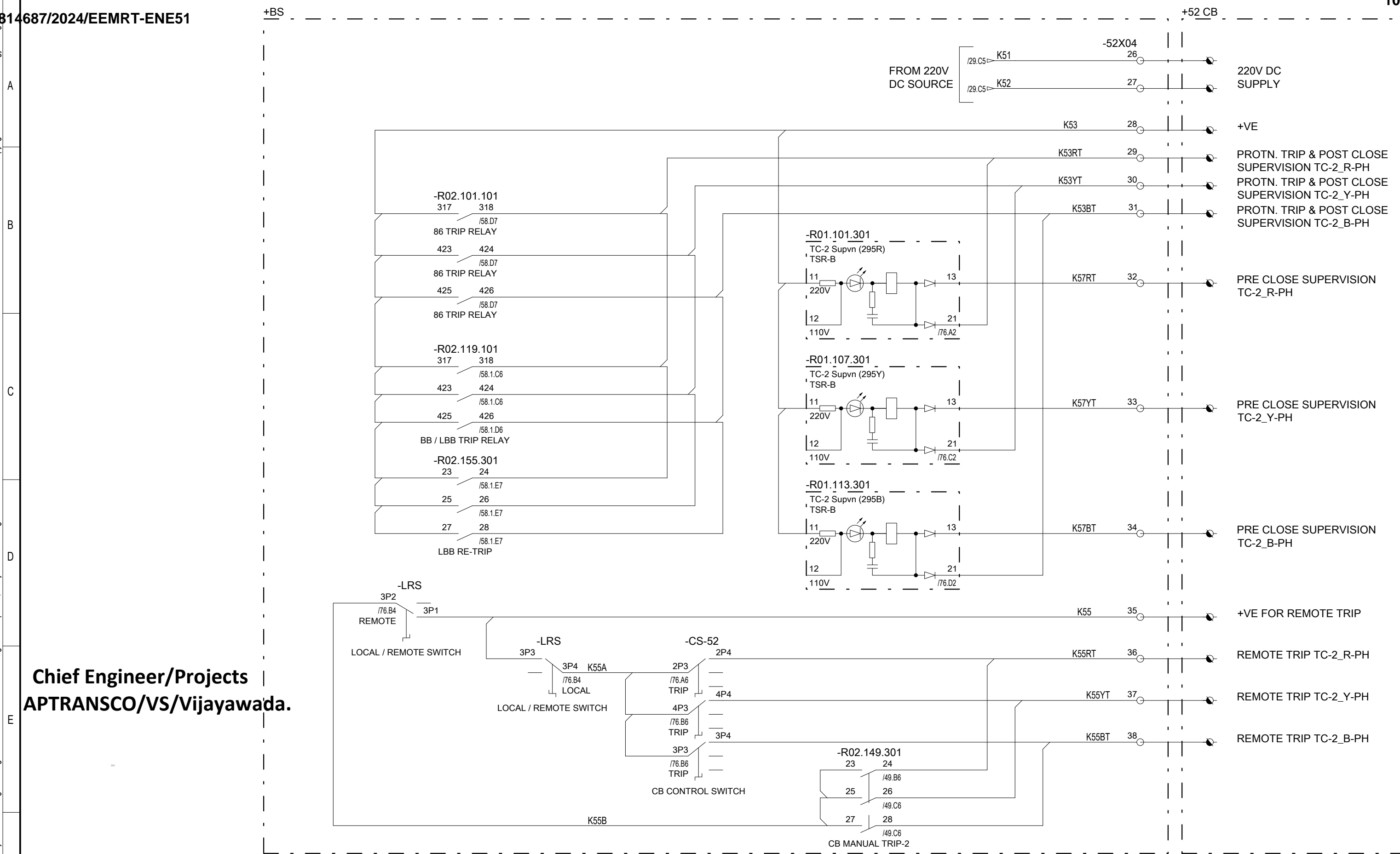
Suitable for conventional 220KV SS only

Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

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Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 58.1
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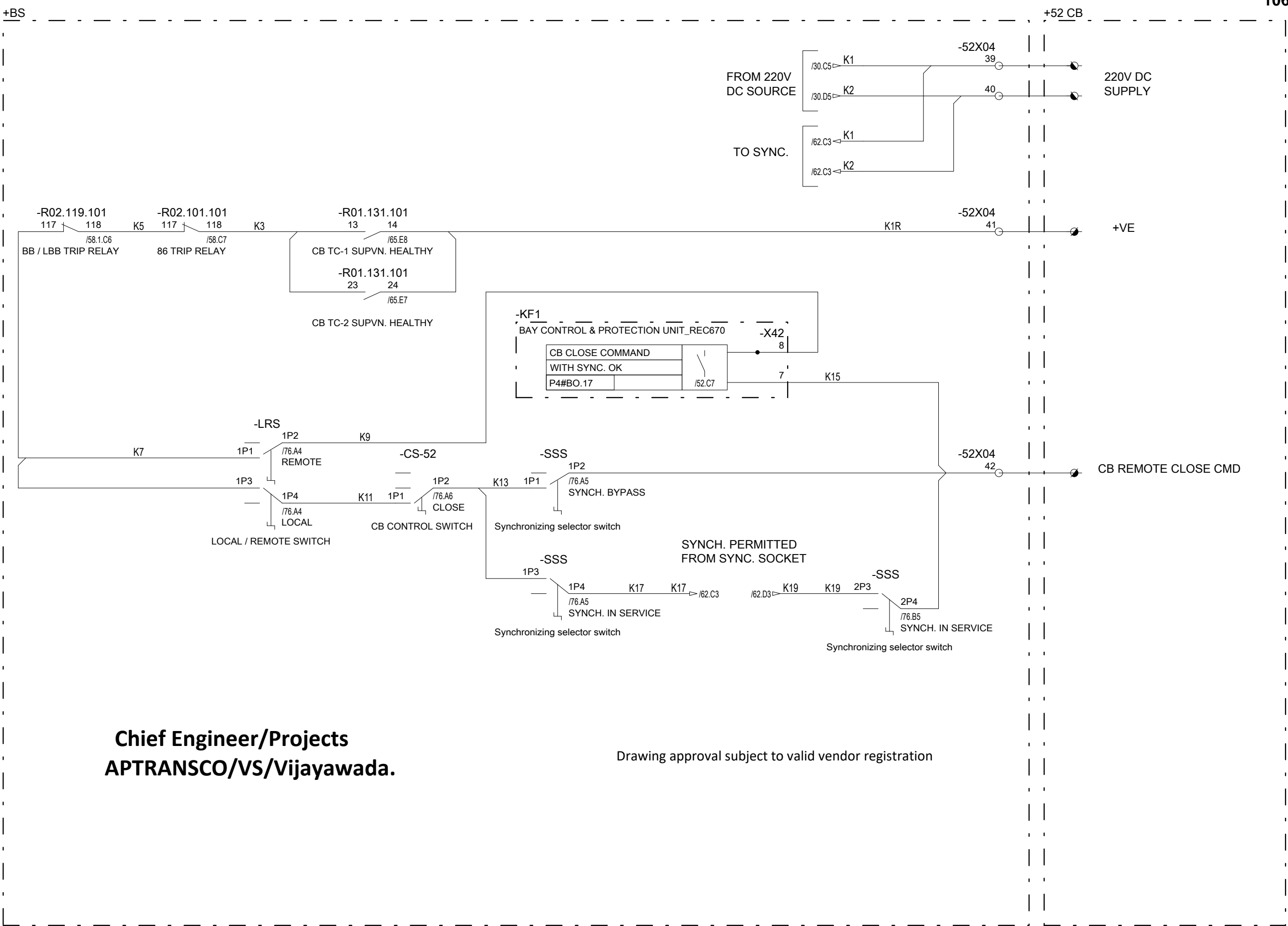
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

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Rev.	Revision note	Date	Name	HITACHI Hitachi Energy India Limited	Doc. no. 1MNS500925-CFAB	
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**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Drawing approval subject to valid vendor registration

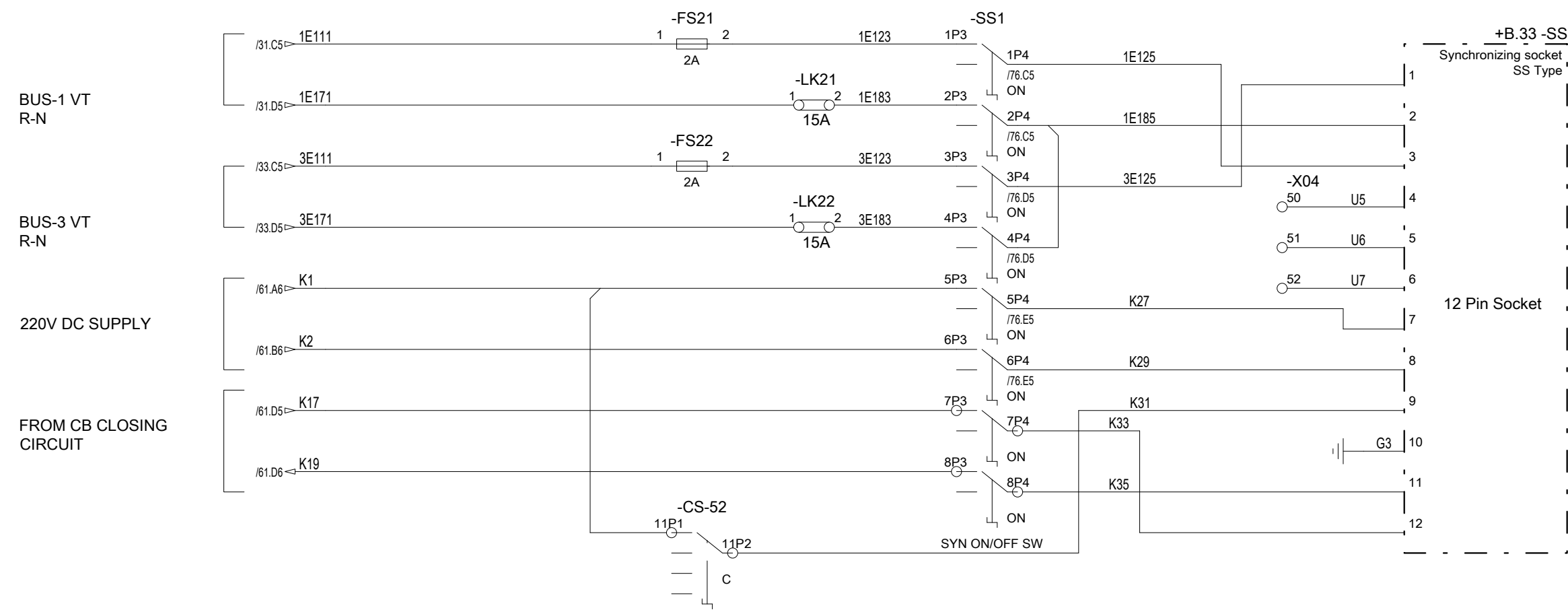
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 61
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**Chief Engineer/Projects
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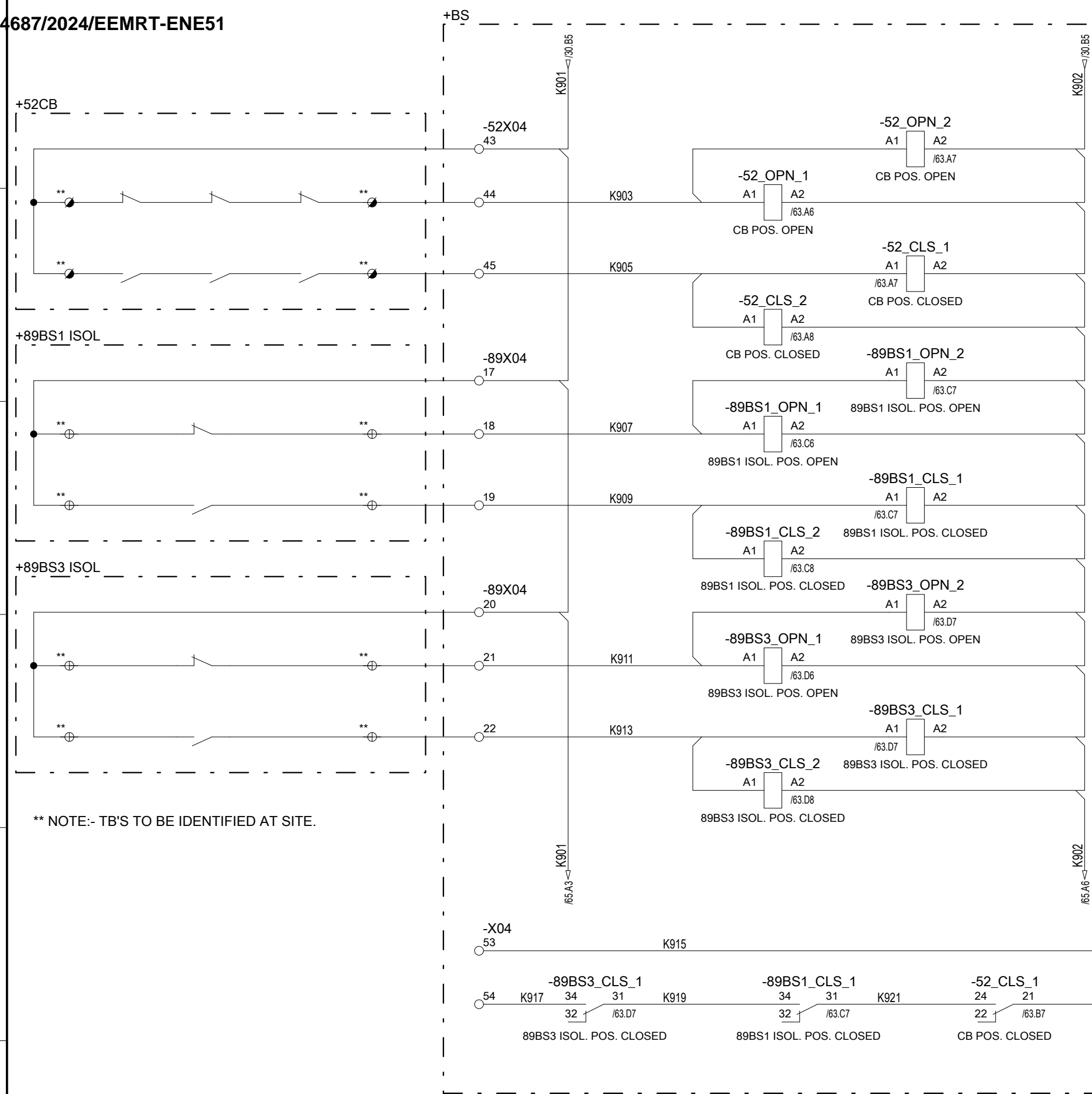
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		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAB	Sheet 62	n. sheet 63
1MYN691003-102(A3)REV01						

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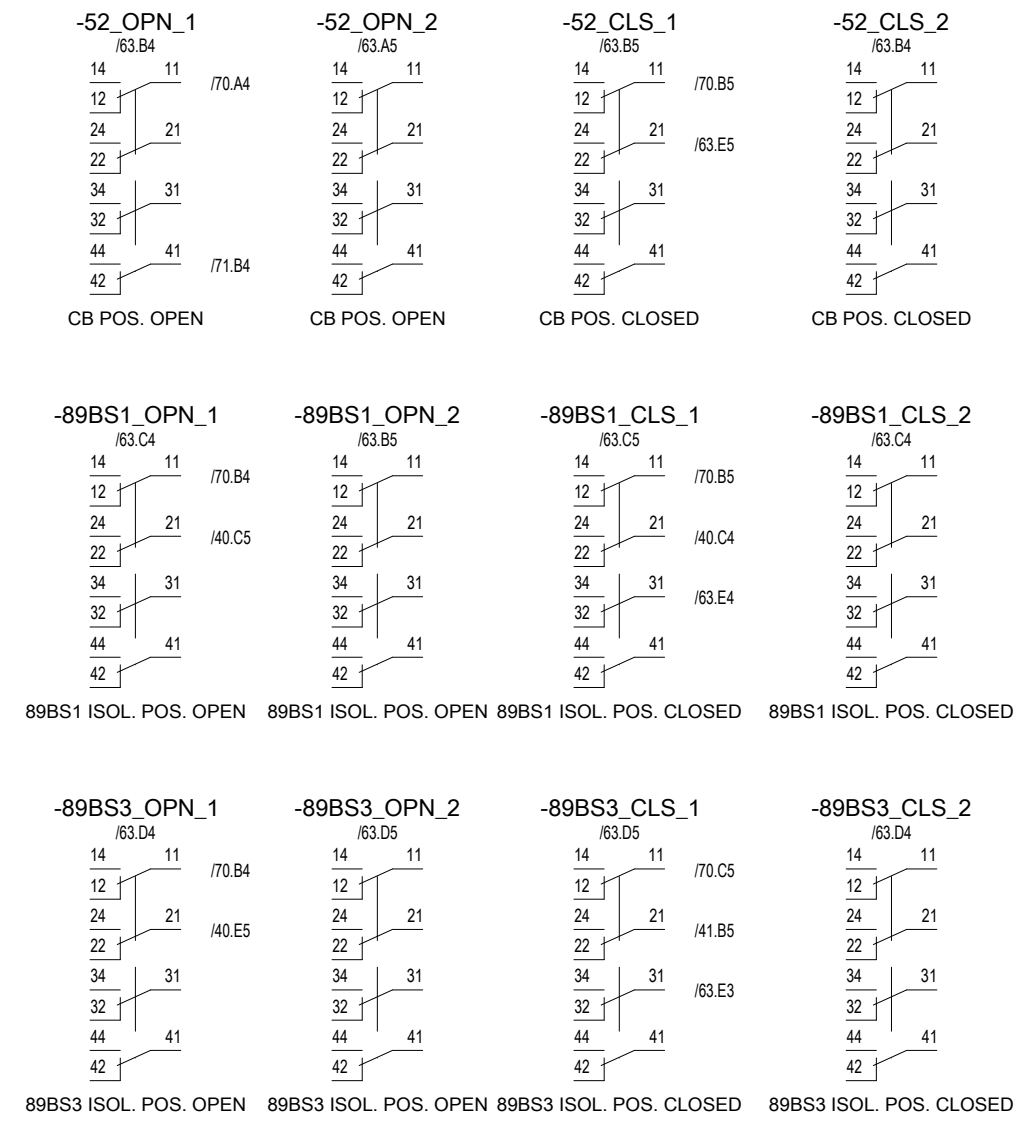
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Suitable for conventional 220KV SS only



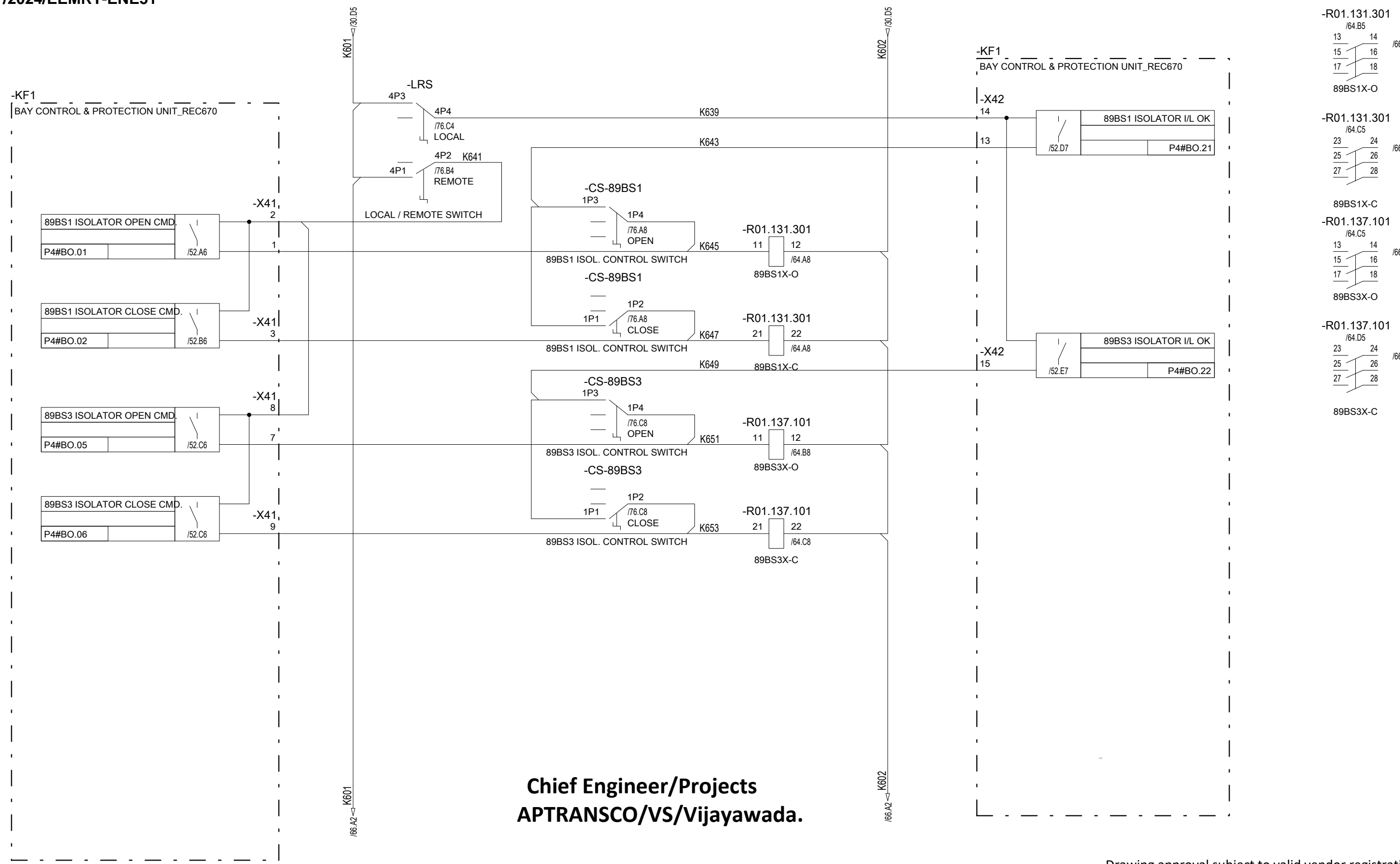
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Chief Engineer/Projects
APTRANSCO/VIS/Vijayawada.

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Rev.		Revision note	Date	Name	HITACHI		Hitachi Energy India Limited		Doc. no.		1MNS500925-CFAB		
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											n. sheet	64	

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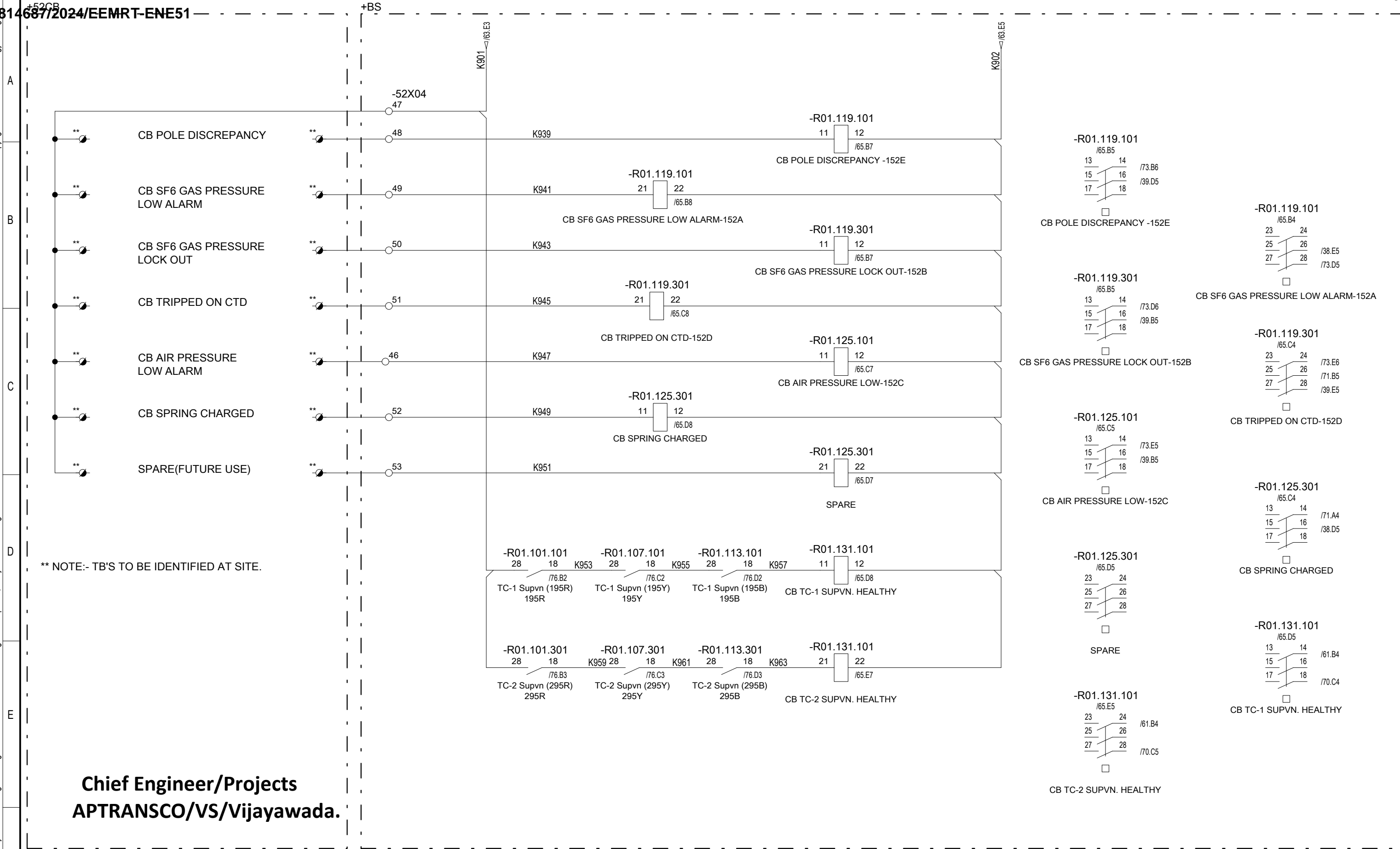
Drawing approval subject to valid vendor registration

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Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 64	n. sheet 65
1MYN691003-102(A3)REV01							

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** NOTE:- TB'S TO BE IDENTIFIED AT SITE.

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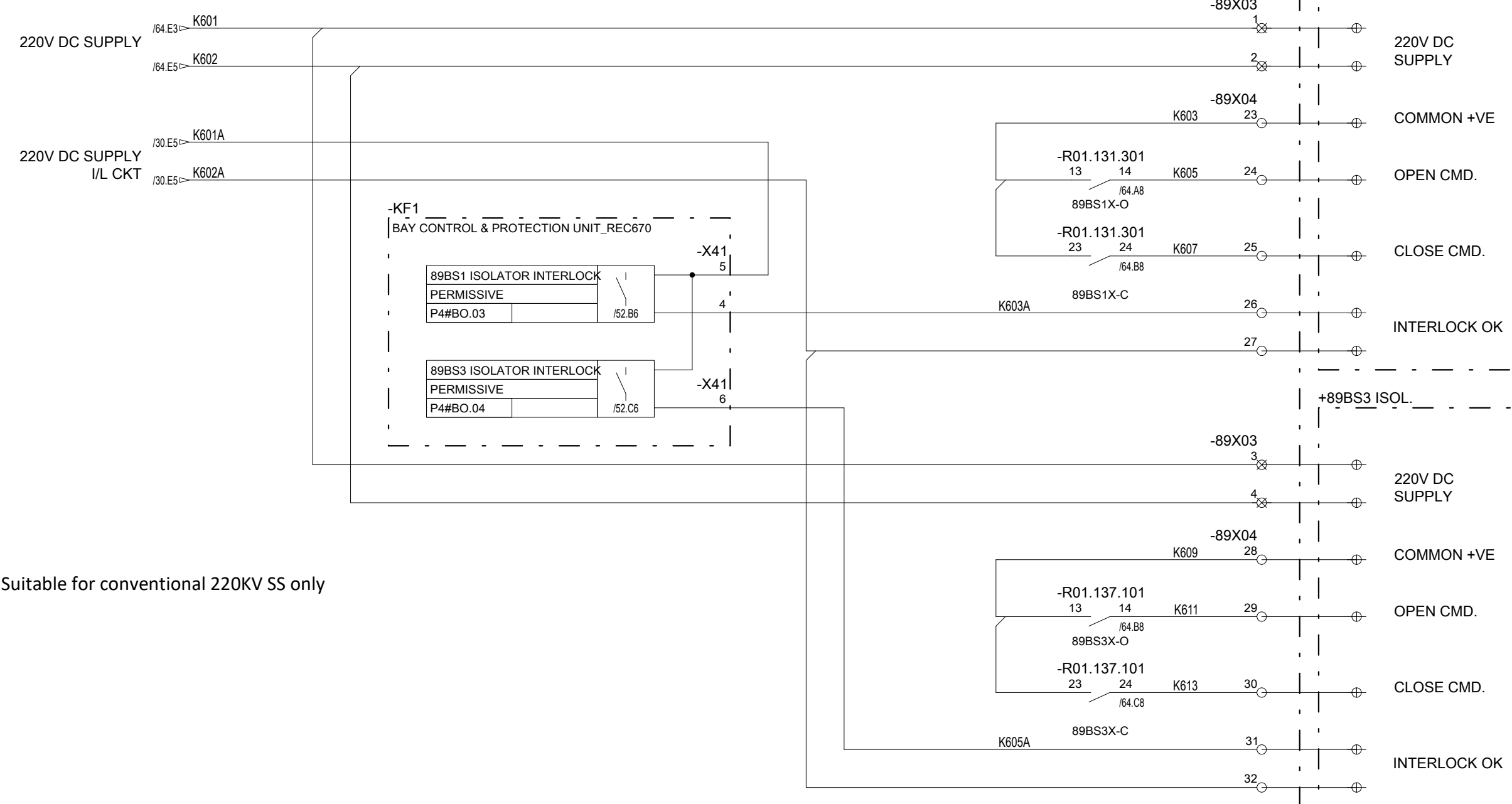
Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		CB Trouble multpn Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 65
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1073



Suitable for conventional 220KV SS only

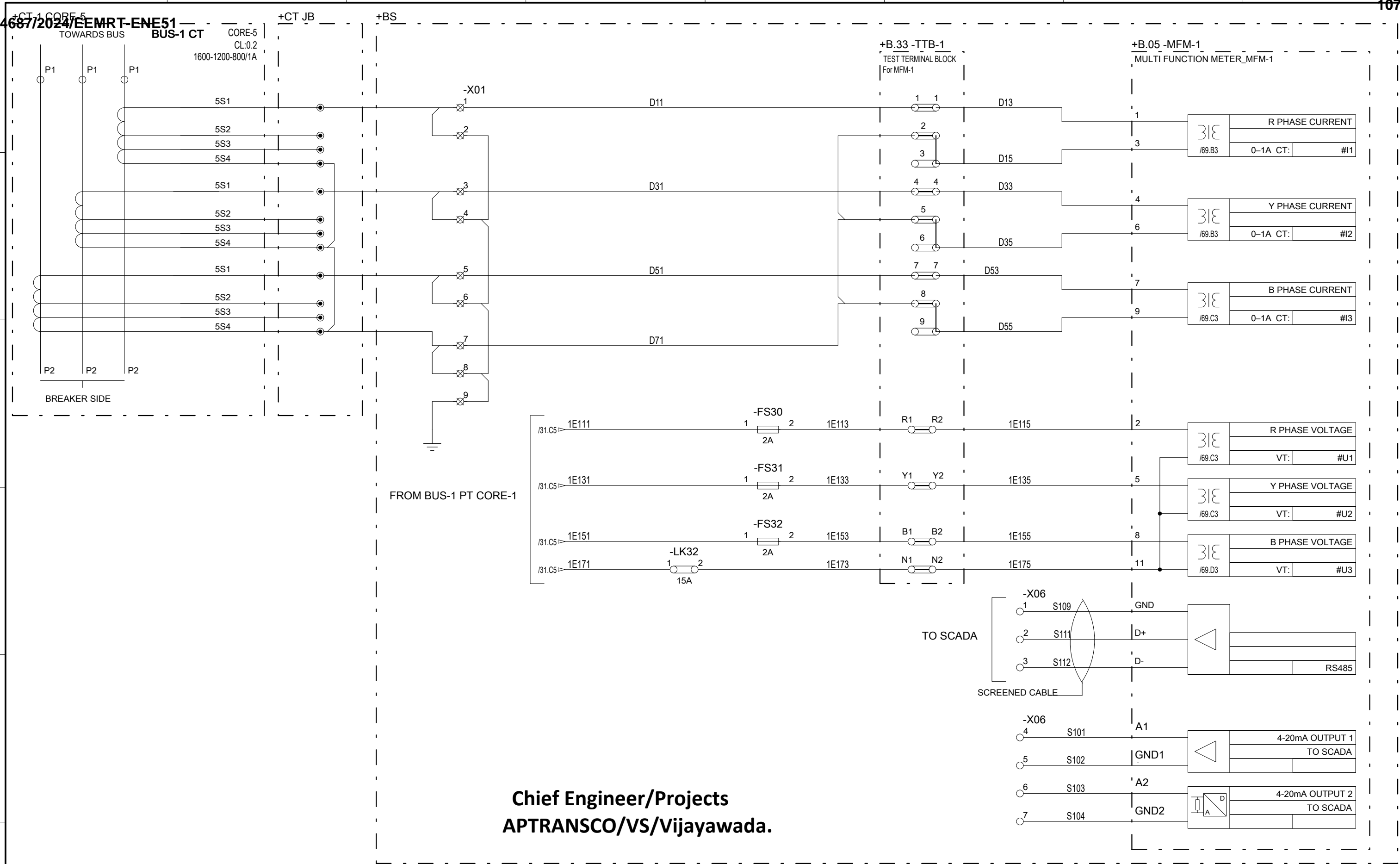
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		89A, 89B Isol. Control Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAB	Sheet 66	
1MYN691003-102(A3)REV01					n. sheet 67	

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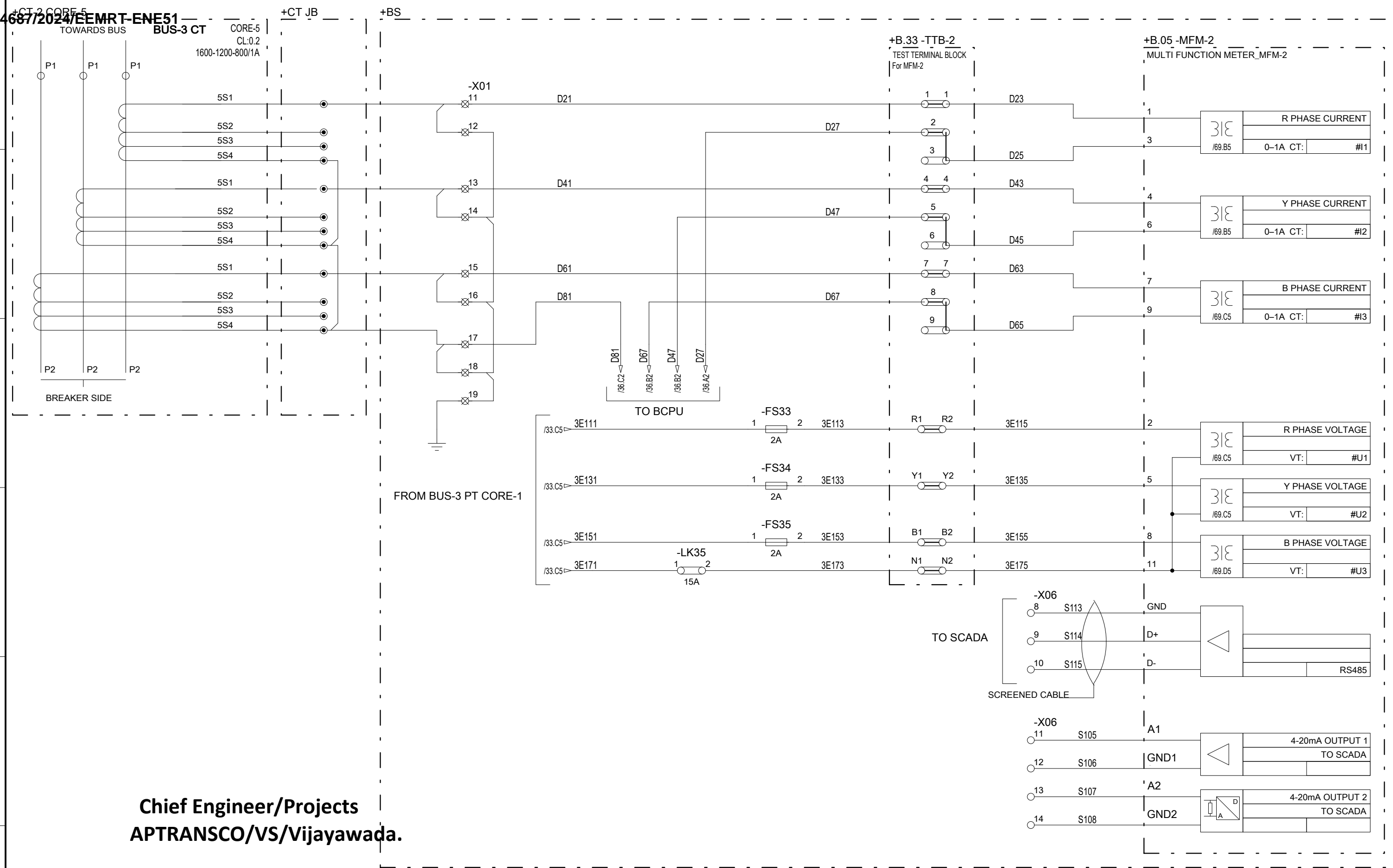


**Chief Engineer/Projects
APTRANSCO/VIS/Vijayawada.**

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		Project APTRANSCO		Metering Circuit- MFM-1	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 67
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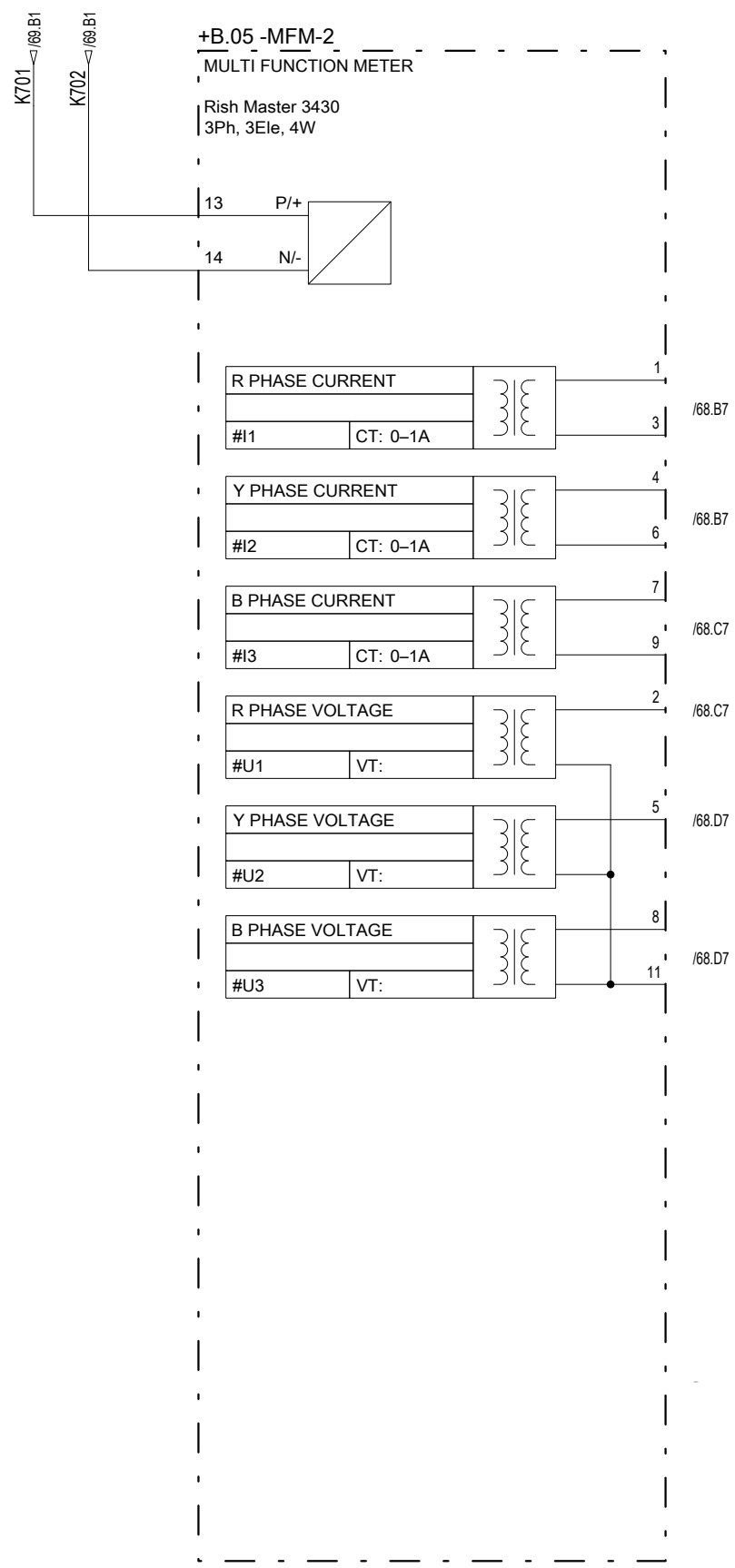
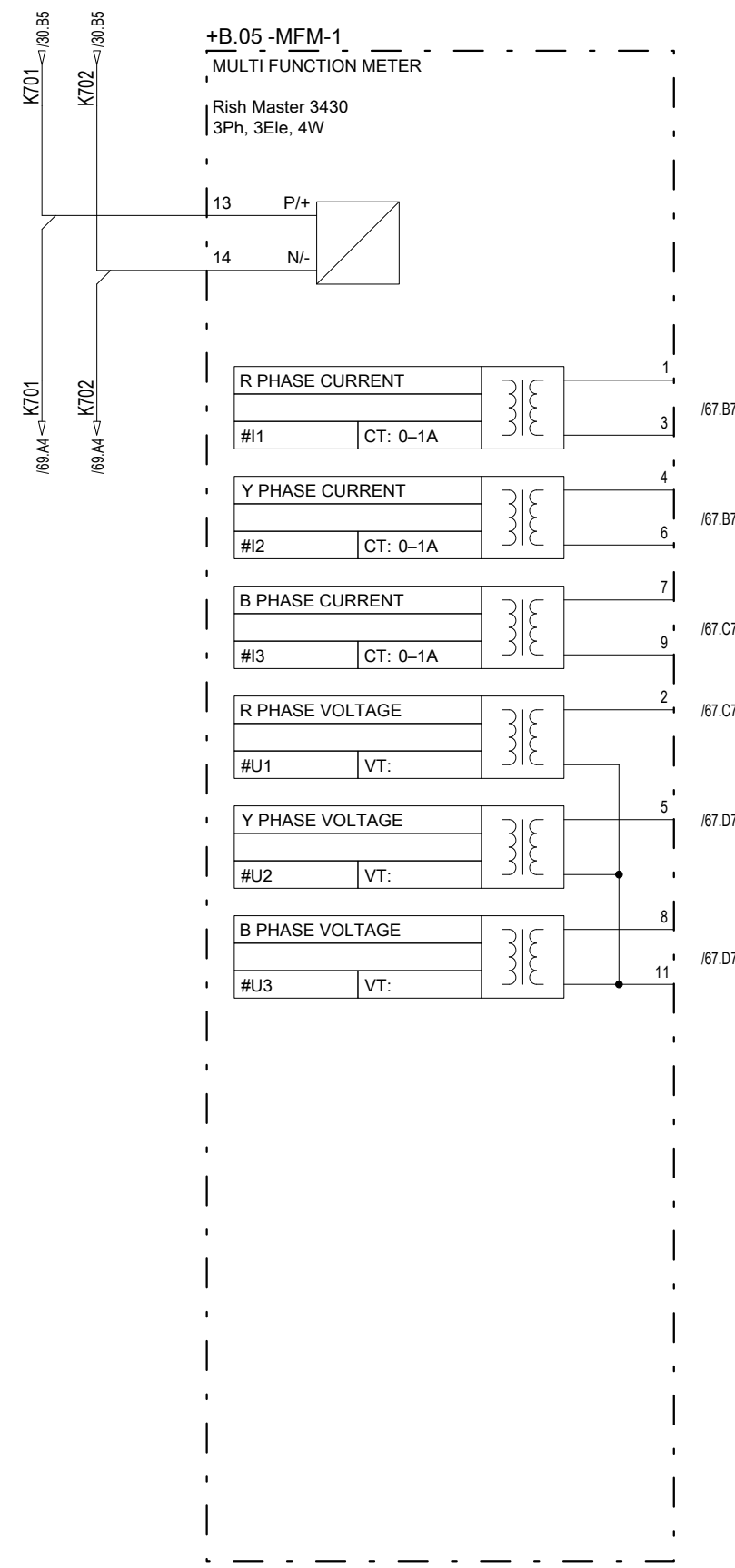


Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		Project APTRANSCO		Metering Circuit- MFM-2	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAB	Sheet 68
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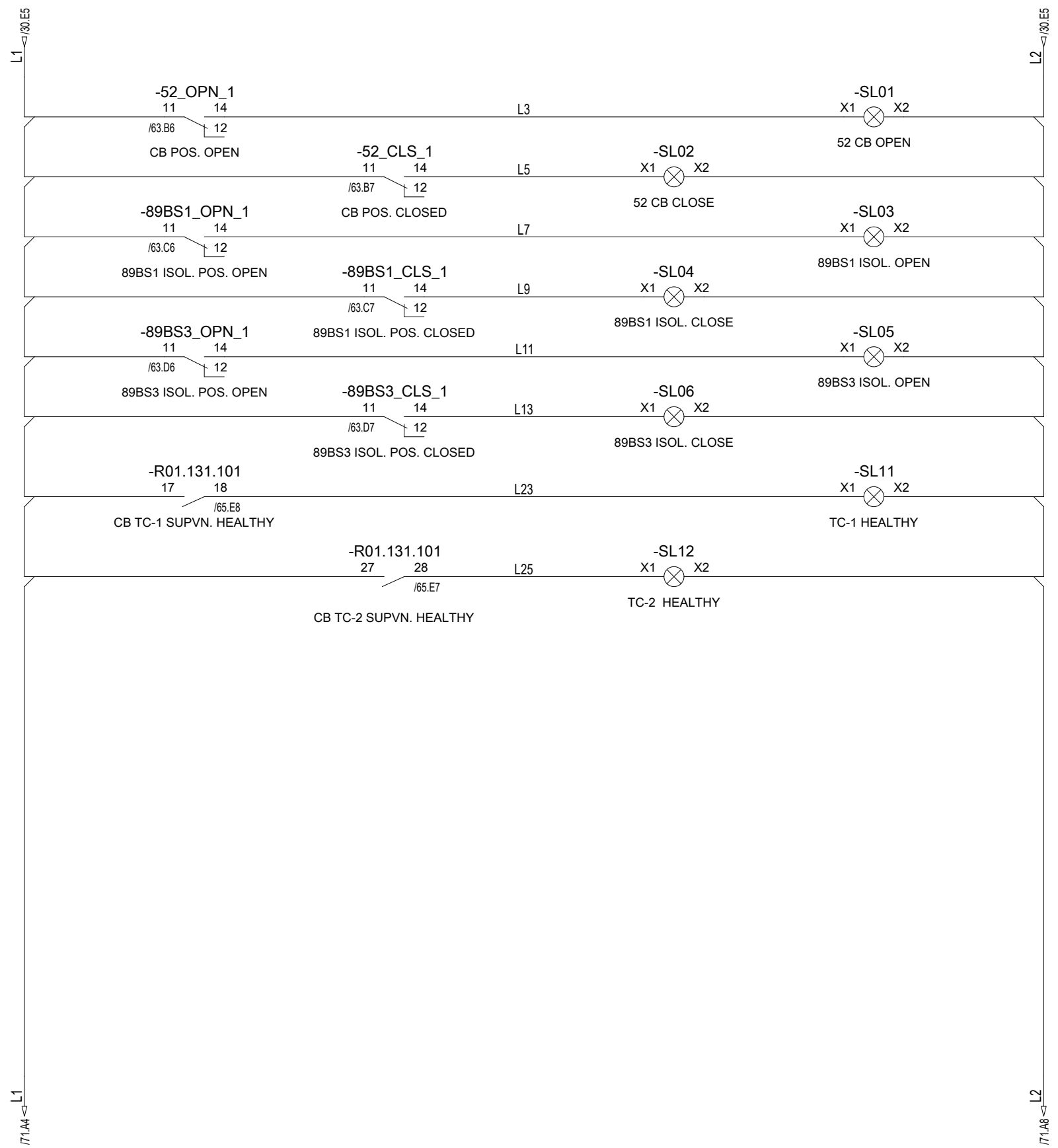
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		Project APTRANSCO		Metering Circuit- MFM	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 69
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A
B
C
D
E
F

+BS



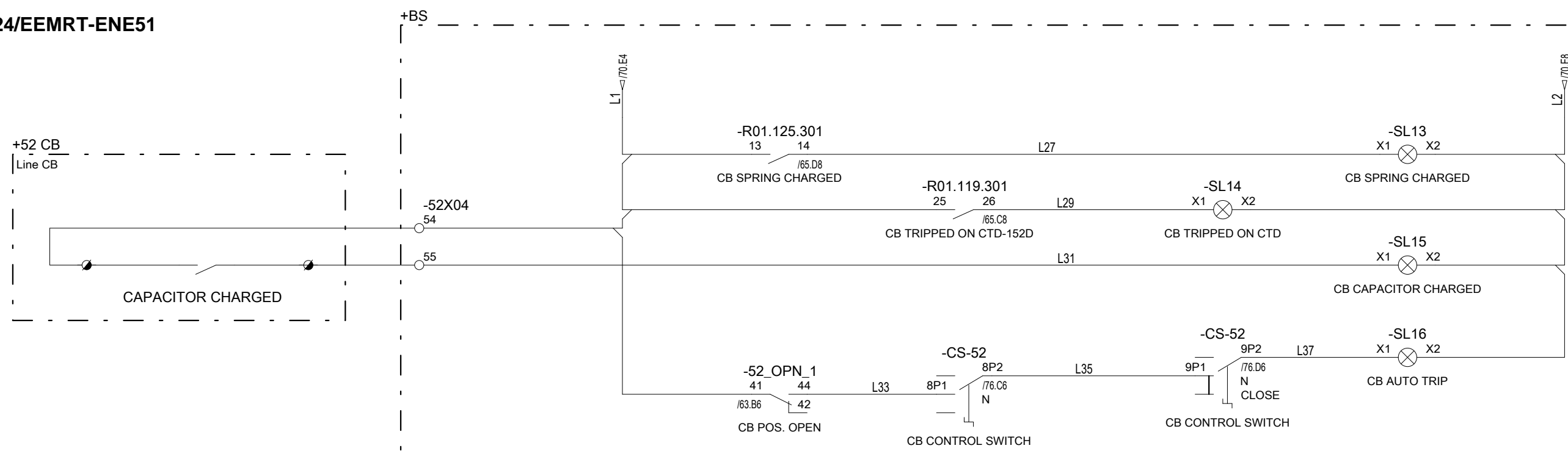
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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		Project	APTRANSCO		Indication Circuit		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
		STANDARD DRAWING			Hitachi Energy India Limited		1MNS500925-CFAB				Sheet	70
Rev.	Revision note	Date	Name		HITACHI		Doc. no.				n. sheet	71
1MYN691003-102(A3)REV01												

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Based on		Prepared	27.02.2024	MANASA ESHWAR	Title	220kV BUS SECTION Control & Relay Panel Indication Circuit	Doc. kind.	Circuit diagram		Ref.Des.	=2KR	
		Approved	27.02.2024	GOURISH HEGDE			DCC	EFS				
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Rev.	Revision note	Date	Name				HITACHI	1MNS500925-CFAB		Doc. no.		
1MYN691003-102(A3)REV01										n. sheet		72

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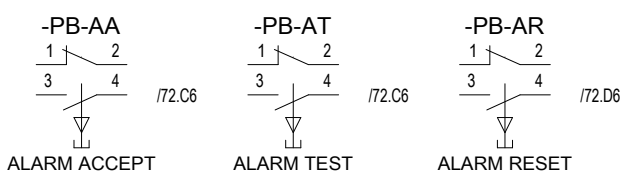
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Suitable for conventional 220KV SS only

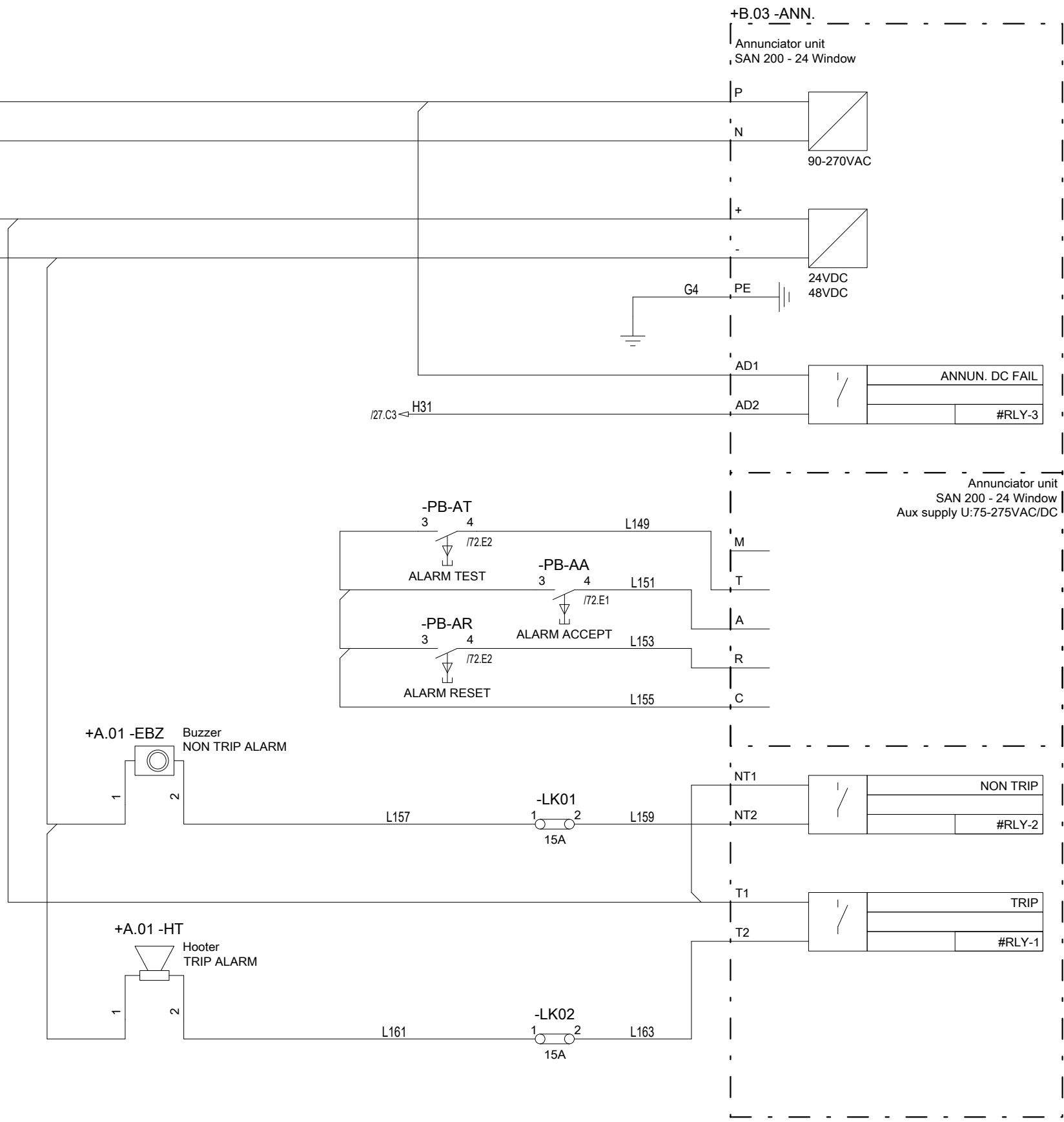
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**



FROM 230V AC SOURCE
/27.E1 H11
/27.E6 H12

FROM 220V DC SOURCE
/30.A5 L101
/30.A5 L102

+B.03 -ANN.
Annunciator unit
SAN 200 - 24 Window



Annunciator unit
SAN 200 - 24 Window
Aux supply U:75-275VAC/DC

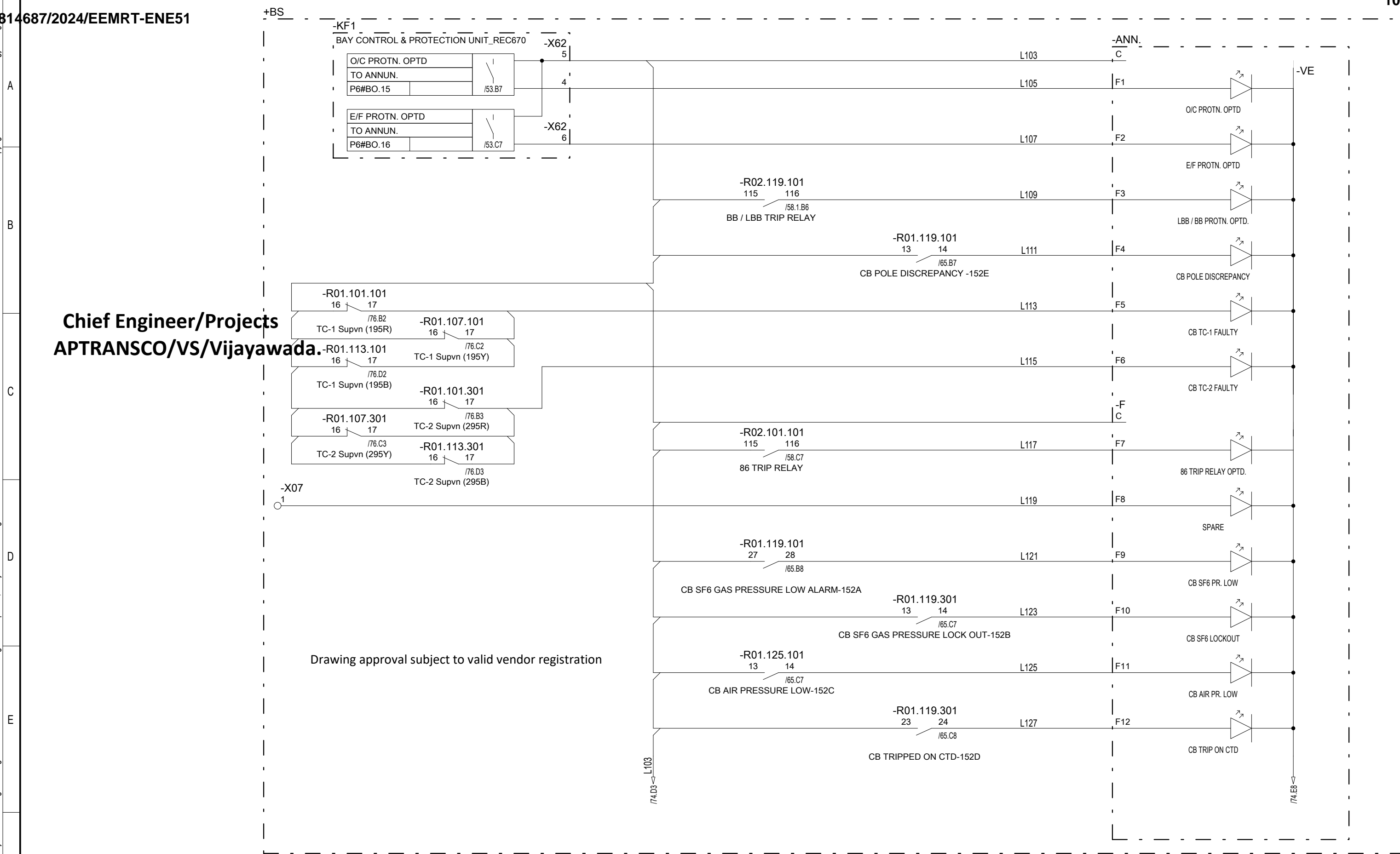
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		Project APTRANSCO		Annunciation Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 72
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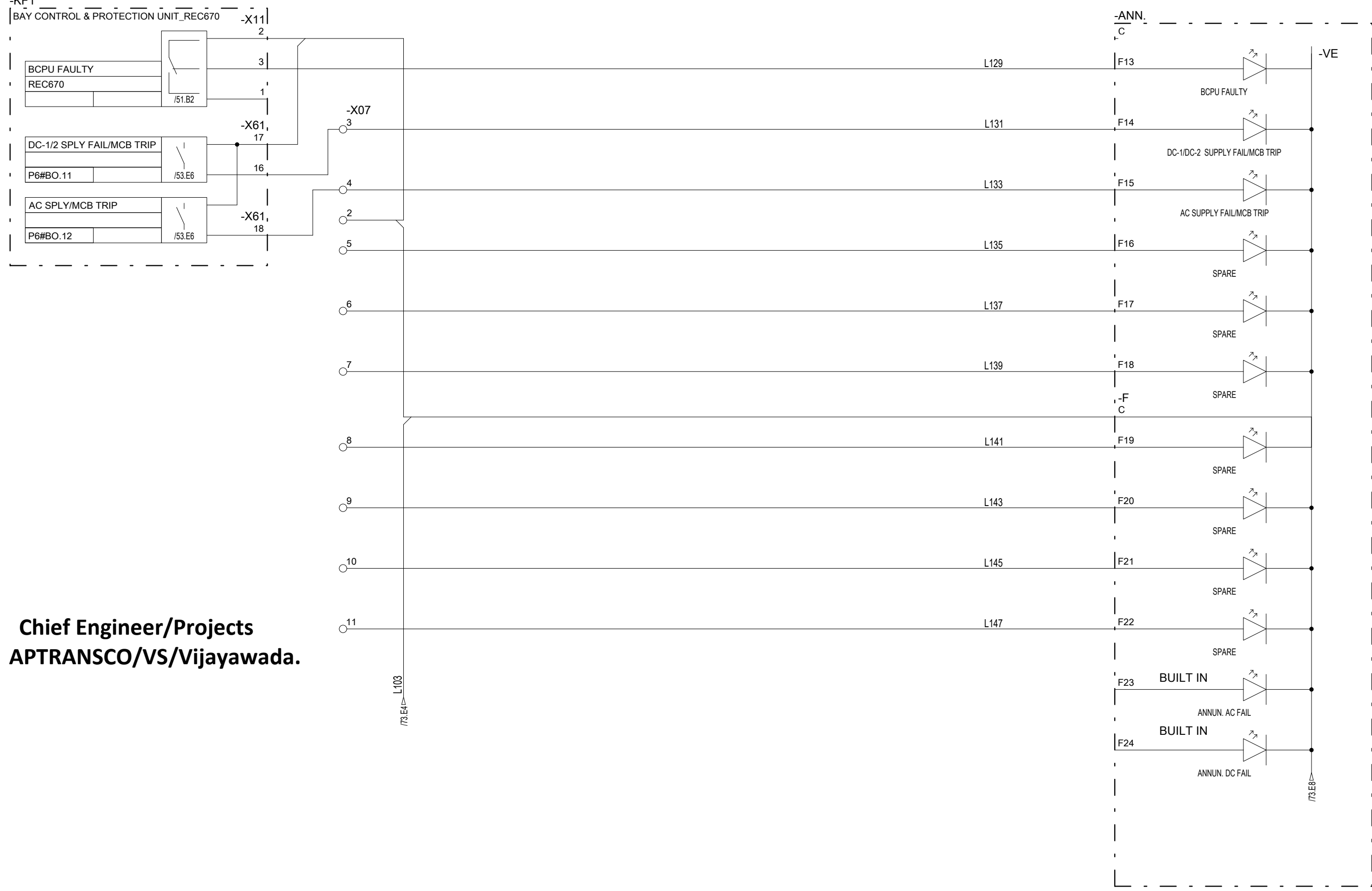


Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Annunciation Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAB	Sheet 73	n. sheet 74
1MYN691003-102(A3)REV01						

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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Annunciation Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	
						Sheet 74
						n. sheet 75
1MYN691003-102(A3)REV01						

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ANNUNCIATION INSCRIPTION DETAILS

ANN.

1 O/C PROTN. OPTD T	2 E/F PROTN. OPTD T	3 LBB / BB PROTN. OPTD. T	4 CB POLE DISCREPANCY NT	5 CB TC-1 FAULTY NT	6 CB TC-2 FAULTY NT
7 86 TRIP RELAY OPTD. T	8 SPARE T	9 CB SF6 PR. LOW NT	10 CB SF6 LOCKOUT NT	11 CB AIR PR. LOW NT	12 CB TRIP ON CTD T
13 BCPU FAULTY NT	14 DC-1/DC-2 SUPPLY FAIL/ MCB TRIP NT	15 AC SUPPLY FAIL/ MCB TRIP NT	16 SPARE NT	17 SPARE NT	18 SPARE NT
19 SPARE NT	20 SPARE NT	21 SPARE NT	22 SPARE NT	23 ANNUN. AC FAIL NT	24 ANNUN. DC FAIL NT

Suitable for conventional 220KV SS only

NOTE:-

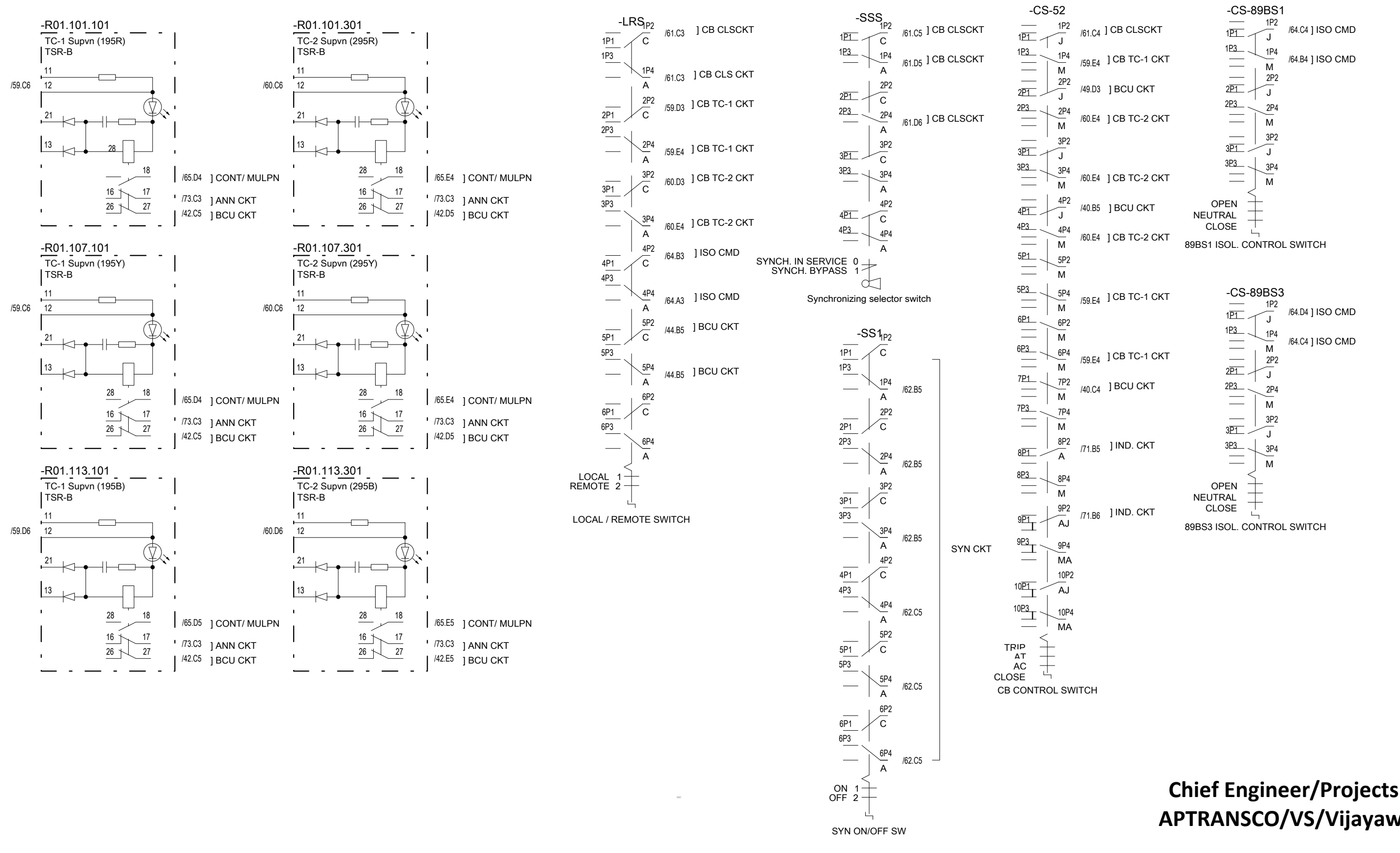
- 1) NUMBERS FROM 1 TO 24 ARE FOR WINDOW IDENTIFICATION.
- 2) T :- TRIP ALARM WITH RED COLOUR LED WINDOW
- 3) NT :- NON TRIP ALARM WITH WHITE COLOUR LED WINDOW

Chief Engineer/Projects
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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Annunciation Incriptions	Doc. kind. Circuit diagram	Ref.Des. =2KR	
		Approved 27.02.2024	GOURISH HEGDE		DCC EFS		
		Project APTRANSCO STANDARD DRAWING		HITACHI <small>Hitachi Energy India Limited</small>	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 75	n. sheet 76
1MYN691003-102(A3)REV01							

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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.02.2024	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Contact Distribution Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 76
1MYN691003-102(A3)REV01						n. sheet 77

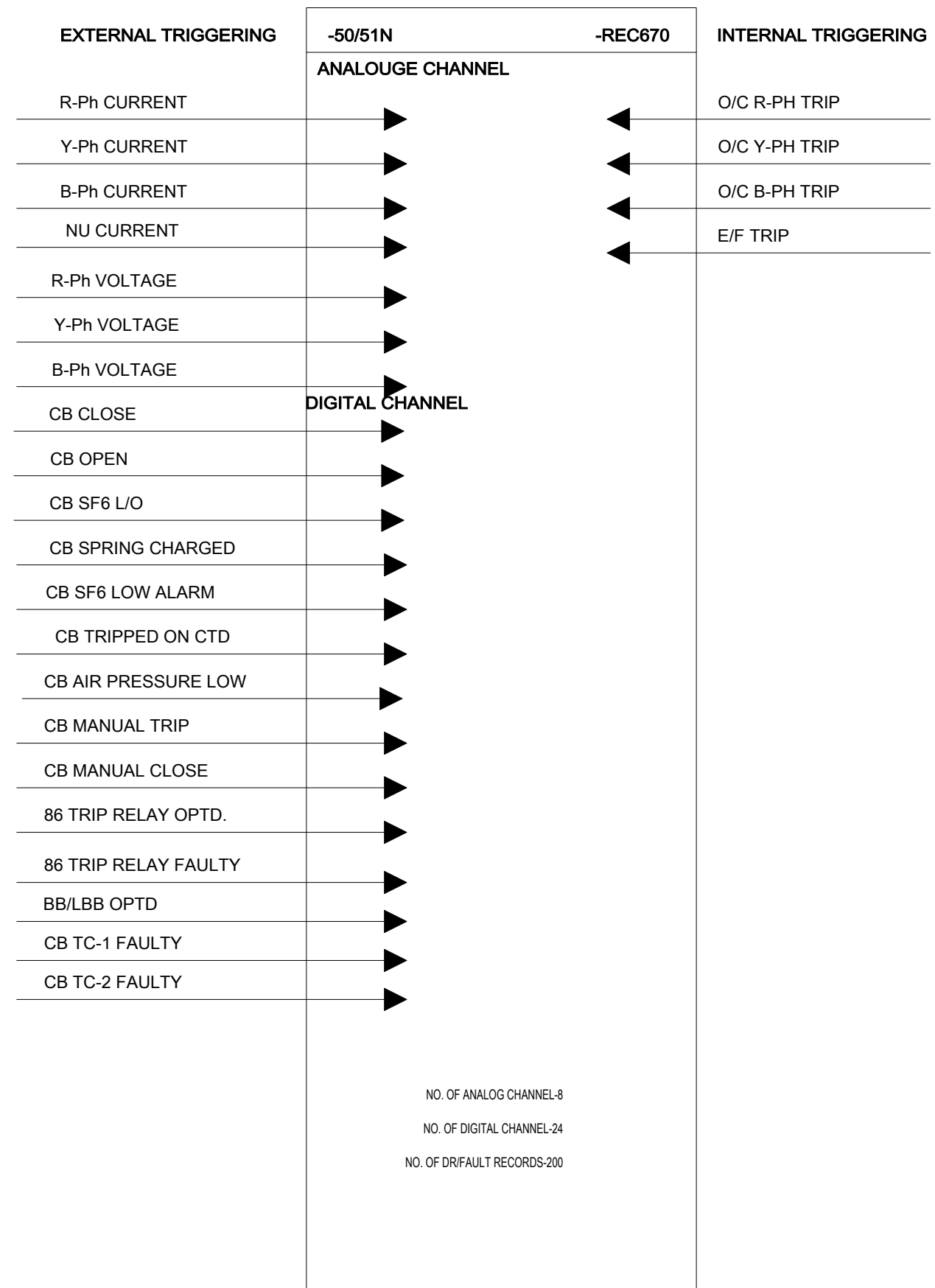
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DISTURBANCE / EVENT RECORDED SIGNALS



NO. OF ANALOG CHANNEL-8
 NO. OF DIGITAL CHANNEL-24
 NO. OF DR/FAULT RECORDS-200

Drawing approval subject to valid vendor registration

**Chief Engineer/Projects
 APTRANSCO/VS/Vijayawada.**

Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Control & Relay Panel Disturbance Recorder	Doc. kind. Circuit diagram	Ref.Des. =2KR	
		Approved 27.02.2024	GOURISH HEGDE		DCC EFS		
		Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 77	n. sheet 78
1MYN691003-102(A3)REV01							

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-X01

Used: 27
(20%)Spare: 6
Total: 33

10~~⊗~~ 20~~⊗~~ 30~~⊗~~ 31~~⊗~~ 32~~⊗~~ 33~~⊗~~

-X02

Used: 16
(20%)Spare: 4
Total: 20

17~~⊗~~ 18~~⊗~~ 19~~⊗~~ 20~~⊗~~

-BBX04

Used: 18
(20%)Spare: 4
Total: 22

19○ 20○ 21○ 22○

-52X04

Used: 55
(20%)Spare: 11
Total: 66

56○ 58○ 60○ 62○ 64○ 65○ 66○
57○ 59○ 61○ 63○

-XX1.1

Used: 2
(20%)Spare: 1
Total: 3

4○

-X04

Used: 52
(20%)Spare: 11
Total: 63

55○ 57○ 59○ 61○ 63○ 64○ 65○
56○ 58○ 60○ 62○

-89X04

Used: 60
(20%)Spare: 12
Total: 72

33○ 35○ 37○ 39○ 41○ 43○ 44○
34○ 36○ 38○ 40○ 42○

-XX1.2

Used: 11
(20%)Spare: 3
Total: 14

13○ 14○

-X07

Used: 11
(20%)Spare: 3
Total: 14

12○ 13○ 14○

-DCX03

Used: 12
(20%)Spare: 3
Total: 15

5~~⊗~~ 14~~⊗~~ 15~~⊗~~

-X06

Used: 14
(20%)Spare: 3
Total: 17

15○ 16○ 17○

-ACX03

Used: 4
(20%)Spare: 1
Total: 5

5~~⊗~~

-X12

Used: 16
(20%)Spare: 4
Total: 20

17~~⊗~~ 18~~⊗~~ 19~~⊗~~ 20~~⊗~~

-89X03

Used: 12
(20%)Spare: 3
Total: 15

5~~⊗~~ 6~~⊗~~ 7~~⊗~~

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Based on		Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION SPARE TERMINALS SPARE TERMINALS	Doc. kind. Circuit diagram	Ref.Des. =2KR +BC	
		Approved 27.02.2024	GOURISH HEGDE		DCC EFS		
		Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAB	Sheet 78	n. sheet 1001
1MYN691003-102(A3)REV01							

8814687/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1086																																																														
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet																																																												
A	+A.01	-ACMCB01	Miniature circuit breaker	-	16A	240VAC, 2P, C-curve, Icn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/26																																																												
			Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/26,42																																																												
B	+A.01	-EBZ	Electronic buzzer for Non-Trip Alarm	Buzzer	160-280V AC/DC	96x96mm	1MYN593002-006	Alan electronic systems pvt.ltd		1	1MNS500925-CFAB/72																																																												
C	+A.01	-FS36	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36																																																												
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																													
D	+A.01	-FS37	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36																																																												
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																													
E	+A.01	-FS38	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36																																																												
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																													
F	+A.01	-HS	On/off Switch		1-2 pos on/off switch, 5A, Flush mounting		1MYN533014-001	Switron		1	1MNS500925-CFAB/26																																																												
G	+A.01	-HT	Hooter for Trip alarm	Hooter	220VDC		1MYN593002-004		1MYN593002-004	1	1MNS500925-CFAB/72																																																												
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																													
H	+A.01	-LK01	Neutral link	NL	15A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/72																																																												
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																													
I	+A.01	-LK02	Neutral link	NL	15A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/72																																																												
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																													
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Based on				Prepared 27.02.2024 MANASA ESHWAR		Title 220kV BUS SECTION		Doc. kind. Parts list		Ref.Des. =2KR																																																													
				Approved 27.02.2024 GOURISH HEGDE		Parts list =2KR+BS		DCC EPB		+BS																																																													
				Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited		Resp. dept. PG-GAS		Rev. ind. 0 Language en																																																													
Rev. Revision note				Date Name		HITACHI		Doc. no. 1MNS500925-FAB		Sheet 1001																																																													
1MYN691003-102(A3)REV01										n. sheet 1002																																																													

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8814687/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1087					
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet			
A	+A.01	-LK38	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1				
			Neutral link	NL	15A		ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36				
B	+A.01	-PS	AC Socket with Switch	SW	230VAC, 05-15A	Box type, Indian standard	1MYN538103-001	Anchor		1	1MNS500925-CFAB/26			
			Thermostat	TH	230VAC, 15A, 50 Hz	Range : 25-85°C	IN7635-3001	GIRISH EGO		1	1MNS500925-CFAB/26			
C	+A.03	-ACFS01	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/26			
			Control Fuse Base	-	32A		ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1					
C	+A.03	-ACFS02	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/27			
			Control Fuse Base	-	32A		ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1					
D	+A.03	-ACLK01	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1				
			Neutral link	NL	15A		ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/26				
D	+A.03	-ACLK02	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1				
			Neutral link	NL	15A		ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/27				
E	+A.05	-1MCB01	Miniature circuit breaker	-	16A	220VDC, 2P, C-curve, Icn-10kA	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAB/28			
			Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAB/28,45			
E	+A.05	-1MCB02	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, Icn-10kA	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAB/29			
			Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAB/29,45			
Based on			Prepared	27.02.2024	MANASA ESHWAR	Title	220kV BUS SECTION		Doc. kind.	Parts list		Ref.Des.	=2KR	
			Approved	27.02.2024	GOURISH HEGDE	Parts list		DCC EPB				=BS		
			Project	APTRANSCO		=2KR+BS		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en	
			STANDARD DRAWING			Hitachi Energy India Limited						Sheet	1002	
Rev.	Revision note		Date	Name		HITACHI		Doc. no.		1MNS500925-FAB		n. sheet	1003	
1MYN691003-102(A3)REV01														

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1		2		3		4		5		6		7		8	
Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet	1088			
A	20	+A.05	-1MCB03	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/29	A	-	-
											1	1MNS500925-CFAB/29,47			
B	21	+A.05	-1MCB04	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/29	B	-	-
											1	1MNS500925-CFAB/29,47			
	22	+A.05	-1MCB05	Miniature circuit breaker	-	4A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/29		-	-
											1	1MNS500925-CFAB/29,47			
C	23	+A.05	-MCB01	Miniature circuit breaker	-	2A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30	C	-	-
											1	1MNS500925-CFAB/30,46			
	24	+A.05	-MCB02	Miniature circuit breaker	-	2A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30		-	-
											1	1MNS500925-CFAB/30,46			
D	25	+A.05	-MCB03	Miniature circuit breaker	-	4A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30	D	-	-
											1	1MNS500925-CFAB/30,46			
	26	+A.05	-MCB08	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30		-	-
											1	1MNS500925-CFAB/30,46			
E	27	+A.07	-2MCB01	Miniature circuit breaker	-	16A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/28	E	-	-
											1	1MNS500925-CFAB/28,45			
	28	+A.07	-2MCB02	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/29		-	-
											1	1MNS500925-CFAB/29,45			
Based on		Prepared 27.02.2024		MANASA ESHWAR		Title 220kV BUS SECTION		Doc. kind. Parts list		Ref.Des. =2KR					
		Approved 27.02.2024		GOURISH HEGDE		Parts list =2KR+BS		DCC EPB		+BS					
		Project APTRANSCO		STANDARD DRAWING		Hitachi Energy India Limited		Resp. dept. PG-GAS		Rev. ind. 0		Language en			
Rev.		Revision note		Date		Name		HITACHI		Doc. no. 1MNS500925-FAB		Sheet 1003		n. sheet 1004	
1MYN691003-102(A3)REV01															
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1	2	3	4	5	6	7	8							
Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet			
A	29	+A.07	-2MCB03	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/29		
											Auxiliary contact block	-	1	1MNS500925-CFAB/29,47
B	30	+A.07	-2MCB04	Miniature circuit breaker	-	4A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/29		
											Auxiliary contact block	-	1	1MNS500925-CFAB/29,47
C	31	+A.07	-MCB04	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30		
											Auxiliary contact block	-	1	1MNS500925-CFAB/30,46
C	32	+A.07	-MCB05	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30		
											Auxiliary contact block	-	1	1MNS500925-CFAB/30,46
C	33	+A.07	-MCB06	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30		
											Auxiliary contact block	-	1	1MNS500925-CFAB/30,46
D	34	+A.07	-MCB07	Miniature circuit breaker	-	2A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAB/30		
											Auxiliary contact block	-	1	1MNS500925-CFAB/30,46
E	35	+A.09	-X06	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		17	1MNS500925-CFAB/67,68,78		
											36	+A.09	-XX1.2	Feed-through terminal
E	37	+A.10	-52X04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		66	1MNS500925-CFAB/38,39,59,60,61,63,65,71,78		
											38	+A.11	-89X03	Disconnect terminal
E	39	+A.11	-ACX03	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		5	1MNS500925-CFAB/26,27,78		
											40	+A.11	-BBX04	Feed-through terminal
E	41	+A.11	-DCX03	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		15	1MNS500925-CFAB/28,29,78		
											42	+A.11	-X07	Feed-through terminal
F	43	+B.01	-DS	Door limit switch	DLS	230V AC, 5A	Single pole, 1NO, Cover for Insulation	IIN5374-3001-1	Kaycee		1	1MNS500925-CFAB/26		
Based on				Prepared	27.02.2024	MANASA ESHWAR	Title		220kV BUS SECTION	Doc. kind.	Parts list	Ref.Des.	=2KR	
				Approved	27.02.2024	GOURISH HEGDE	Parts list		=2KR+BS	DCC EPB		+BS		
				Project	APTRANSCO		Hitachi Energy India Limited		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
				STANDARD DRAWING		HITACHI		Doc. no.		1MNS500925-FAB		Sheet	1004	
Rev.	Revision note			Date	Name						n. sheet	1005		
1MYN691003-102(A3)REV01														

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A

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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet			
44	+B.01	-LED	LED Lamp	LED	240VAC, 9.08W			SPECTRUM TECHVISION (P) LTD		1	1MNS500925-CFAB/26			
45	+B.03	-ANN.	MICRO PROCESSOR BASED ANN.	SAN 200 - 24 Window	Aux supply U:75-275VAC/DC	without multi tone, Size:34x74mm, 6N case	1MYN900017-723	Seco	1MYN900017-723	1	1MNS500925-CFAB/72,73,74			
46	+B.05	-MFM-1	MULTI FUNCTION METER_MFM-1	Rish Master 3430	3Ph, 3Ele, 4W; 4-20mA Output-2nos	CTR: TO BE DEFINED; ADOPTED CTR:TO BE DEFINED, PTR: 220kV/110V;CL:0.2 RS485 PORT	1MNS500925-MAAA	Rishab	1MNS500925-MAAA	1	1MNS500925-CFAB/67,69			
47	+B.05	-MFM-2	MULTI FUNCTION METER_MFM-2	Rish Master 3430	3Ph, 3Ele, 4W; 4-20mA Output-2nos	CTR: TO BE DEFINED; ADOPTED CTR:TO BE DEFINED, PTR: 220kV/110V;CL:0.2 RS485 PORT	1MNS500925-MAAA	Rishab	1MNS500925-MAAA	1	1MNS500925-CFAB/68,69			
48	+B.09	-1SL01	Indicator light	-	230V AC, 7mA	WHITE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/27			
49	+B.09	-86 -PB	Push button	-	1NO, 1NC	Green, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/58			
50	+B.09	-PB-AA	Push button	-	1NO, 1NC	Red, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/72			
51	+B.09	-PB-AR	Push button	-	1NO, 1NC	Black, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/72			
52	+B.09	-PB-AT	Push button	-	1NO, 1NC	Yellow, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/72			
53	+B.09	-PB-DC1-FT	Push button	-	1NO, 1NC	Yellow, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/28			
54	+B.09	-PB-DC2-FT	Push button	-	1NO, 1NC	Yellow, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/28			
55	+B.09	-PB-DCFA	Push button	-	1NO, 1NC	Red, Compact, momentary	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/27			
56	+B.15	-1SL02	Indicator light	-	60VDC/60VAC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/36			
57	+B.15	-1SL03	Indicator light	-	60VDC/60VAC, 7mA	YELLOW	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/36			
Chief Engineer/Projects APTRANSCO/Vs/Vijayawada.														
Based on				Prepared	27.02.2024	MANASA ESHWAR	Title		220kV BUS SECTION	Doc. kind.	Parts list	Ref.Des.	=2KR	
				Approved	27.02.2024	GOURISH HEGDE	Parts list		=2KR+BS	DCC EPB		+BS		
				Project	APTRANSCO		Hitachi Energy India Limited		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
				STANDARD DRAWING			HITACHI		Doc. no.		1MNS500925-FAB		Sheet	1005
Rev.	Revision note		Date	Name								n. sheet	1006	
1MYN691003-102(A3)REV01														

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8814687/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1091							
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet					
A	58	+B.15	-1SL04	Indicator light	-	60VDC/60VAC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/36	A			
	59	+B.15	-2SL01	Indicator light	-	60VDC/60VAC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/37				
	60	+B.15	-2SL02	Indicator light	-	60VDC/60VAC, 7mA	YELLOW	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/37				
B	61	+B.15	-2SL03	Indicator light	-	60VDC/60VAC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/37	B			
	62	+B.15	-CS-52	CB Control Switch	22-4-pos. contacts with 0 position, Pos1:T, Pos2:A/T,Pos3:A/C, Pos4:C	32A, 660V	Spring return & lost motion device with Pistol grip handle 45 degree Switching	1MNS500925-NAAA	Switron	1MNS500925-NAAA	1	1MNS500925-CFAB/40, 49,59,60,61,71,76				
	63	+B.15	-CS-89BS1	Rotary Switch	6-3-pos. contacts with 0 position	32A, 660V	Spring return with Pistol grip handle 45 degree Switching	1MYN910008-AAAA	Switron	1MYN910008-AAAA	1	1MNS500925-CFAB/64,76				
C	64	+B.15	-CS-89BS3	Rotary Switch	6-3-pos. contacts with 0 position	32A, 660V	Spring return with Pistol grip handle 45 degree Switching	1MYN910008-AAAA	Switron	1MYN910008-AAAA	1	1MNS500925-CFAB/64,76	C			
	65	+B.15	-SL01	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70				
	66	+B.15	-SL02	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70				
D	67	+B.15	-SL03	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70	D			
	68	+B.15	-SL04	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70				
	69	+B.15	-SL05	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70				
	70	+B.15	-SL06	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70				
E	71	+B.15	-SL11	Indicator light	-	220VDC, 7mA	WHITE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70	E			
	72	+B.15	-SL12	Indicator light	-	220VDC, 7mA	WHITE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/70				
	73	+B.15	-SL13	Indicator light	-	220VDC, 7mA	BLUE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAB/71				
Based on				Prepared	27.02.2024	MANASA ESHWAR	Title	220kV BUS SECTION		Doc. kind.	Parts list		Ref.Des.	=2KR		
				Approved	27.02.2024	GOURISH HEGDE	Parts list		DCC EPB				+BS			
				Project	APTRANSCO		=2KR+BS		Resp. dept.	PG-GAS		Rev. ind.	0	Language	en	
				STANDARD DRAWING			HITACHI		Hitachi Energy India Limited		Doc. no.		1MNS500925-FAB		Sheet	1006
Rev.	Revision note		Date	Name										n. sheet	1007	
1MYN691003-102(A3)REV01																
1	2	3	4	5	6	7	8									

**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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814687/2024/EEMRT-ENE51												1093
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet	
A	+B.33	-R01	Terminal base	RX4	4U12C	Rack mounting	5619499-A	ABB	5619499-A	5	1MNS500925-CFAB/42, 59,65,73,76	
		-R01.101.101	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R01.101.301	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R01.107.101	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R01.107.301	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R01.113.101	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R01.113.301	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R01.119.101	Auxiliary relay	RXSF1	220-250VDC	6NO	RK271-018-AS	ABB	RK271-018-AS	1		
		-R01.119.301	Auxiliary relay	RXSF1	220-250VDC	6NO	RK271-018-AS	ABB	RK271-018-AS	1		
		-R01.125.101	Auxiliary relay	RXSF1	220-250VDC	6NO	RK271-018-AS	ABB	RK271-018-AS	1		
		-R01.125.301	Auxiliary relay	RXSF1	220-250VDC	6NO	RK271-018-AS	ABB	RK 271018-AS	1		
		-R01.131.101	Auxiliary relay	RXSF1	220-250VDC	6NO	RK271-018-AS	ABB	RK 271018-AS	1		
		-R01.131.301	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1		
		-R01.137.101	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1		
		-R01.143.101	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1		
-R01.149.101	Auxiliary relay	RXMA1	230VAC, 50-60Hz	2NO, 2NC	RK 211052-BS	ABB	RK 211052-BS	1				
-R01.149.301	Auxiliary relay	RXMA1	230VAC, 50-60Hz	2NO, 2NC	RK 211052-BS	ABB	RK 211052-BS	1				
-R01.155.101	DC-1 Supervision Relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1				
-R01.155.301	DC-2 Supervision Relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1				
D	+B.33	-R02	Terminal base	RX4	4U12C	Rack mounting	5619499-A	ABB	5619499-A	3	1MNS500925-CFAB/43, 57,58,59,60,61,73	
		-R02.101.101	Bistable relay	RXMVB4	220VDC	11NO, 3NC	1MYN563039-AS	ABB	1MYN563039-AS	1		
		-R02.113.301	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R02.119.101	Bistable relay	RXMVB4	220VDC	11NO, 3NC	1MYN563039-AS	ABB	1MYN563039-AS	1		
		-R02.131.301	Trip circuit supervision relay	TSR-B	110/220VDC	2NC, 1NO	1MYN569339-A	ABB	1MYN569339-A	1		
		-R02.149.101	Auxiliary relay	RXMH2	220VDC	4NO, 4NC, without flag	RK 223069-AS	ABB	RK 223069-AS	1		
-R02.149.301	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1				
-R02.155.301	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1				
E	+B.33	-SS	Synchronizing socket	SS Type	500VAC/DC	Panel mounting socket	IN 5381 3001-1	BCH Electric limited		1	1MNS500925-CFAB/62	
	+B.33	-TTB-1	Test Terminal Block for MFM-1	TTB	1100V, 50A	Compact, Flush mounting	1MYN266015-003	Deepl		1	1MNS500925-CFAB/67	
	+B.33	-TTB-2	Test Terminal Block for MFM-2	TTB	1100V, 50A	Compact, Flush mounting	1MYN266015-003	Deepl		1	1MNS500925-CFAB/68	
	+B.41	-SH	Heating	SPHT	230V AC, 50W		IN6677-3001-2	KWK RESISTORS / TGS		1	1MNS500925-CFAB/26	
Based on				Prepared	27.02.2024	MANASA ESHWAR		Title		220kV BUS SECTION		
				Approved	27.02.2024	GOURISH HEGDE		Doc. kind.		Parts list		
				Project	APTRANSCO		Parts list		DCC EPB		Ref.Des.	
				STANDARD DRAWING		=2KR+BS		Resp. dept.		PG-GAS		
						Hitachi Energy India Limited		Rev. ind.		0		
						HITACHI		Language		en		
Rev.	Revision note		Date	Name				Doc. no.		1MNS500925-FAB		
								Sheet		1008		
								n. sheet		1009		
1MYN691003-102(A3)REV01												

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8814687/2024/EEMRT-ENE51		1	2	3	4	5	6	7	8	1094						
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet					
A	+C.03	-FS10	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
B	+C.03	-FS11	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
C	+C.03	-FS12	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
C	+C.03	-FS21	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/62					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
D	+C.03	-FS30	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/67					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
E	+C.03	-FS31	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/67					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
E	+C.03	-FS32	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/67					
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
Chief Engineer/Projects APTRANSCO/VIS/Vijayawada.																
Based on				Prepared	27.02.2024	MANASA ESHWAR	Title		220kV BUS SECTION	Doc. kind.	Parts list	Ref.Des.	=2KR			
				Approved	27.02.2024	GOURISH HEGDE	Parts list		=2KR+BS	DCC EPB		+BS				
				Project			APTRANSCO		Resp. dept.	PG-GAS		Rev. ind.	0	Language	en	
				STANDARD DRAWING			HITACHI		Hitachi Energy India Limited		Doc. no.		1MNS500925-FAB		Sheet	1009
Rev.	Revision note			Date	Name								n. sheet	1010		
1MYN691003-102(A3)REV01																

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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
96	+C.03	-LK12	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
			Neutral link	NL	15A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/36	
97	+C.03	-LK21	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
			Neutral link	15A	15A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/62	
98	+C.03	-LK32	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
			Neutral link	NL	15A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/67	
99	+C.05	-FS13	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
100	+C.05	-FS14	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
101	+C.05	-FS15	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
102	+C.05	-FS22	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/62
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		

Chief Engineer/Projects
APTRANSCO/VIS/Vijayawada.

Based on				Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION	Doc. kind. Parts list	Ref.Des. =2KR
				Approved 27.02.2024	GOURISH HEGDE	Parts list =2KR+BS	DCC EPB	+BS
				Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited	Resp. dept. PG-GAS	Rev. ind. 0
						HITACHI	Language en	Sheet 1010
Rev.	Revision note	Date	Name				Doc. no. 1MNS500925-FAB	n. sheet 1011

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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
A	+C.05	-FS33	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/68
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
B	+C.05	-FS34	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/68
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
C	+C.05	-FS35	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/68
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
C	+C.05	-FS39	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
D	+C.05	-FS40	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
E	+C.05	-FS41	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
F	+C.05	-LK15	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Neutral link	NL	15A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	

Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

Based on				Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION		Doc. kind. Parts list	Ref.Des. =2KR	
				Approved 27.02.2024	GOURISH HEGDE	Parts list =2KR+BS		DCC EPB		+BS
				Project APTRANSCO		Hitachi Energy India Limited		Resp. dept. PG-GAS	Rev. ind. 0	Language en
				STANDARD DRAWING		HITACHI		Doc. no. 1MNS500925-FAB		Sheet 1011
Rev.	Revision note	Date	Name							n. sheet 1012
1MYN691003-102(A3)REV01										

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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
110	+C.05	-LK22	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/62
			Neutral link	15A	15A		ABB/EATON(cooper Bussmann) /Schneider/L&T		1		
111	+C.05	-LK35	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/68
			Neutral link	NL	15A		ABB/EATON(cooper Bussmann) /Schneider/L&T		1		
112	+C.05	-LK41	Control Fuse Base	-	32A	Chief Engineer/Projects APTRANSCO/VS/Vijayawada.	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAB/37
			Neutral link	NL	15A			ABB/EATON(cooper Bussmann) /Schneider/L&T		1	
113	+C.07	-52_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	1MNS500579-CRMA	Phoenix Contact	1109562	1	1MNS500925-CFAB/63,70
			Diode module	DP-12-220 DC	6-230VDC	-	1MNS500579-CRMC	Phoenix contact	2907517	1	
			Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	1MNS500579-CRMB	Phoenix contact	2907521	1		
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972	1		
114	+C.07	-52_CLS_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	1MNS500579-CRMA	Phoenix Contact	1109562	1	1MNS500925-CFAB/63
			Diode module	DP-12-220 DC	6-230VDC	-	1MNS500579-CRMC	Phoenix contact	2907517	1	
			Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	1MNS500579-CRMB	Phoenix contact	2907521	1		
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972	1		
115	+C.07	-52_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	1MNS500579-CRMA	Phoenix Contact	1109562	1	1MNS500925-CFAB/63,70,71
			Diode module	DP-12-220 DC	6-230VDC	-	1MNS500579-CRMC	Phoenix contact	2907517	1	
			Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	1MNS500579-CRMB	Phoenix contact	2907521	1		

Based on				Prepared	27.02.2024	MANASA ESHWAR	Title		220kV BUS SECTION		Doc. kind.	Parts list		Ref.Des.	=2KR		
				Approved	27.02.2024	GOURISH HEGDE	Parts list		=2KR+BS		DCC EPB				+BS		
				Project	APTRANSCO		Hitachi Energy India Limited		=2KR+BS		Resp. dept.	PG-GAS		Rev. ind.	0	Language	en
				STANDARD DRAWING			HITACHI				Doc. no.		1MNS500925-FAB		Sheet	1012	
Rev.	Revision note	Date	Name													n. sheet	1013

8814687/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1098							
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet					
A	116	+C.07	-52_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/63					
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1						
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1							
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1						
B	117	+C.07	-89BS1_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/40,63,70					
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1						
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1							
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1						
C	118	+C.07	-89BS1_CLS_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/63					
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1						
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1							
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1						
D	119	+C.07	-89BS1_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/40,63,70					
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1						
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1							
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1						
E	120	+C.07	-89BS1_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/63					
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1						
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1							
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1						
Chief Engineer/Projects																
APTRANSCO/Vs/Vijayawada.																
Based on				Prepared	27.02.2024	MANASA ESHWAR		Title		220kV BUS SECTION		Doc. kind.	Parts list		Ref.Des.	=2KR
				Approved	27.02.2024	GOURISH HEGDE		Parts list		=2KR+BS		DCC EPB		+BS		
				Project	APTRANSCO		Hitachi Energy India Limited		Resp. dept.		PG-GAS		Rev. ind.	0	Language	en
				STANDARD DRAWING		HITACHI		Doc. no.		1MNS500925-FAB		Sheet	1013			
Rev.	Revision note			Date	Name						n. sheet		1014			
1MYN691003-102(A3)REV01																
1	2	3	4	5	6	7	8									

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8814687/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1099		
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
A	121	+C.07	-89BS3_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/41,63,70
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1	
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1		
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1	
B	122	+C.07	-89BS3_CLS_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/63
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1	
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1		
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1	
C	123	+C.07	-89BS3_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/40,63,70
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1	
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1		
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1	
D	124	+C.07	-89BS3_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAB/63
				Diode module	DP-12-220 DC	6-230VDC	-	Phoenix contact	2907517	1	
				Relay Socket	ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	-	Phoenix contact	2907521	1		
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972		1	
E	125	+C.09	-X04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	Elmex		65	1MNS500925-CFAB/41, 42,44,45,47,48,50,58, 62,63,78
	126	+C.09	-XX1.1	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	Elmex		3	1MNS500925-CFAB/49,78
	127	+C.10	-89X04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	Elmex		44	1MNS500925-CFAB/40, 41,43,63,66,78
	128	+C.11	-X01	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	Elmex	Chief Engineer/Projects APTRANSCO/Vs/Vijayawada.	33	1MNS500925-CFAB/37, 67,68,78
	129	+C.11	-X02	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	Elmex		20	1MNS500925-CFAB/31, 32,33,34,78
Based on				Prepared	27.02.2024	MANASA ESHWAR		Title		220kV BUS SECTION	
				Approved	27.02.2024	GOURISH HEGDE		Parts list		=2KR+BS	
				Project		APTRANSCO STANDARD DRAWING		Doc. kind.		Parts list	
								DCC EPB		Ref.Des.	
								PG-GAS		0	
								Rev. ind.		en	
								Language		1014	
Rev.				Revision note		Date		Name		Doc. no.	
1MYN691003-102(A3)REV01								HITACHI		1MNS500925-FAB	
								Hitachi Energy India Limited		n. sheet	
										1015	

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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
A 130	+C.11	-X12	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		20	1MNS500925-CFAB/31, 32,33,34,78

Drawing approval subject to valid vendor registration

Suitable for conventional 220KV SS only

**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Based on				Prepared 27.02.2024	MANASA ESHWAR	Title 220kV BUS SECTION Parts list =2KR+BS	Doc. kind. Parts list	Ref.Des. =2KR +BS	
				Approved 27.02.2024	GOURISH HEGDE		DCC EPB		
				Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited HITACHI	Resp. dept. PG-GAS	Rev. ind. 0	Language en
Rev.	Revision note	Date	Name				Doc. no. 1MNS500925-FAB	Sheet 1015	
1MYN691003-102(A3)REV01								n. sheet	