

14676/2024/EEMRT-ENE51

CUSTOMER : APTRANSCO

CUSTOMER REF. PO.NO : AS APPLICABLE Drawing approval subject to valid vendor registration

SUBSTATION : AS APPLICABLE Suitable for conventional 220KV SS only

EQUIPMENT : 220kV BUSCOUPLER CONTROL AND RELAY PANEL

DRAWING REF. :
 General Arrangement : 1MNS500925-AFAA
 Bill of Material : 1MNS500925-FAA
 Schematic Drawings : 1MNS500925-CFAA

STANDARD BAY REF. : =2KRBC

Suitable for conventional 220KV SS only

Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

STATION AUX. SUPPLY:- 220V DC

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KRBC
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Title page	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	Sheet 1
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAA		No.sheets 91
1MYN691003-102(A3)REV01						

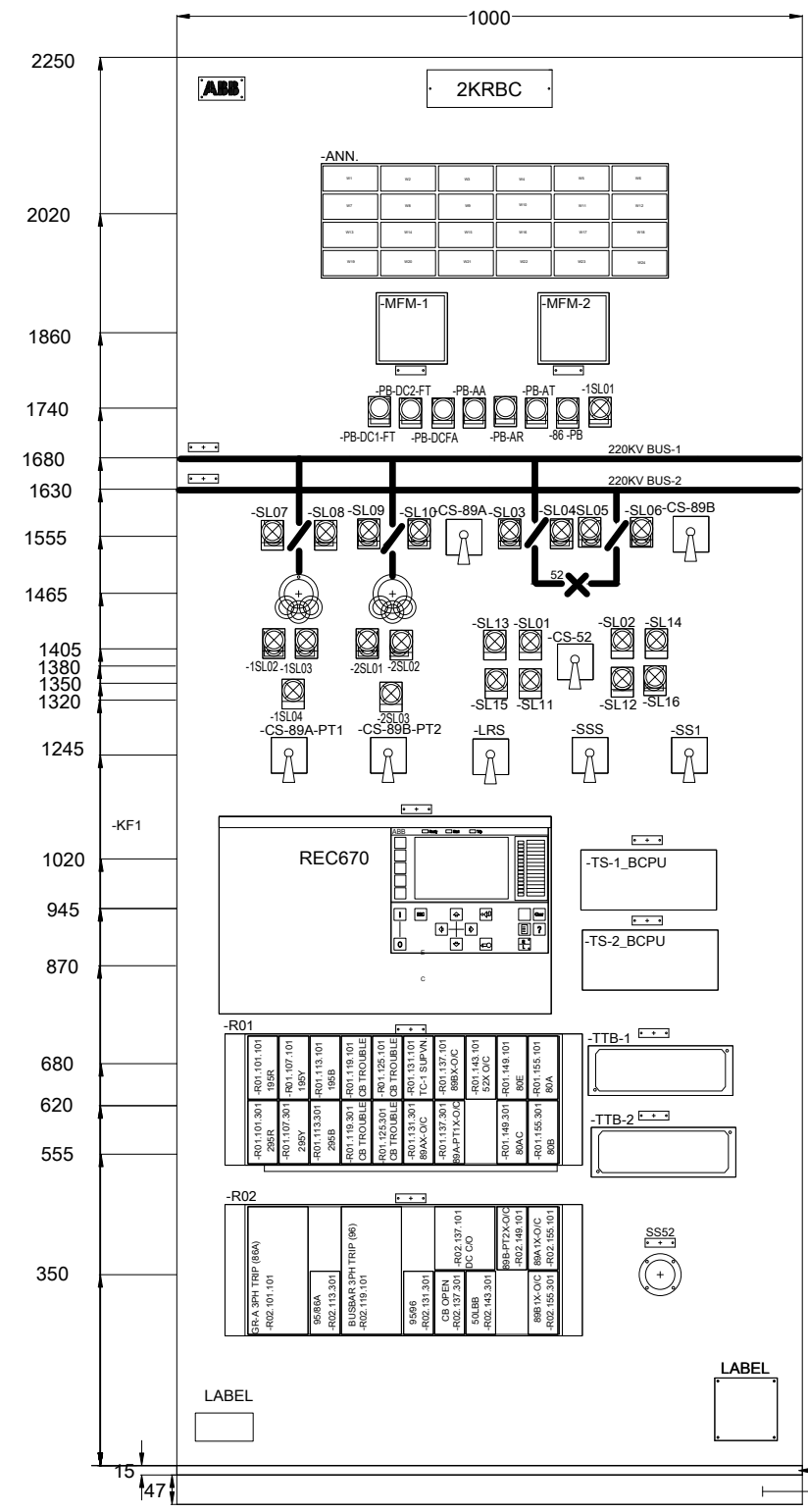
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Based on				Prepared 26.12.2023 VINOD G				Title 220kV BUS COUPLER				Doc. kind. List of contents		Ref.Des. =2KRBC	
				Approved 27.12.2023 GOURISH HEGDE				List of contents				DCC EAB			
				Project APTRANSCO				List of contents				Resp. dept. PG-GAS		Rev. ind. 0	
				STANDARD DRAWING				HITACHI Hitachi Energy India Limited				Language en			
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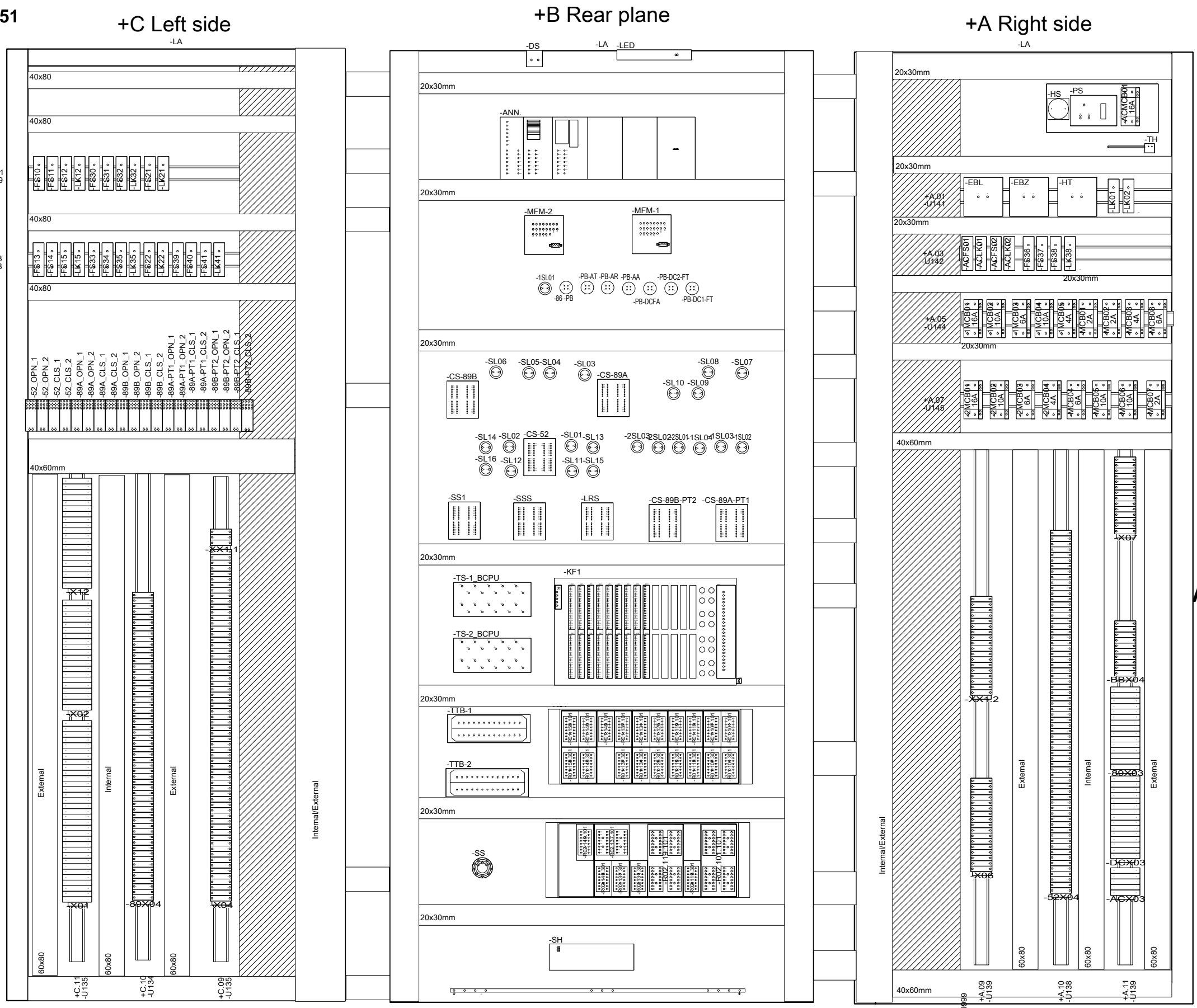
Suitable for conventional 220KV SS only

] ANTI VIBRATION PAD
] BASE FRAME

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-2 VT R-PH
2SL02	BUS-2 VT Y-PH
2SL03	BUS-2 VT B-PH
CS-52	CB CONTROL SWITCH
CS-89A	89A ISOL. CONTROL SWITCH
CS-89B	89B ISOL. CONTROL SWITCH
CS-89A-PT1	89A-PT1 ISOL. CONTROL SWITCH
CS-89B-PT2	89B-PT2 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	89A ISOL. OPEN
SL04	89A ISOL. CLOSE
SL05	89B ISOL. OPEN
SL06	89B ISOL. CLOSE
SL07	89A-PT1 ISOL. OPEN
SL08	89A-PT1 ISOL. CLOSE
SL09	89B-PT2 ISOL. OPEN
SL10	89B-PT2 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	89AX-O & 89AX-C
R01.137.101	89BX-O & 89BX-C
R01.137.301	89A-PT1X-O & 89A-PT1X-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
R02.137.101	DC-1 C/O RELAY
R02.137.301	CB MANUAL TRIP-1/2
R02.149.101	89B-PT2X-O & 89B-PT2X-C
R02.119.101	BUSBAR TRIP RELAY
R02.131.301	BUSBAR TRIP RELAY SUPERVISION
R02.143.301	LBB RE-TRIP

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC ELU	+BC
		Project APTRANSCO		Front View	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	n. sheet 12
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAA		Sheet 11
1MYN691003-102(A3)REV01						



Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

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

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC ELU	+BC
		Project APTRANSCO		Inside view	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	Sheet 12
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-AFAA	n. sheet 13
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8814676/2024/EEMRT-ENE51
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	Chief Engineer/Projects
-ACFS02	FUSE FOR BELL CKT.	2A	APTRANSCO/VS/Vijayawada.
-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	-

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-2 VT R-PH	--	-
-2SL02	BUS-2 VT Y-PH	--	-
-2SL03	BUS-2 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-89A	89A ISOL. CONTROL SWITCH	--	6-3-pos. contacts with 0 position
-CS-89A-PT1	89A-PT1 ISOL. CONTROL SWITCH	--	6-3-pos. contacts with 0 position
-CS-89B	89B ISOL. CONTROL SWITCH	--	6-3-pos. contacts with 0 position
-CS-89B-PT2	89B-PT2 ISOL. CONTROL SWITCH	--	6-3-pos. contacts with 0 position
-KF1	BAY CONTROL & PROTECTION UNIT	REC670	REC670

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Assembly drawing	Ref.Des. =2KR +BC
		Approved 27.12.2023	GOURISH HEGDE	Legend list	DCC ELU	
		Project APTRANSCO		Legend list	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAA		Sheet 13
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Device name	Description (1)	Description (2)	Type designation
-LED	Lamp	--	LED
-LRS	LOCAL / REMOTE SWITCH	--	12-2-pos. contacts
-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 S	RXSF1	RXSF1
-R01.131.101	CB TC-1 SUPVN. HEALTHY	RXSF1	RXSF1
-R01.131.301	89AX-O	89AX-C	RXMM1

Device name	Description (1)	Description (2)	Type designation
-R01.137.101	89BX-O	89BX-C	RXMM1
-R01.137.301	89A-PT1-O	89A-PT1-C	RXMM1
-R01.143.101	52X CLOSE CMD	SPARE	RXMM1
-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
-R02.137.101	DC-1 C/O RELAY	RXMH2	RXMH2
-R02.137.301	CB MANUAL TRIP-1	CB MANUAL TRIP-2	RXMM1
-R02.143.301	LBB RE-TRIP	LBB RE-TRIP	RXMM1
-R02.149.101	89B-PT2-O	89B-PT2-C	RXMM1
-SH	Heating	--	SPHT
-SL01	52 CB OPEN	--	-
-SL02	52 CB CLOSE	--	-
-SL03	89A ISOL. OPEN	--	-
-SL04	89A ISOL. CLOSE	--	-
-SL05	89B ISOL. OPEN	--	-
-SL06	89B ISOL. CLOSE	--	-
-SL07	89A-PT1 ISOL. OPEN	--	-
-SL08	89A-PT1 ISOL. CLOSE	--	-
-SL09	89B-PT2 ISOL. OPEN	--	-
-SL10	89B-PT2 ISOL. CLOSE	--	-

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

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Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAA		Sheet 14
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Device name	Description (1)	Description (2)	Type designation
-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 SWITCH	--	12-2-pos. contacts
-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

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

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
-89A_CLS_1	89A ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89A_CLS_2	89A ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89A_OPN_1	89A ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89A_OPN_2	89A ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89A-PT1_CLS_1	89A-PT1 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89A-PT1_CLS_2	89A-PT1 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21

Device name	Description (1)	Description (2)	Type designation
-89A-PT1_OPN_1	89A-PT1 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89A-PT1_OPN_2	89A-PT1 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89B_CLS_1	89B ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89B_CLS_2	89B ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89B_OPN_1	89B ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89B_OPN_2	89B ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89B-PT2_CLS_1	89B-PT2 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89B-PT2_CLS_2	89B-PT2 ISOL. POS. CLOSED	--	REL-IR-BL/L-220DC/4X21
-89B-PT2_OPN_1	89B-PT2 ISOL. POS. OPEN	--	REL-IR-BL/L-220DC/4X21
-89B-PT2_OPN_2	89B-PT2 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-2 PT CORE-1	FOR BCPU CKT.	-
-FS14	Y-PH BUS-2 PT CORE-1	FOR BCPU CKT.	-
-FS15	B-PH BUS-2 PT CORE-1	FOR BCPU CKT.	-
-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.	-

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		Project APTRANSCO		Legend list	PG-GAS	Rev. ind. 0
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Device name	Description (1)	Description (2)	Type designation
-FS39	R-PH BUS-2 VT CORE-1	FOR IND. CKT.	-
-FS40	Y-PH BUS-2 PT CORE-1	FOR IND. CKT.	-
-FS41	B-PH BUS-2 PT CORE-1	FOR IND. CKT.	-
-LK12	NU BUS-1 PT CORE-1	FOR BCPU CKT.	NL
-LK15	NU BUS-2 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-2 VT CORE-1	FOR IND. CKT.	NL

Drawing approval subject to valid vendor registration

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

Suitable for conventional 220KV SS only

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Legend list	DCC ELU	+BC
		Project APTRANSCO		Legend list	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-AFAA		Sheet 16
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8814676/2024/EEM/REV 01

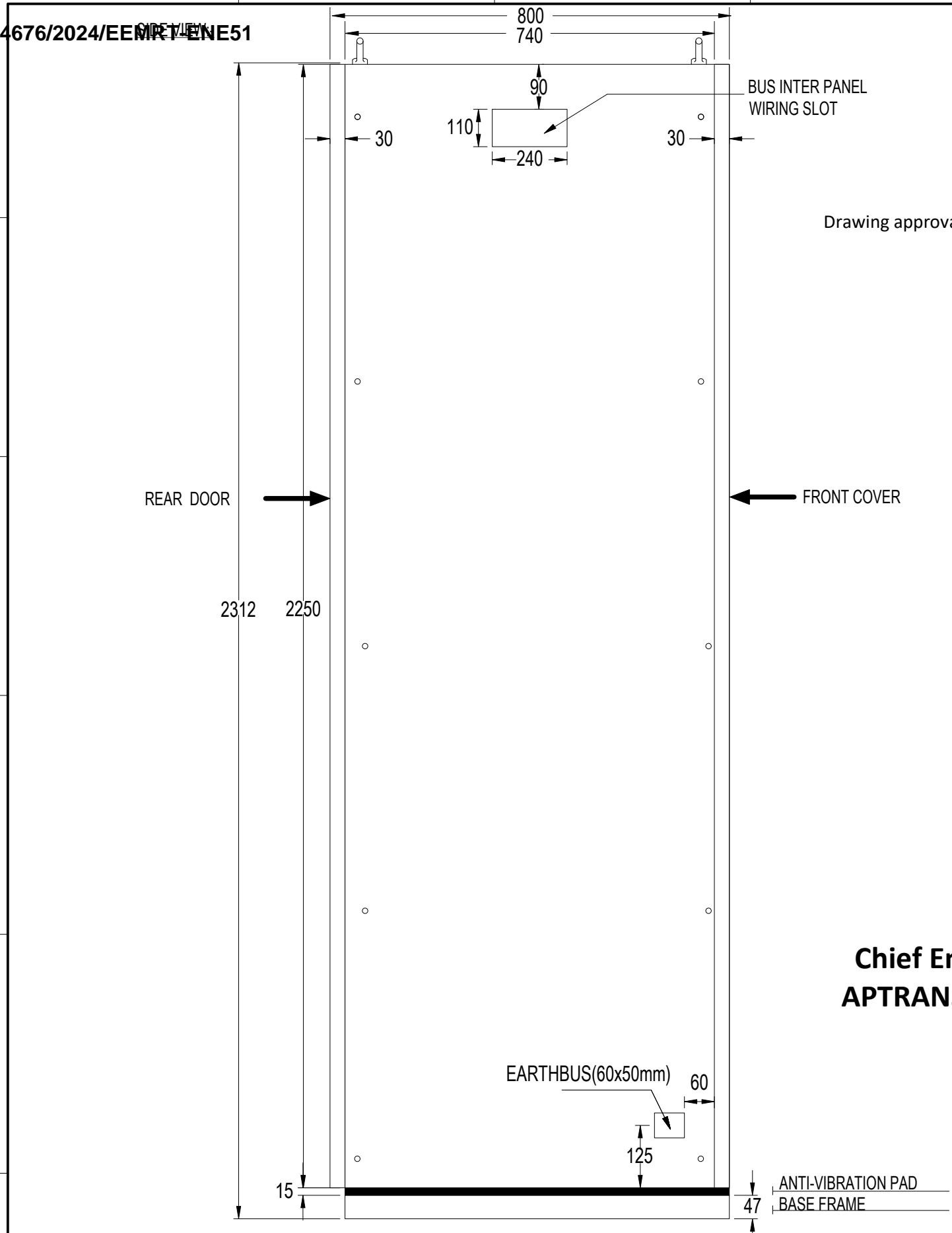
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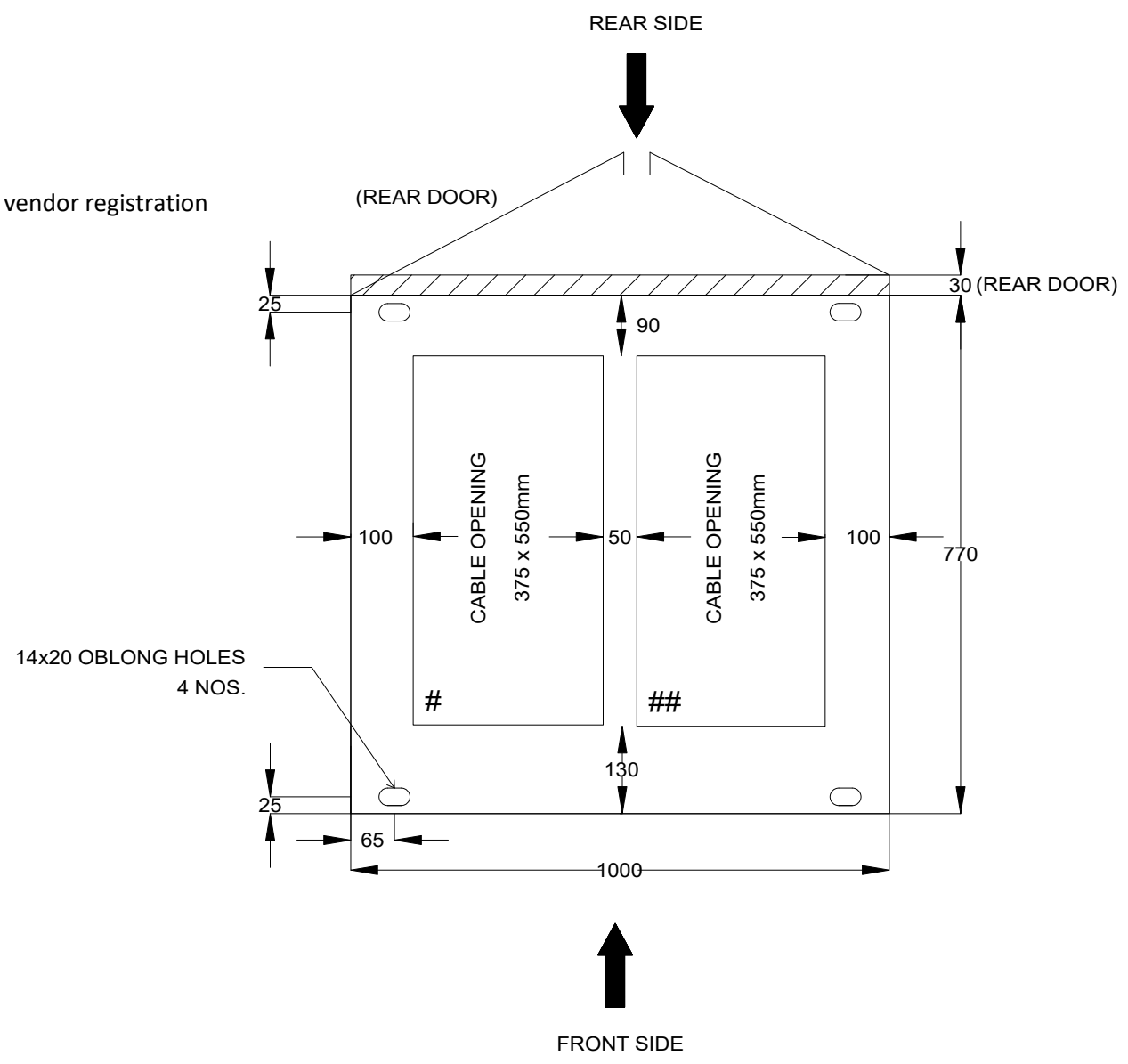
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F



FOUNDATION DETAILS:-



BASE FRAME SIZE :- 1000mm X 770mm

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

- 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 1100V
 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 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Assembly drawing	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC ELU	+BC
		Project APTRANSCO		Side View & Foundation Details	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	Sheet 17
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-AFAA	n. sheet 18
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PANEL DETAILS:-

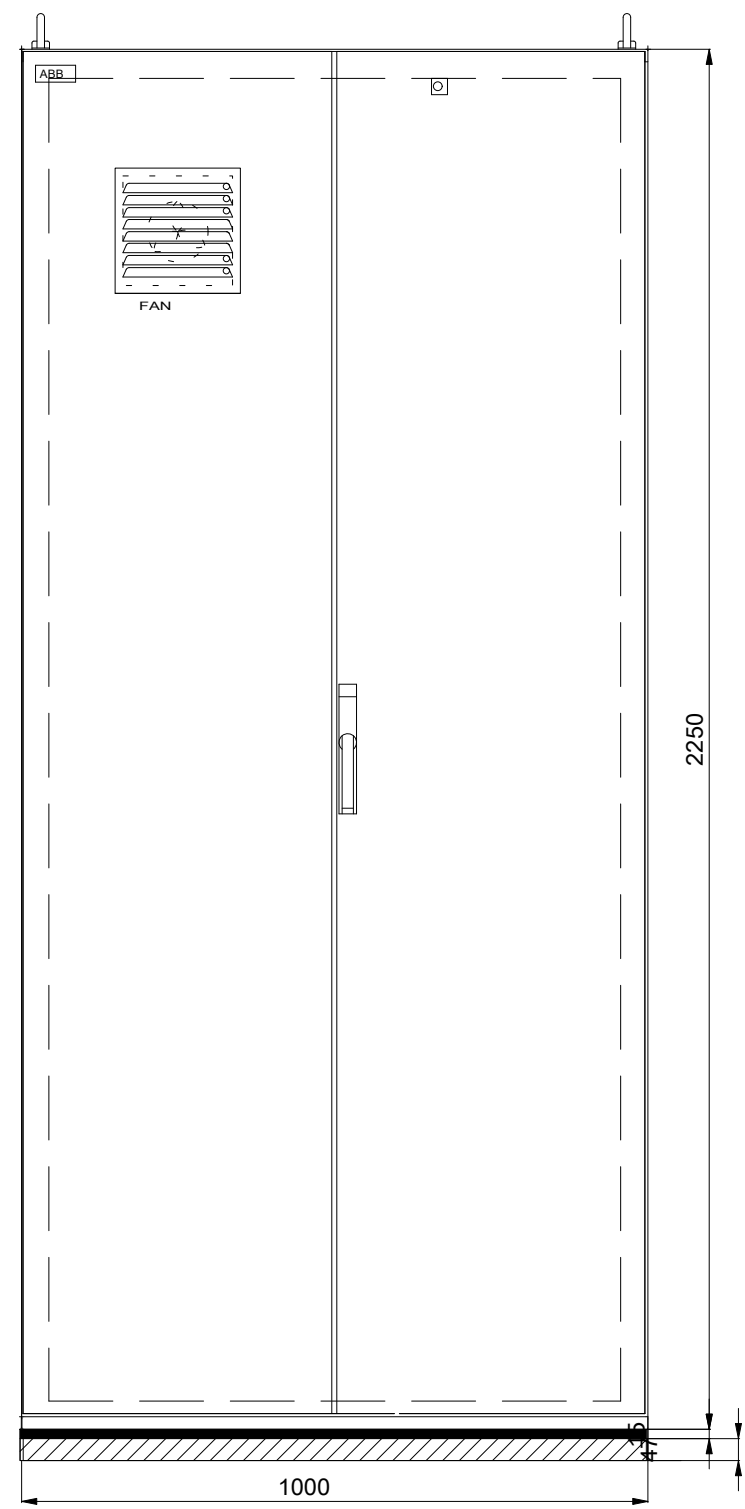
TYPE:- VTG - Simplex Panel, W=1000mm, D=800mm, H=2312mm (2250 + 47 (BF) + 15 (AVP))

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
2: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

Suitable for conventional 220KV SS only



REAR VIEW WITH METALLIC DOUBLE DOOR CLOSED

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Based on	Prepared 26.12.2023 Approved 27.12.2023	VINOD G GOURISH HEGDE	Title 220kV BUS COUPLER Control & Relay Panel Panel Details & Rear Door Details	Doc. kind. Assembly drawing DCC ELU	Ref.Des. =2KR +BC	
Rev.	Revision note	Date	Name	Resp. dept. PG-GAS	Rev. ind. 0	Language en
1MYN691003-102(A3)REV01			HITACHI Hitachi Energy India Limited	Doc. no. 1MNS500925-AFAA	Sheet 18 n. sheet 21	

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8814676/2024/EEMRT-ENE51 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

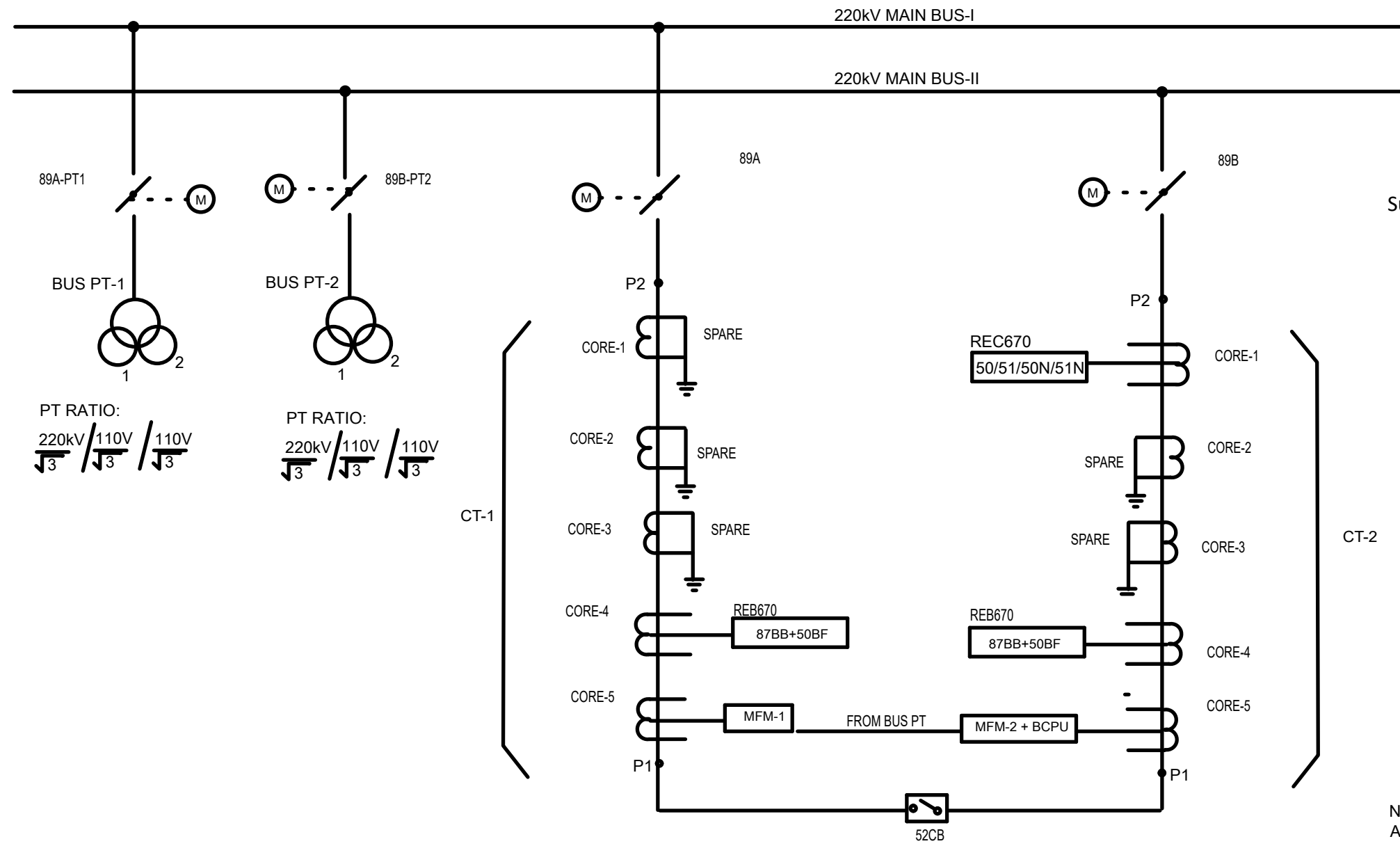
SYMBOL LIST	
	BINARY I/P
	BINARY O/P
	CHANGE OVER OUTPUT
	CT/PT INPUT
	mA INPUT
	POWER SUPPLY INPUT
	IEC61850 COMM. PORT
	RS232/485 COMM. PORT
	RJ45 COMM. PORT
	CURRENT TRANSFORMER
	CVT
	PT
	CIRCUIT BREAKER
	LIGHTNING ARRESTOR

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	

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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		List Of Symbols	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAA		Sheet 21
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NOTE: CT, PT RATIOS AND DETAILS TO BE FURNISHED
ADOPTED CT RATIOS TO BE FURNISHED.

CT-1 DETAILS FOR 220KV BUSCOUPLER

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 BUSCOUPLER

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	--	--	--	--

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	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-CFAA	Sheet 22
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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)

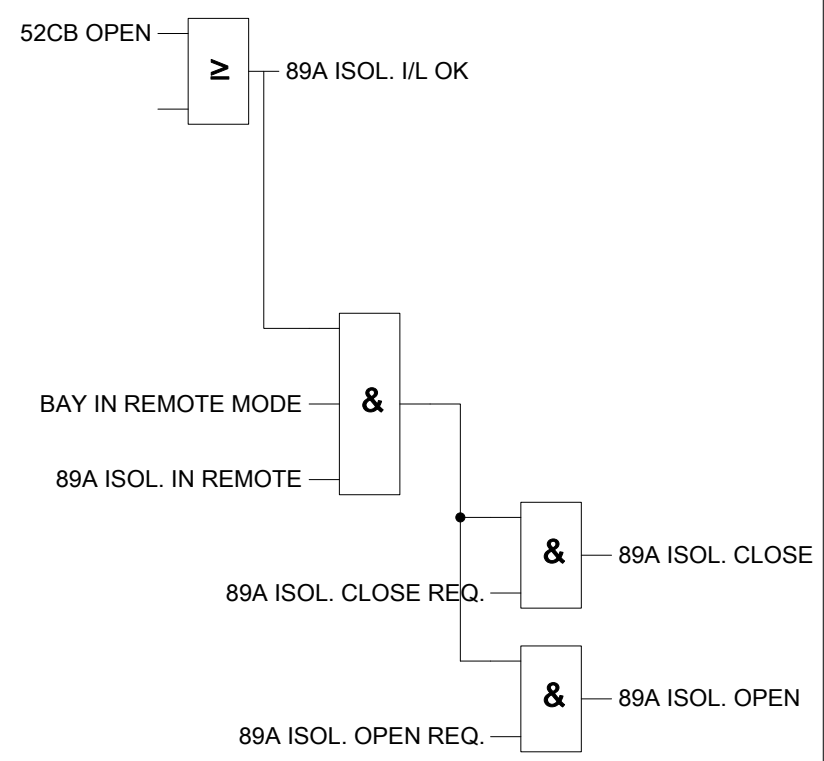
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(IP) INDICATES INITIATION FROM PROTECTION FUNCTION (TP) INDICATES TRIP FROM PROTECTION FUNCTION (RS) INDICATES RESET STATUS FOR CB CLOSING

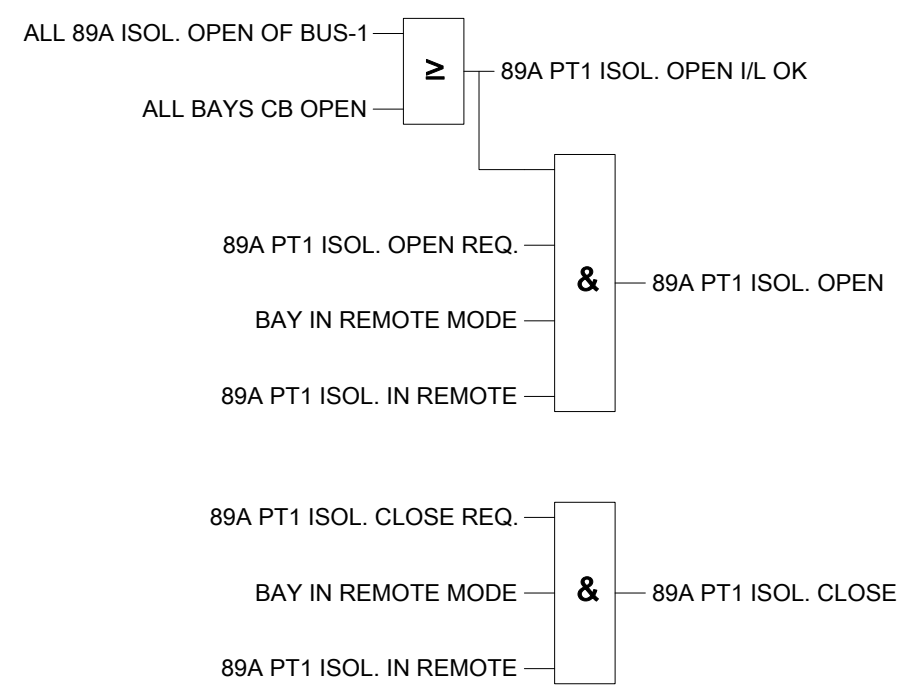
Drawing approval subject to valid vendor registration

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Trip Logics	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAA		Sheet 23
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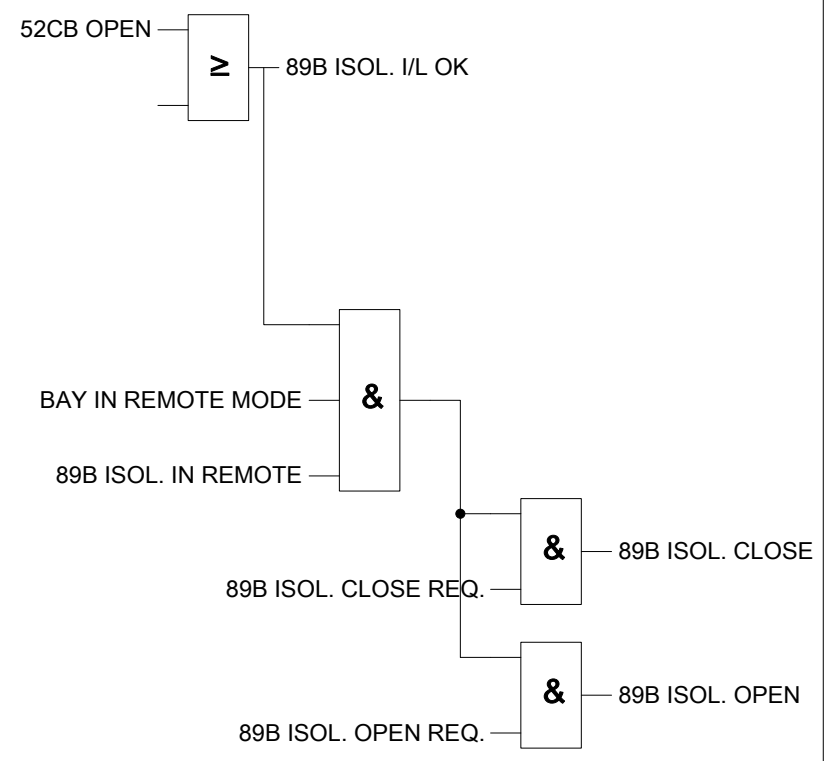
89A ISOL. OPEN/CLOSE INTERLOCK



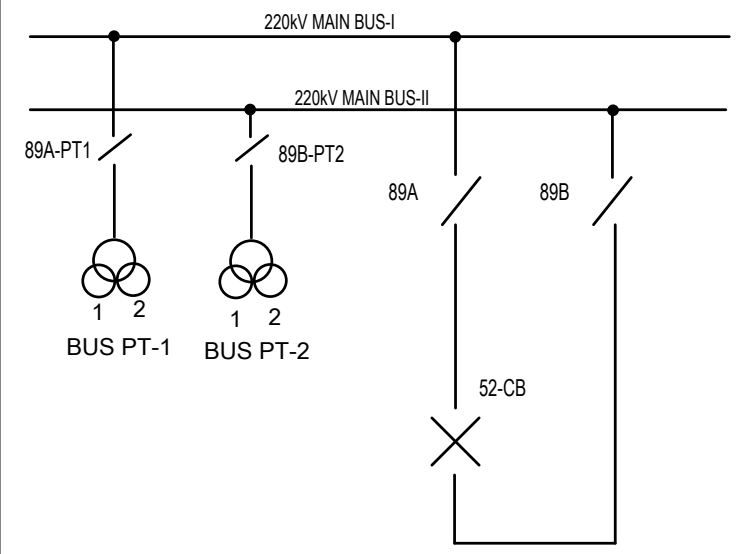
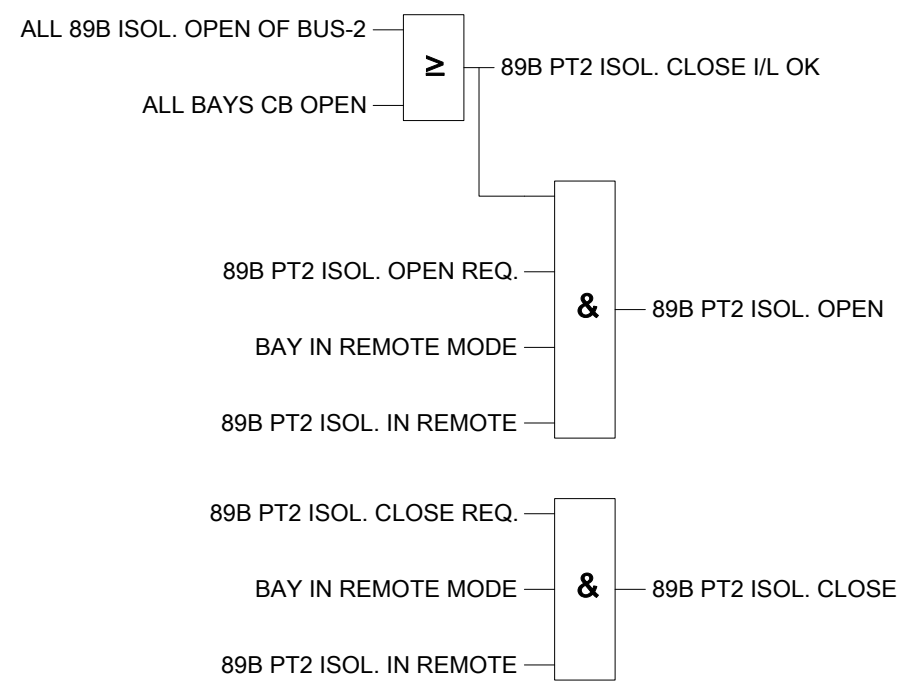
89A PT1 ISOL. OPEN/CLOSE INTERLOCK



89B ISOL. OPEN/CLOSE INTERLOCK



89B PT2 ISOL. OPEN/CLOSE INTERLOCK



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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	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	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAA	Sheet 24
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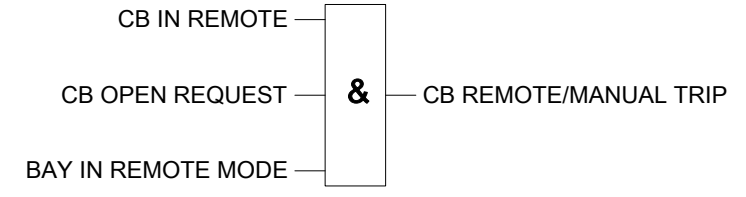
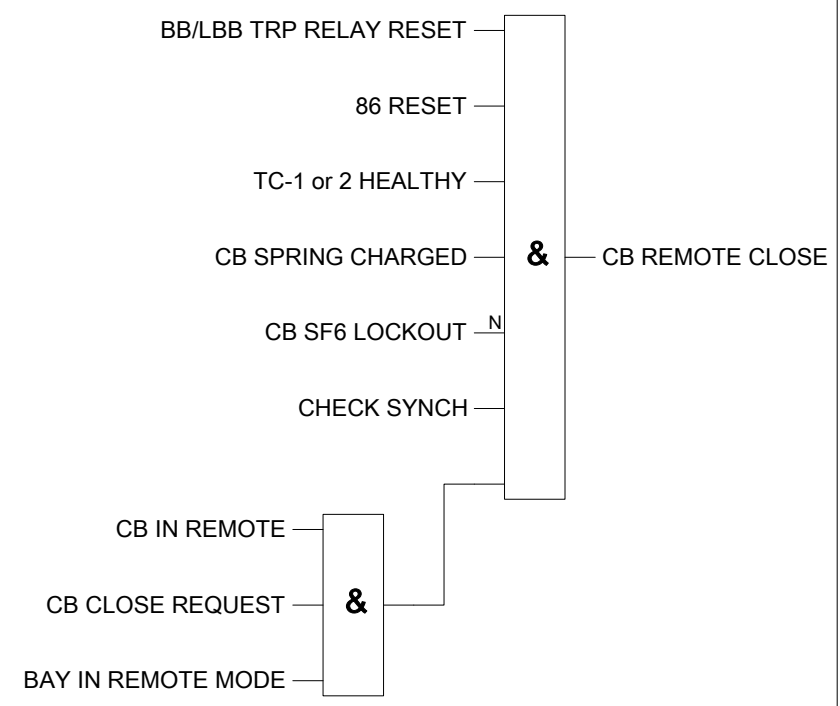
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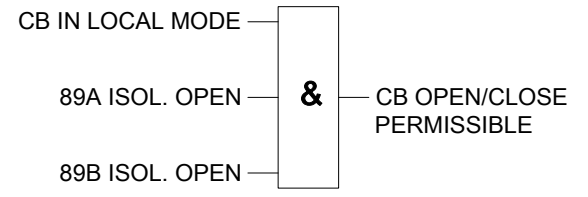
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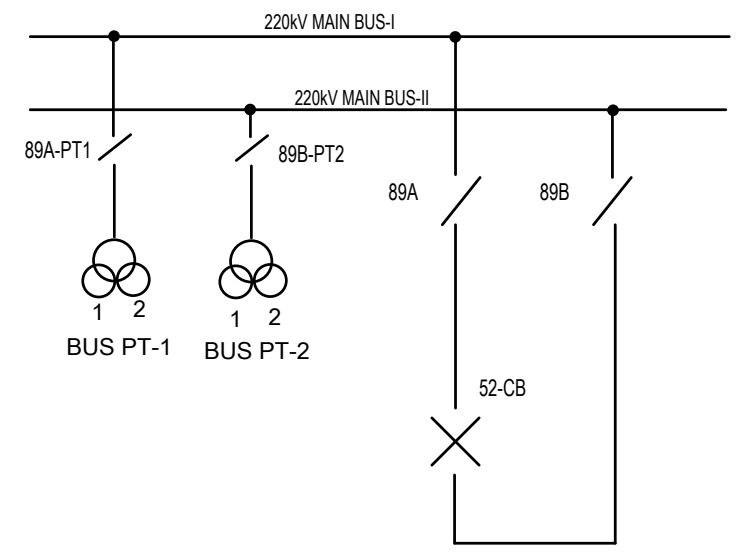
52 CB REMOTE OPERATION



52 CB LOCAL OPERATION



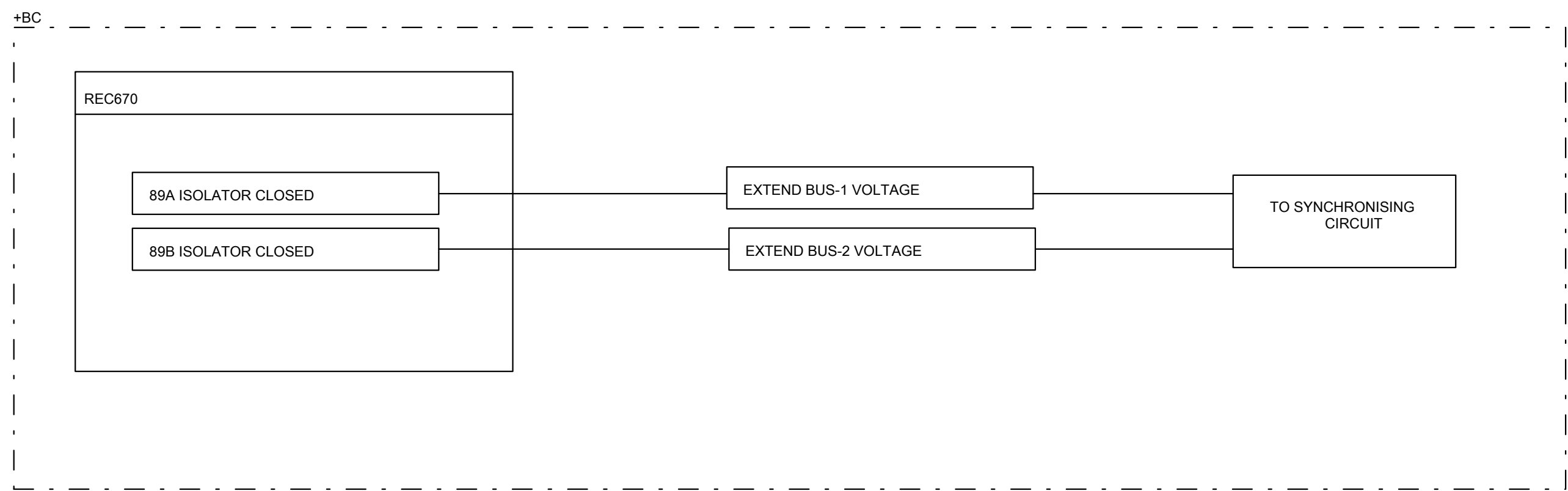
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		Approved	27.12.2023	GOURISH HEGDE				DCC	EFS			
		Project			APTRANSCO	Hitachi Energy India Limited	Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
		STANDARD DRAWING					Doc. no.	1MNS500925-CFAA		Sheet	24.1	n. sheet
Rev.	Revision note	Date	Name									
1MYN691003-102(A3)REV01												



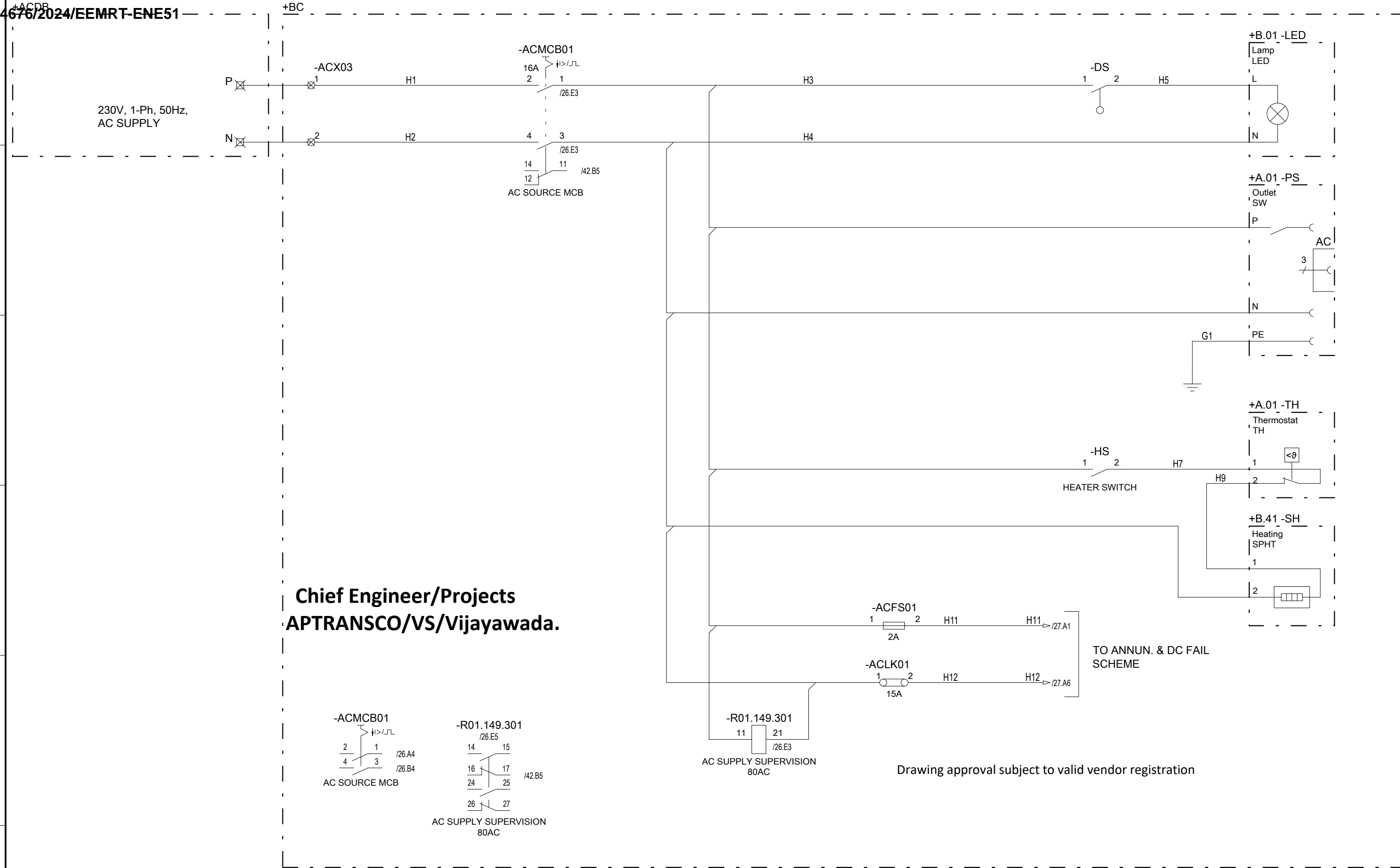
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		Approved	27.12.2023	GOURISH HEGDE			DCC	EFS				
		Project	APTRANSCO STANDARD DRAWING		HITACHI <small>Hitachi Energy India Limited</small>	Resp. dept.	PG-GAS		Rev. ind.	0	Language	en
Rev.	Revision note	Date	Name			Doc. no.	1MNS500925-CFAA				Sheet	25
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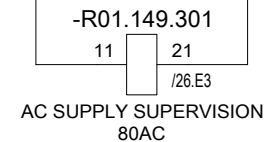
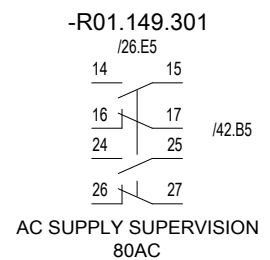
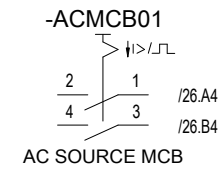
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		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		AC Distribution Circuit	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	Sheet 26
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAA	n. sheet 27
1MYN691003-102(A3)REV01						

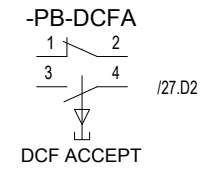
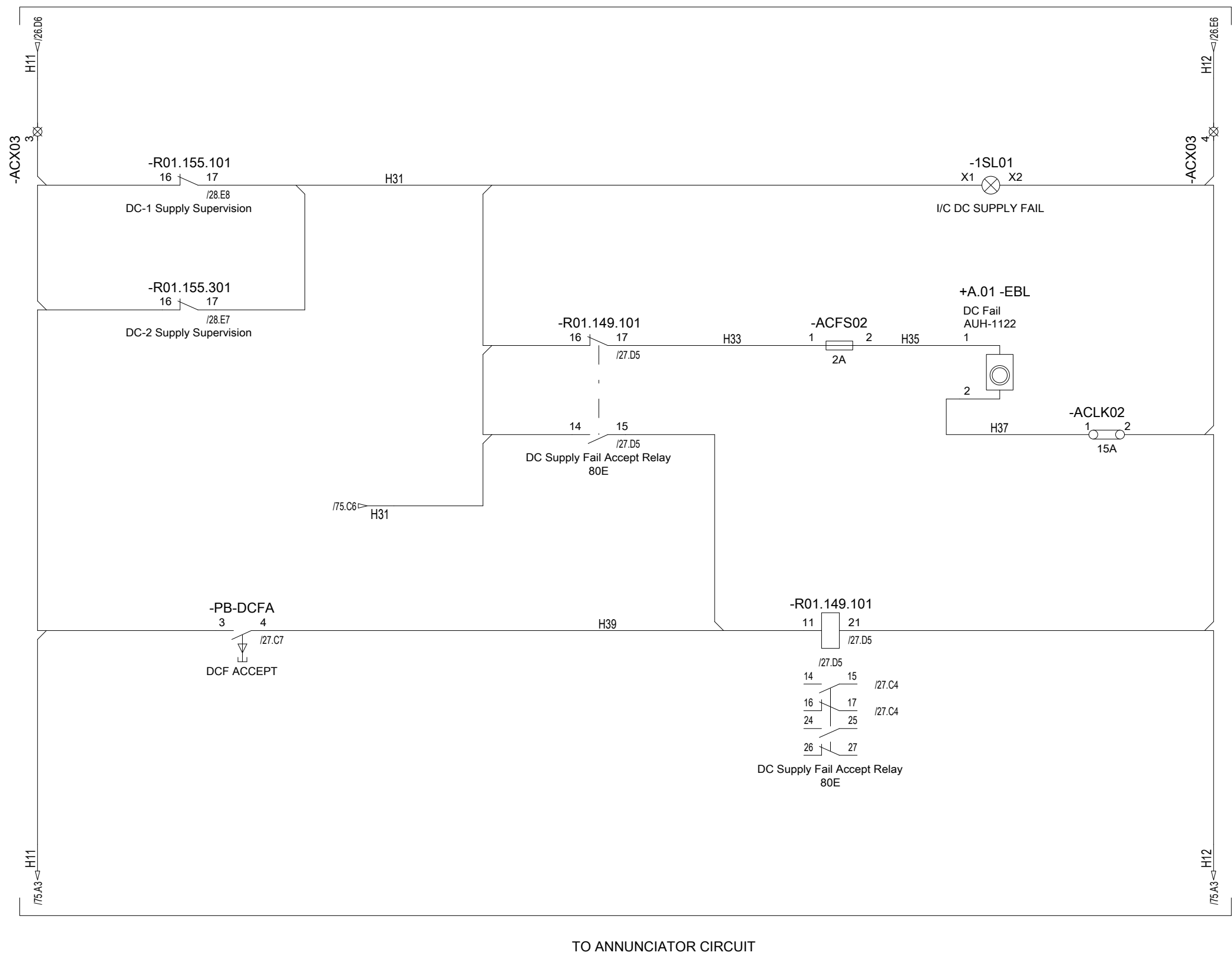
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FROM 230V AC SUPPLY



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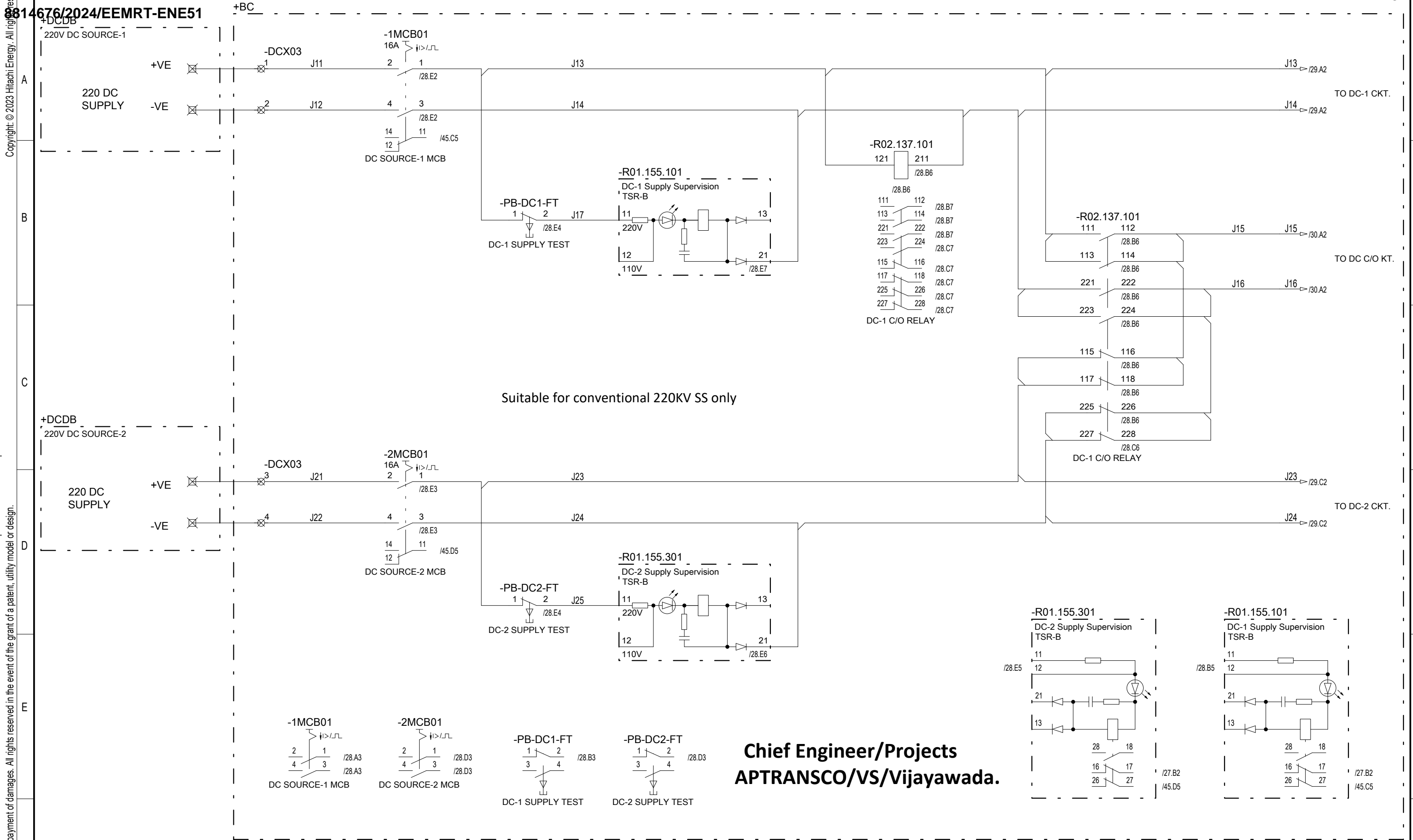
Drawing approval subject to valid vendor registration

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		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		DC Fail Circuit	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
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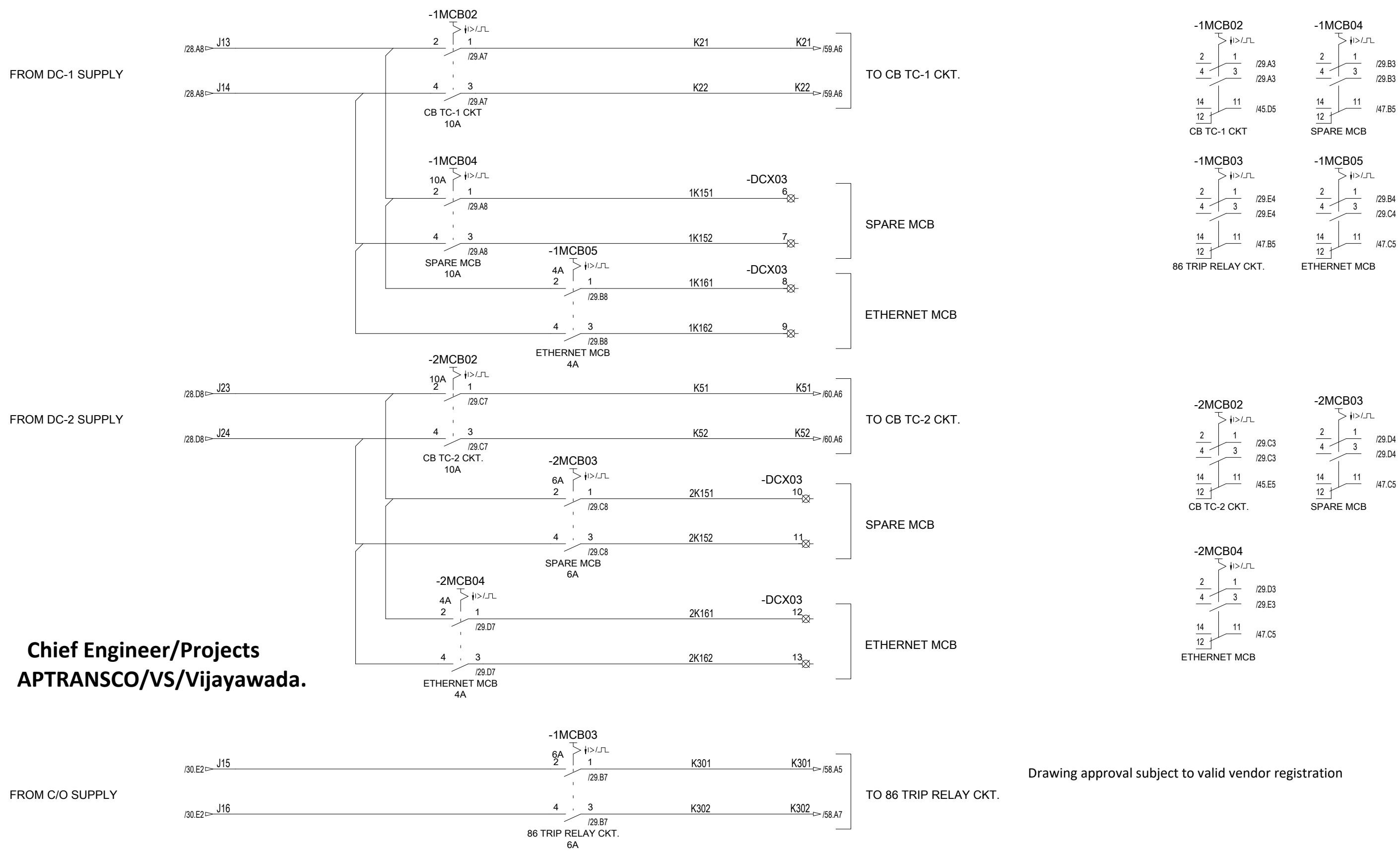
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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		DC Distribution Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 28
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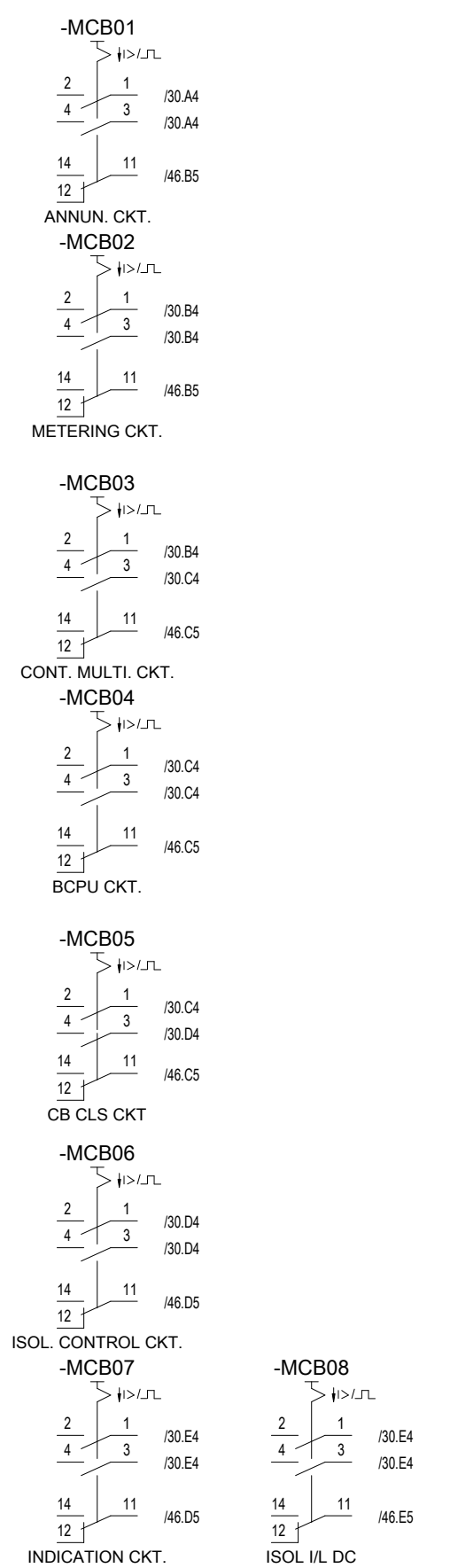
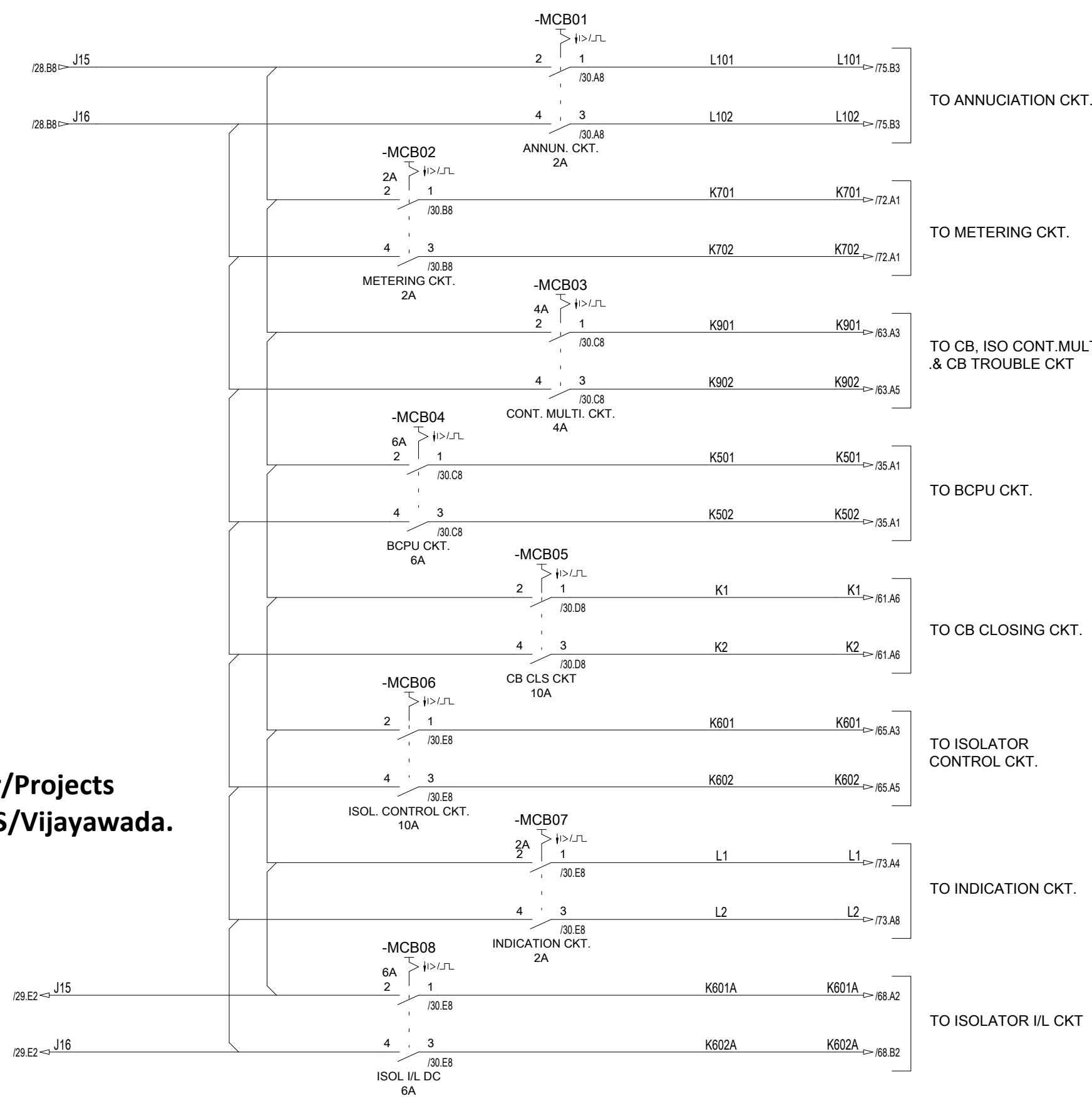
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		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		DC Distribution Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	
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FROM C/O DC SUPPLY



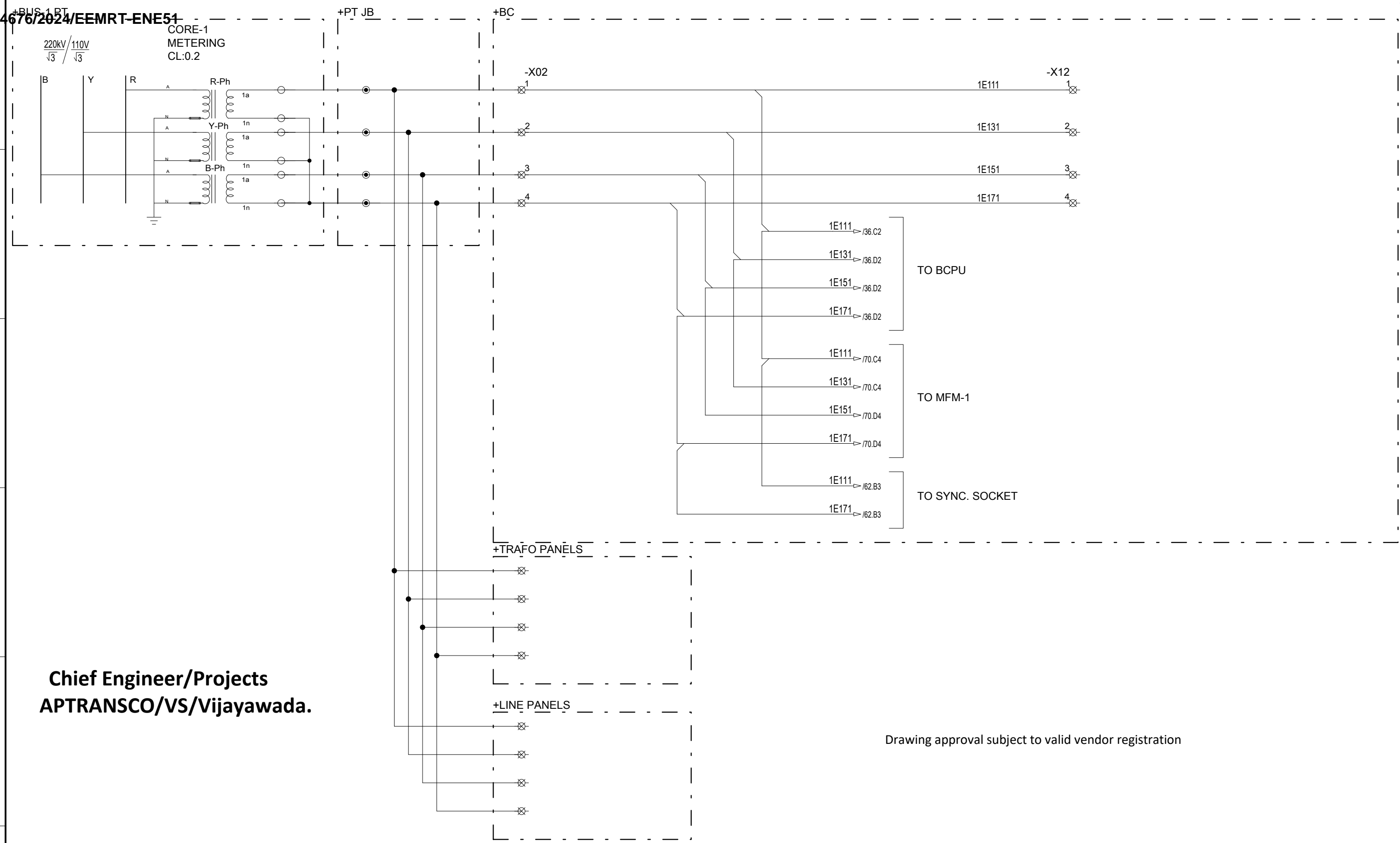
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	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-CFAA	Sheet 30
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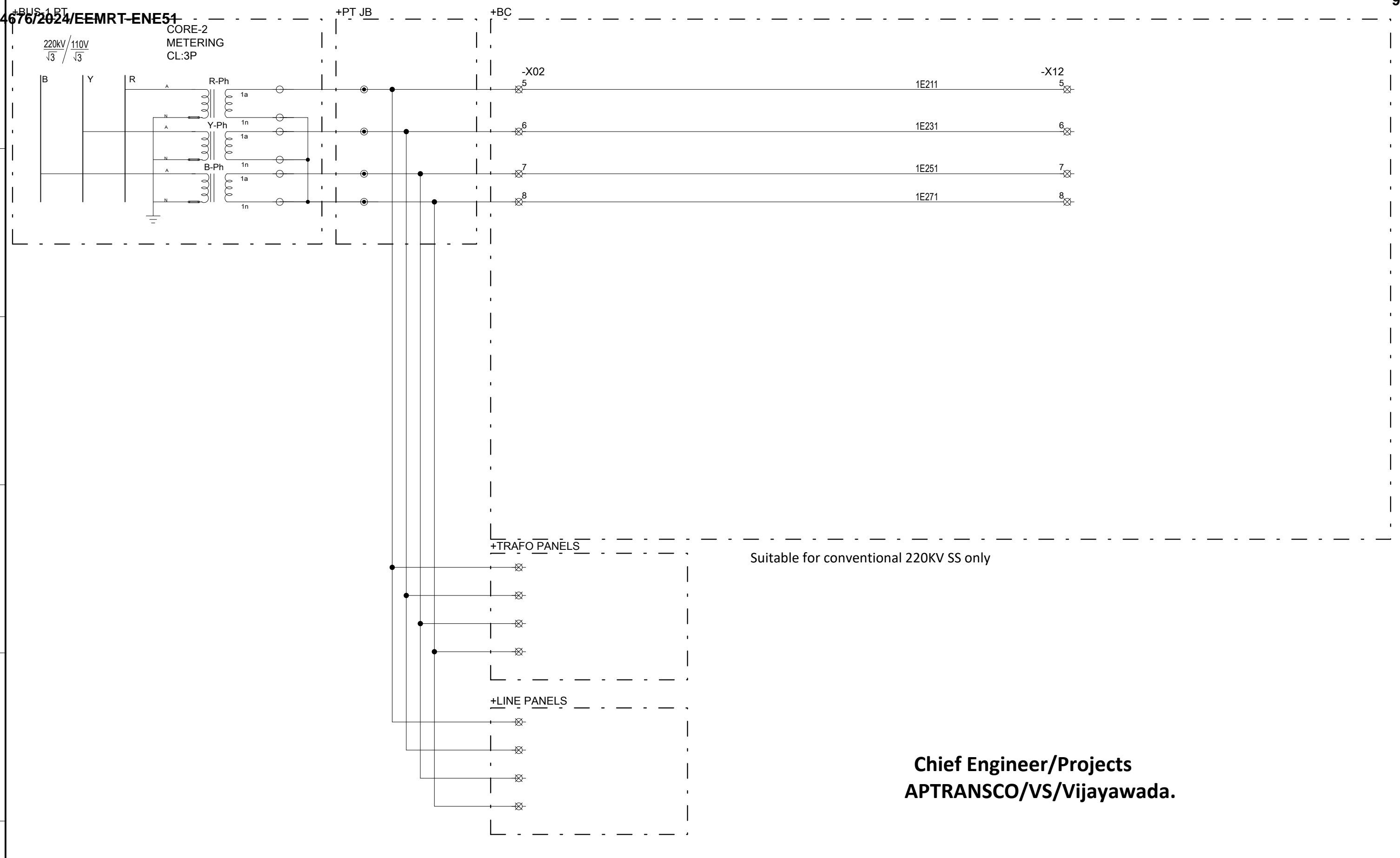
Drawing approval subject to valid vendor registration

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BUS-1 PT Distribution Circuit	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	Sheet 31
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAA	n. sheet 32
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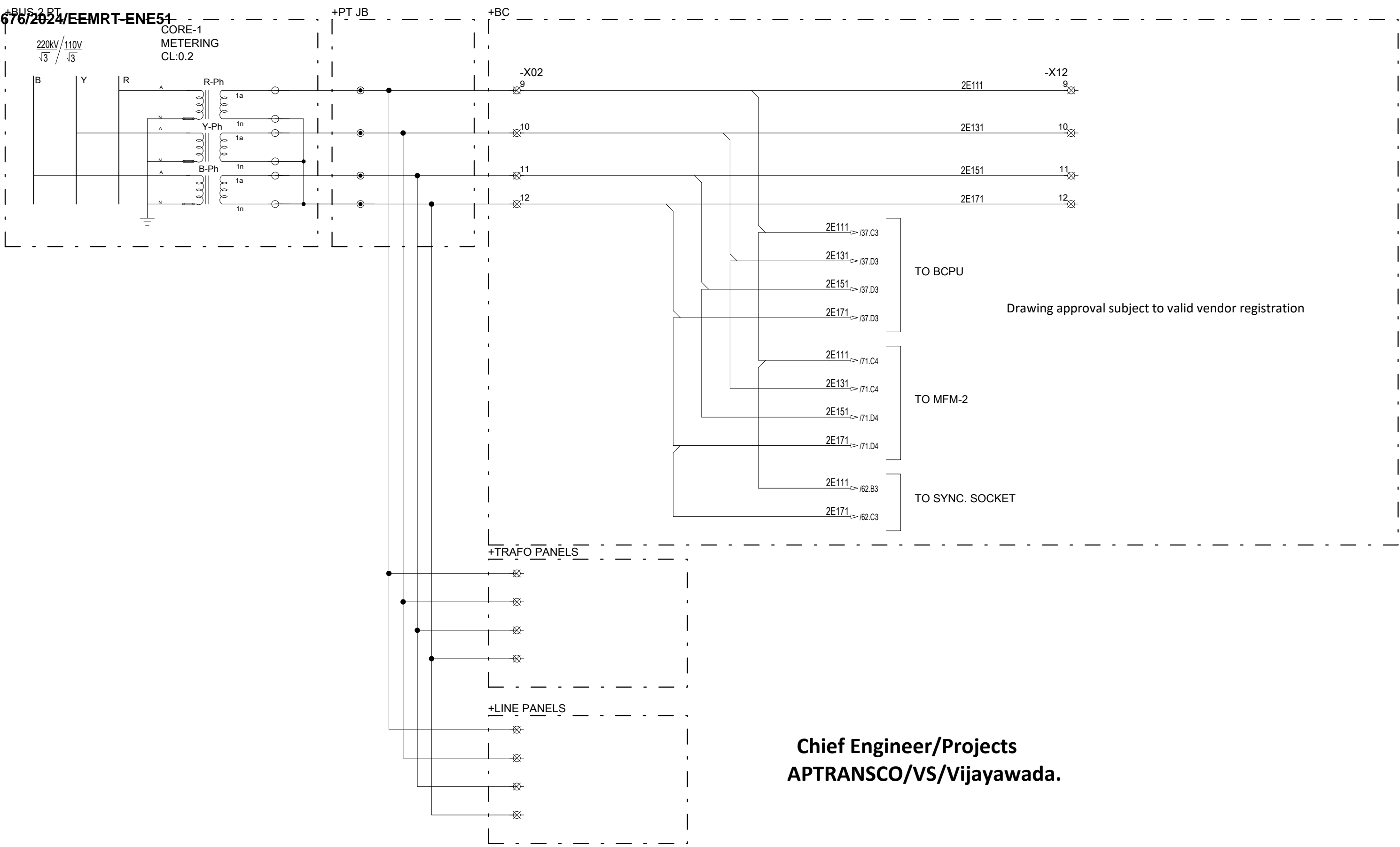
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Based on		Prepared 26.12.2023 VINOD G		Title 220kV BUS COUPLER Control & Relay Panel BUS-1 PT Distribution Circuit		Doc. kind. Circuit diagram		Ref.Des. =2KR	
		Approved 27.12.2023 GOURISH HEGDE				DCC EFS			
		Project APTRANSCO STANDARD DRAWING		HITACHI Hitachi Energy India Limited		Resp. dept. PG-GAS		Rev. ind. 0	
Rev. Revision note		Date Name				Doc. no. 1MNS500925-CFAA		Language en	
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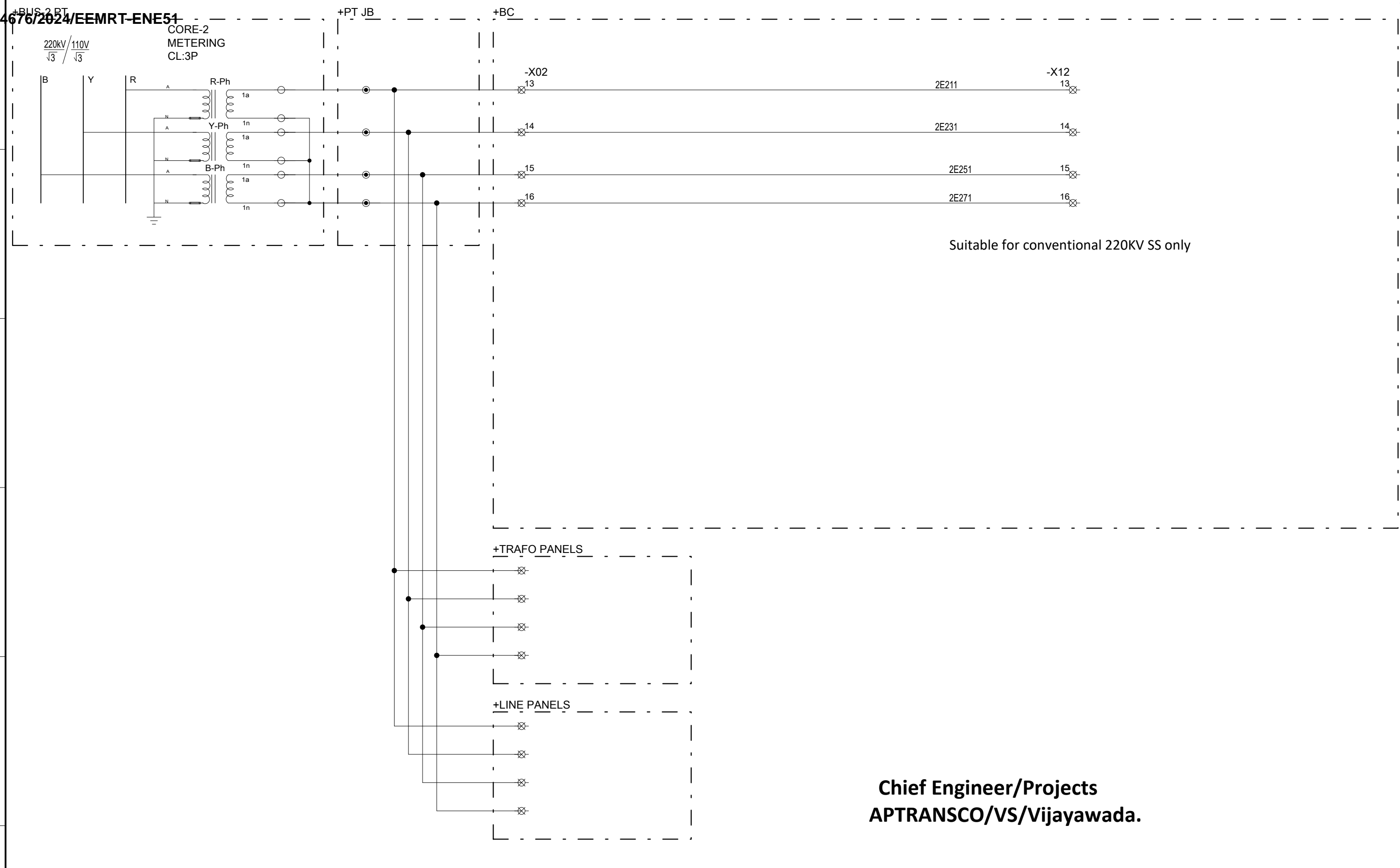
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		Approved	27.12.2023	GOURISH HEGDE				DCC	EFS		
		Project	APTRANSCO STANDARD DRAWING		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en	
Rev.	Revision note	Date	Name	HITACHI							Hitachi Energy India Limited
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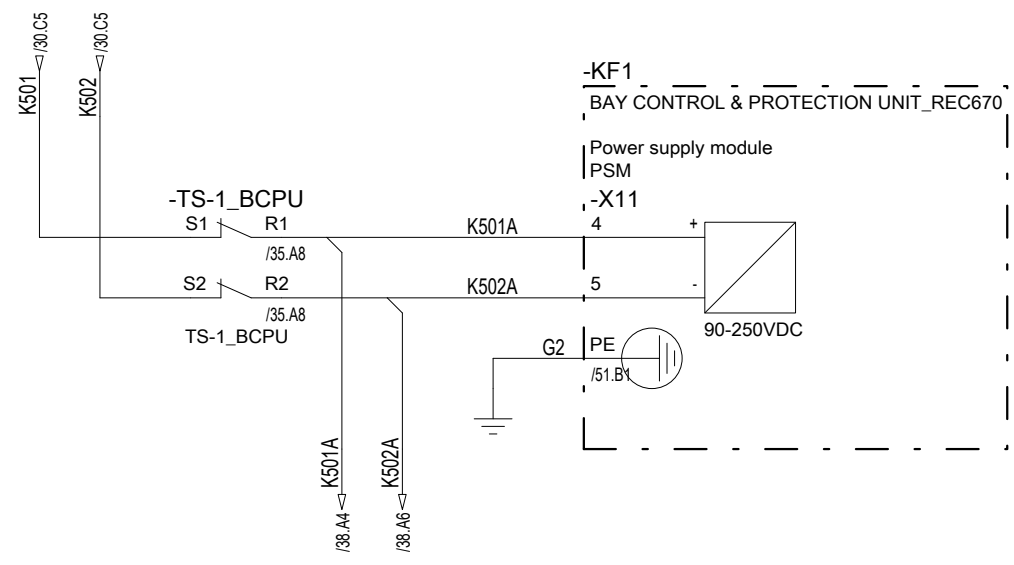
**Chief Engineer/Projects
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Based on		Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER Control & Relay Panel BUS-2 PT Distribution Circuit	Doc. kind.	Circuit diagram		Ref.Des.	=2KR
		Approved	27.12.2023	GOURISH HEGDE				DCC	EFS		
		Project	APTRANSCO STANDARD DRAWING		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en	
Rev.	Revision note	Date	Name	HITACHI							Hitachi Energy India Limited
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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

86A / B OPTD

96 OPTD

CB TC-1 / 2 FAULTY

+B.25 -KF1
Indication HMI LED

YELLOW INDICATION (GR-2)

89A OPEN

89A CLOSE

89B OPEN

89B CLOSE

89A-PT1 OPEN

89A-PT1 CLOSE

89B-PT2 OPEN

89B-PT2 CLOSE

89A1 / 89B1 OPEN

89A1 / 89B1 CLOSE

89A IN REMOTE

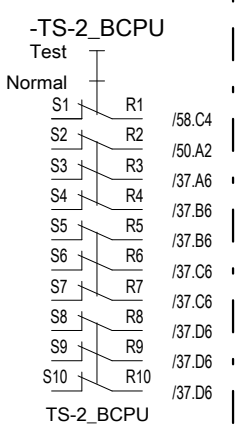
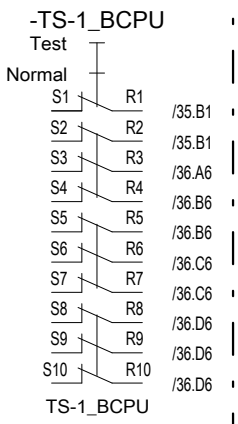
89B IN REMOTE

CB IN LOCAL

CB IN REMOTE

+B.25 -KF1
Indication HMI LED

GREEN INDICATION (GR-3)



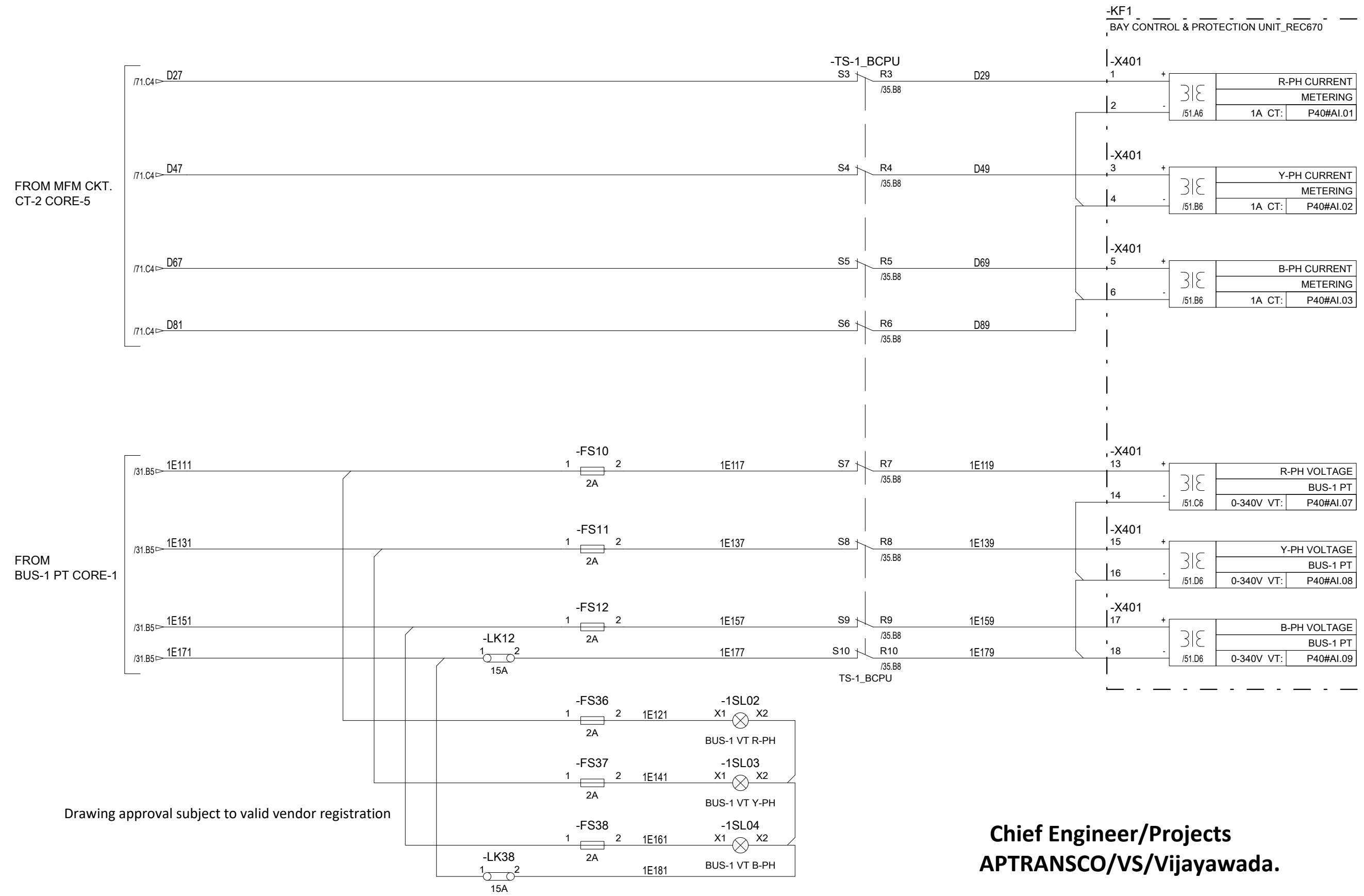
List of Functional Key Indication

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

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BCPU-Power supply 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-CFAA	Sheet 35
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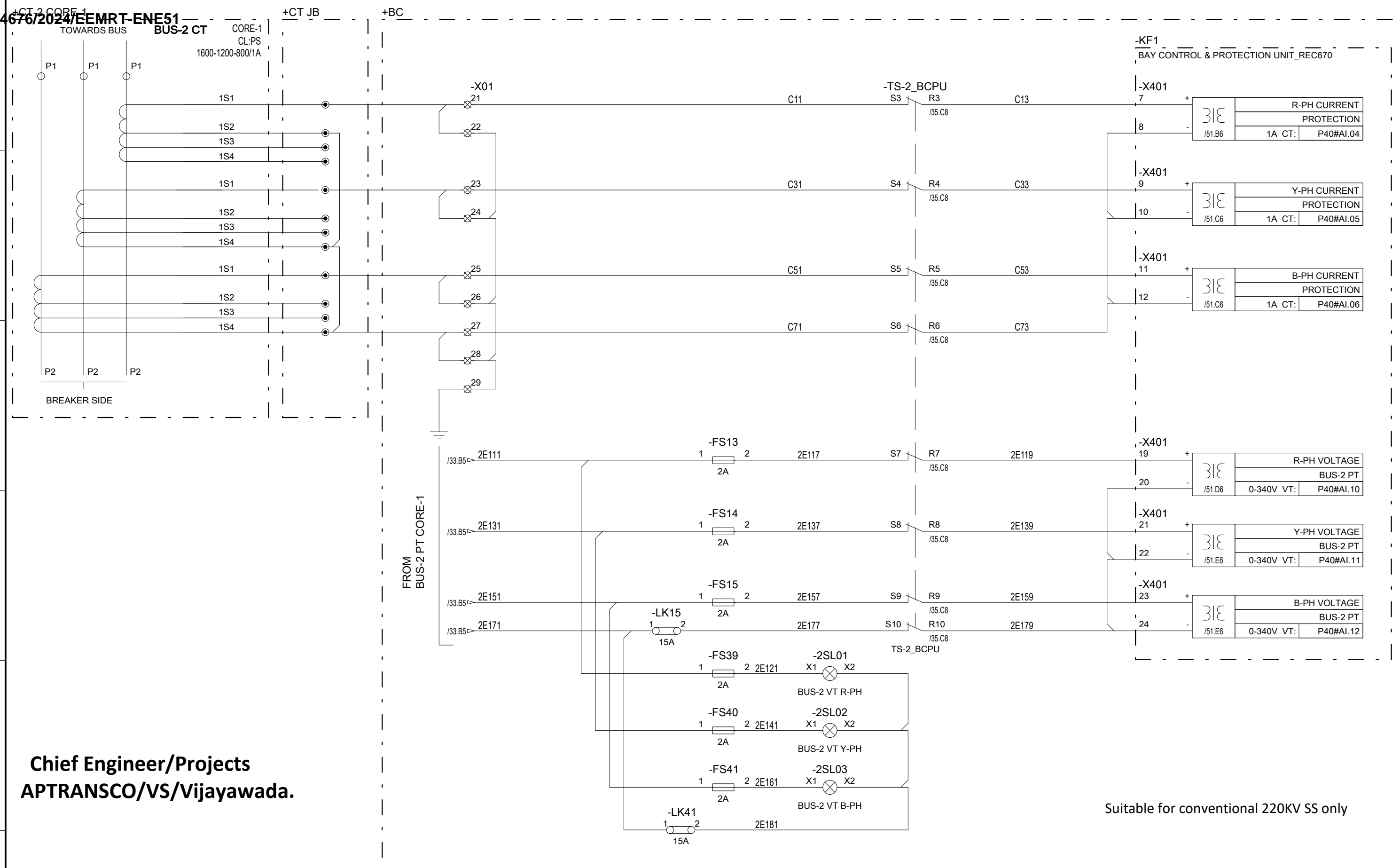
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BCPU-CT & PT Input Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 36
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Suitable for conventional 220KV SS only

Based on		Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER	Doc. kind.	Circuit diagram	Ref.Des.	=2KR	
		Approved	27.12.2023	GOURISH HEGDE	Control & Relay Panel		DCC EFS				
		Project	APTRANSCO		BCPU-CT & PT Input Circuit		Resp. dept.	PG-GAS	Rev. ind.	0	
				STANDARD DRAWING		Hitachi Energy India Limited		Language	en		
Rev.	Revision note	Date	Name		HITACHI	Hitachi Energy India Limited	Doc. no.		1MNS500925-CFAA		
				Sheet			37		n. sheet	38	
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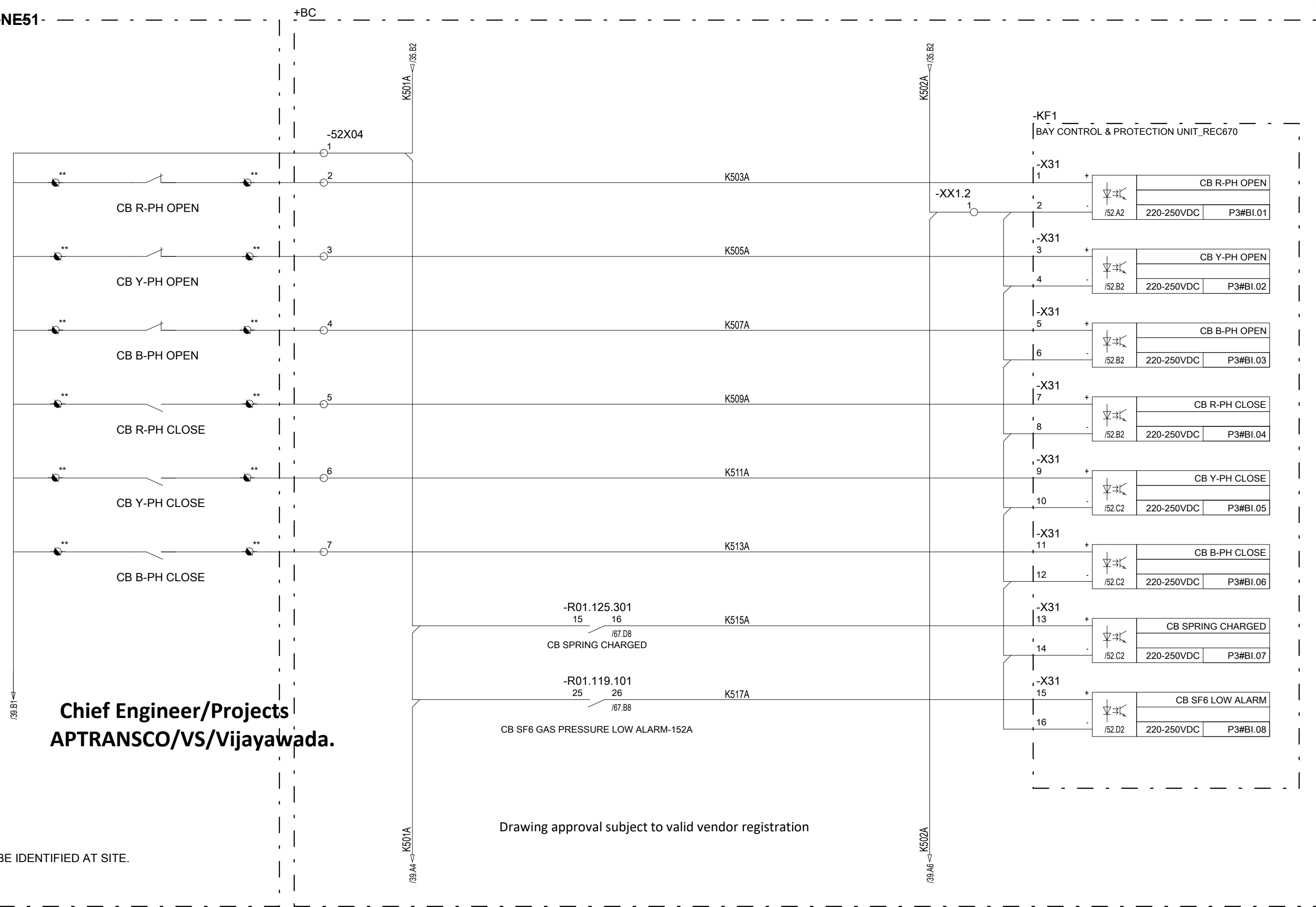
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**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Drawing approval subject to valid vendor registration

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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BCPU-Binary Input Ckt.	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	
1MYN691003-102(A3)REV01					Sheet 38	n. sheet 39

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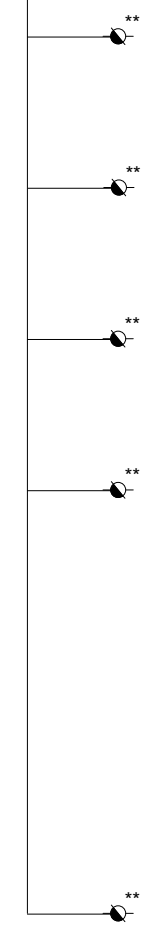
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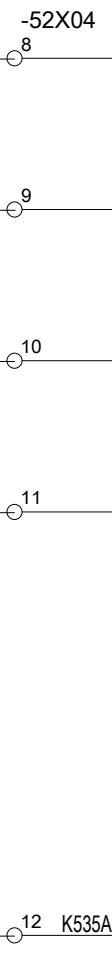
F

138.D1



CB DC-1 FAIL
 CB DC-2 FAIL
 CB TROUBLE
 CB IN LOCAL
 CB TROUBLE

+BC



K501A /38.E4
 K501A /40.A4

-R01.119.301
 15 16 /67.C7
 CB SF6 GAS PRESSURE LOCK OUT-152B

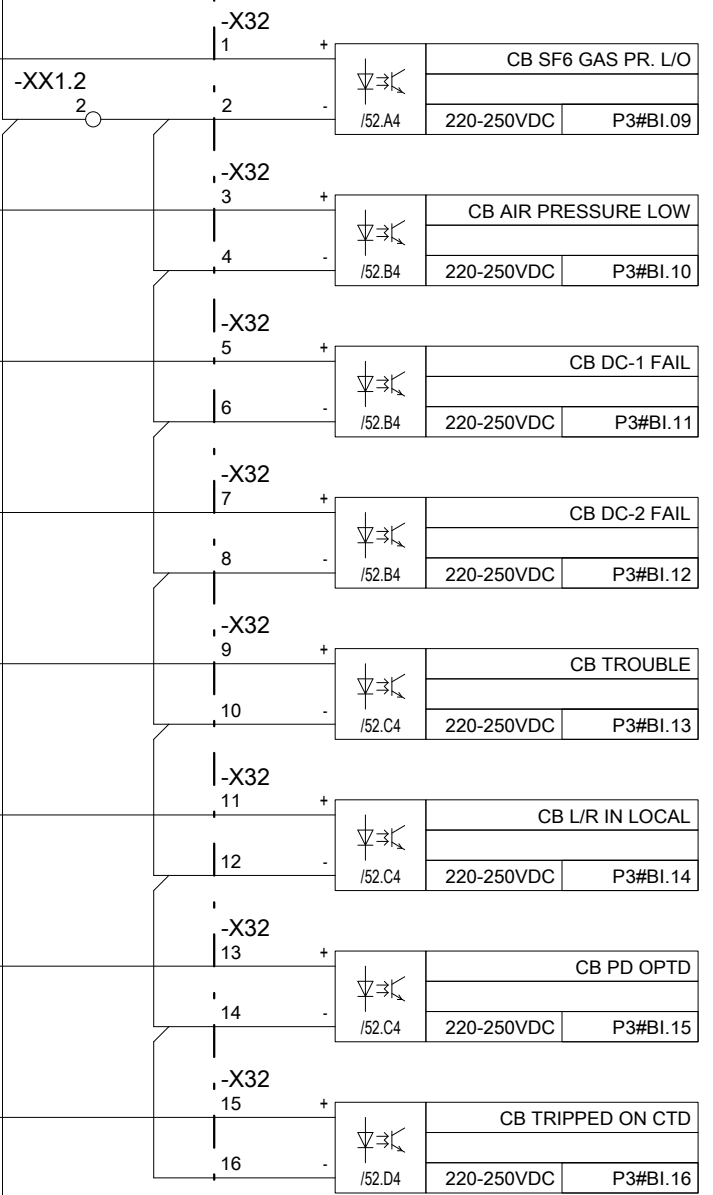
-R01.125.101
 15 16 /67.C7
 CB AIR PRESSURE LOW-152C

-R01.119.101
 15 16 /67.B7
 CB POLE DISCREPANCY -152E

-R01.119.301
 27 28 /67.C8
 CB TRIPPED ON CTD-152D

K502A /38.E6
 K502A /40.A6

-KF1
 BAY CONTROL & PROTECTION UNIT_REC670



1 CB SF6 GAS PR. L/O
 220-250VDC P3#BI.09
 3 CB AIR PRESSURE LOW
 220-250VDC P3#BI.10
 4
 5 CB DC-1 FAIL
 220-250VDC P3#BI.11
 6
 7 CB DC-2 FAIL
 220-250VDC P3#BI.12
 8
 9 CB TROUBLE
 220-250VDC P3#BI.13
 10
 11 CB L/R IN LOCAL
 220-250VDC P3#BI.14
 12
 13 CB PD OPTD
 220-250VDC P3#BI.15
 14
 15 CB TRIPPED ON CTD
 220-250VDC P3#BI.16
 16

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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BCPU-Binary Input Ckt.	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 39
1MYN691003-102(A3)REV01						n. sheet 40

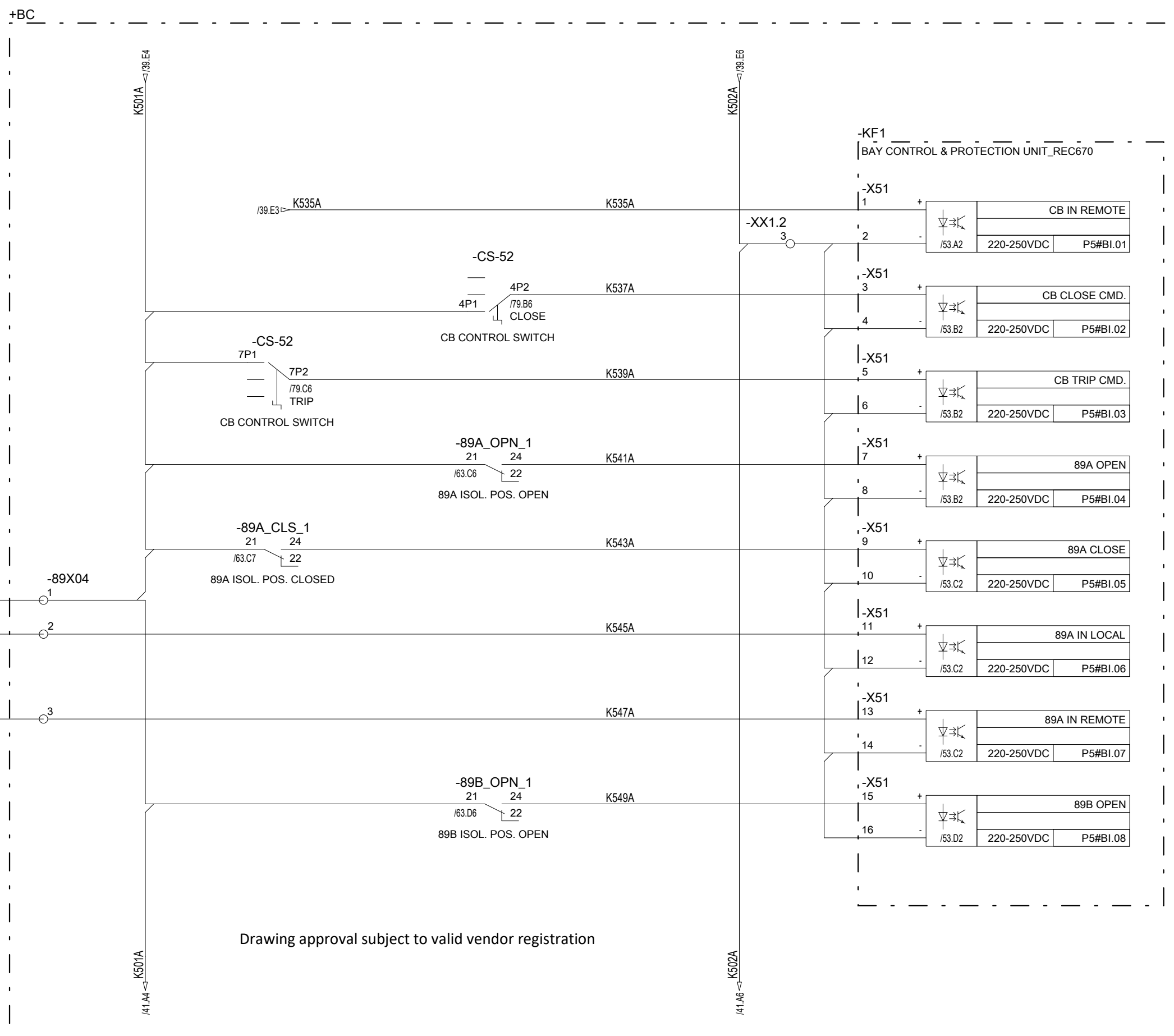
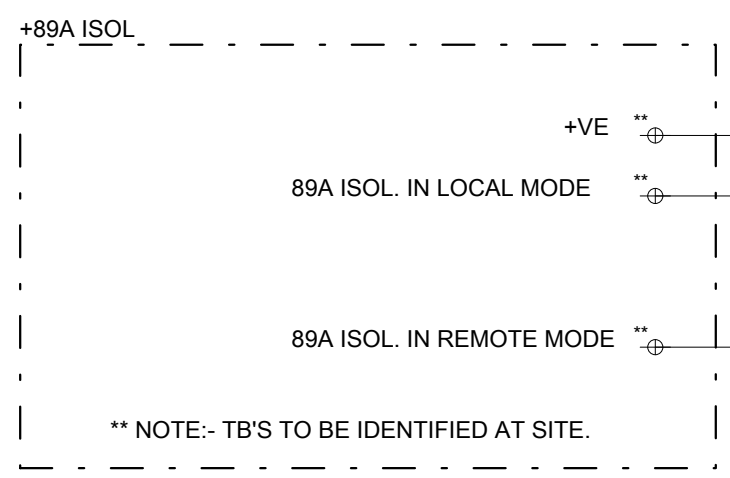
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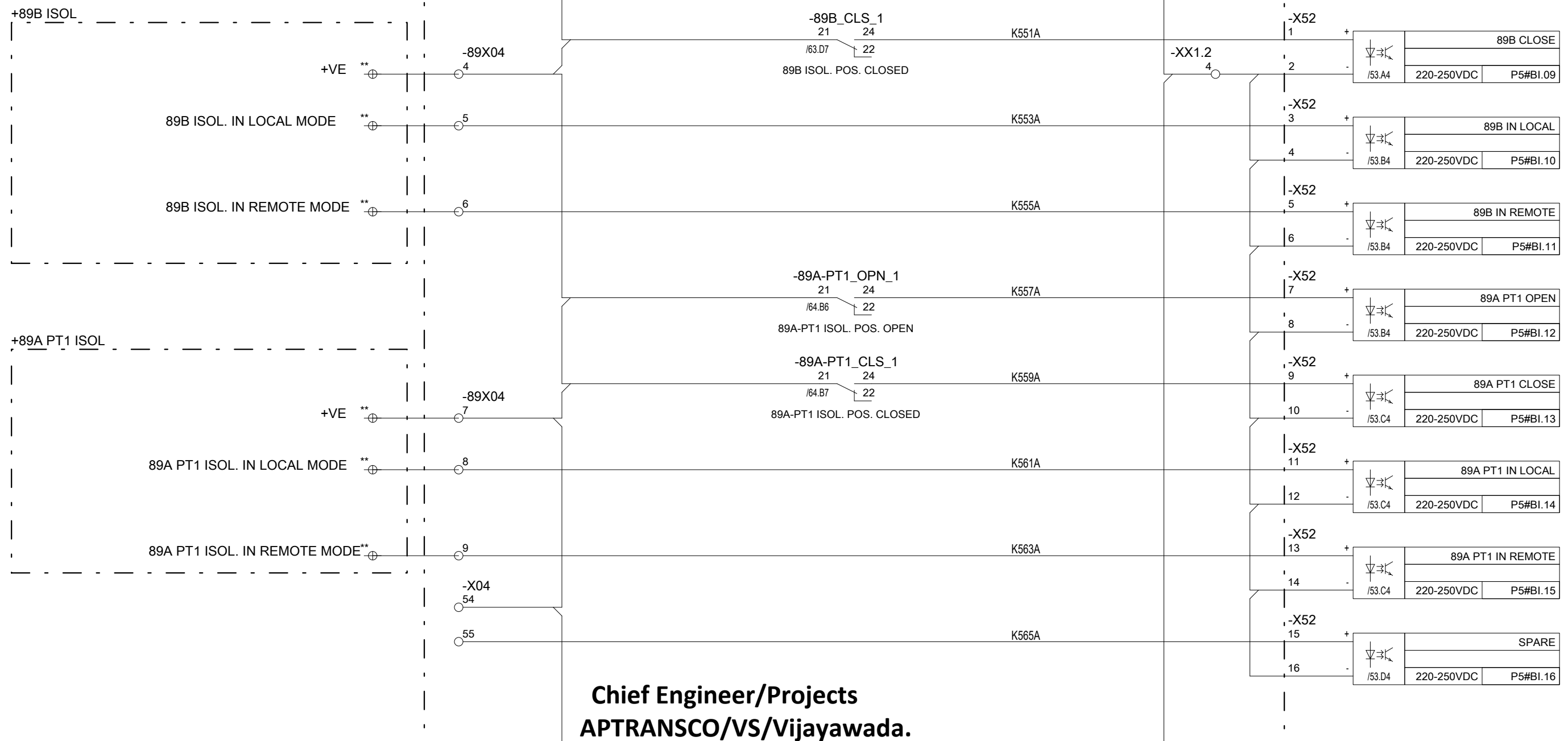
Drawing approval subject to valid vendor registration

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	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-CFAA	
1MYN691003-102(A3)REV01					Sheet 40	n. sheet 41

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Suitable for conventional 220KV SS only

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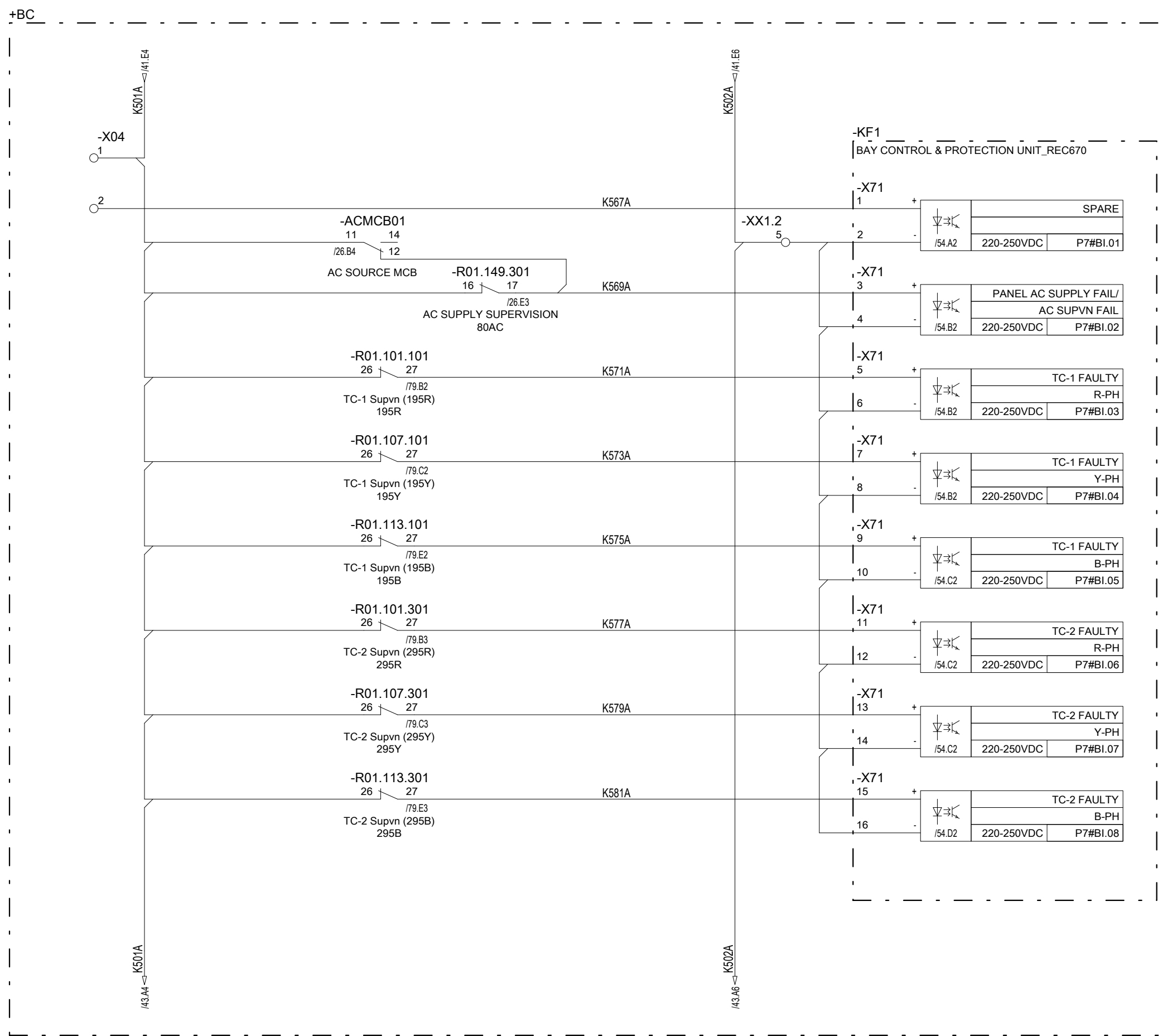
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		Approved	27.12.2023	GOURISH HEGDE	Control & Relay Panel		DCC EFS			
		Project	APTRANSCO		BCPU-Binary Input Ckt.		Resp. dept.	PG-GAS	Rev. ind.	0
				STANDARD DRAWING		Hitachi Energy India Limited		Language	en	
Rev.	Revision note	Date	Name		HITACHI	Doc. no.	1MNS500925-CFAA		Sheet	41
1MYN691003-102(A3)REV01				n. sheet					42	

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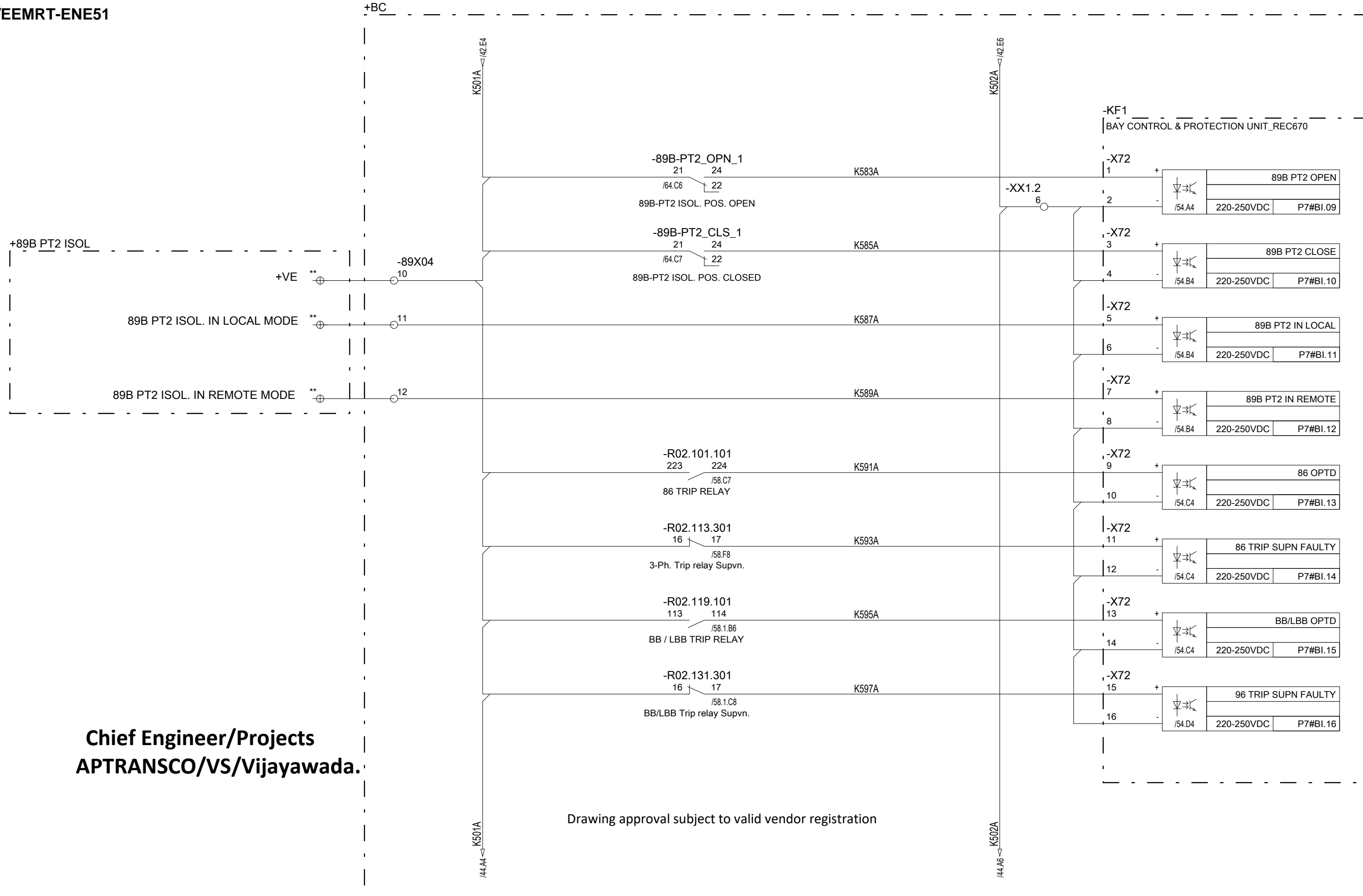
Chief Engineer/Projects
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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
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		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 42
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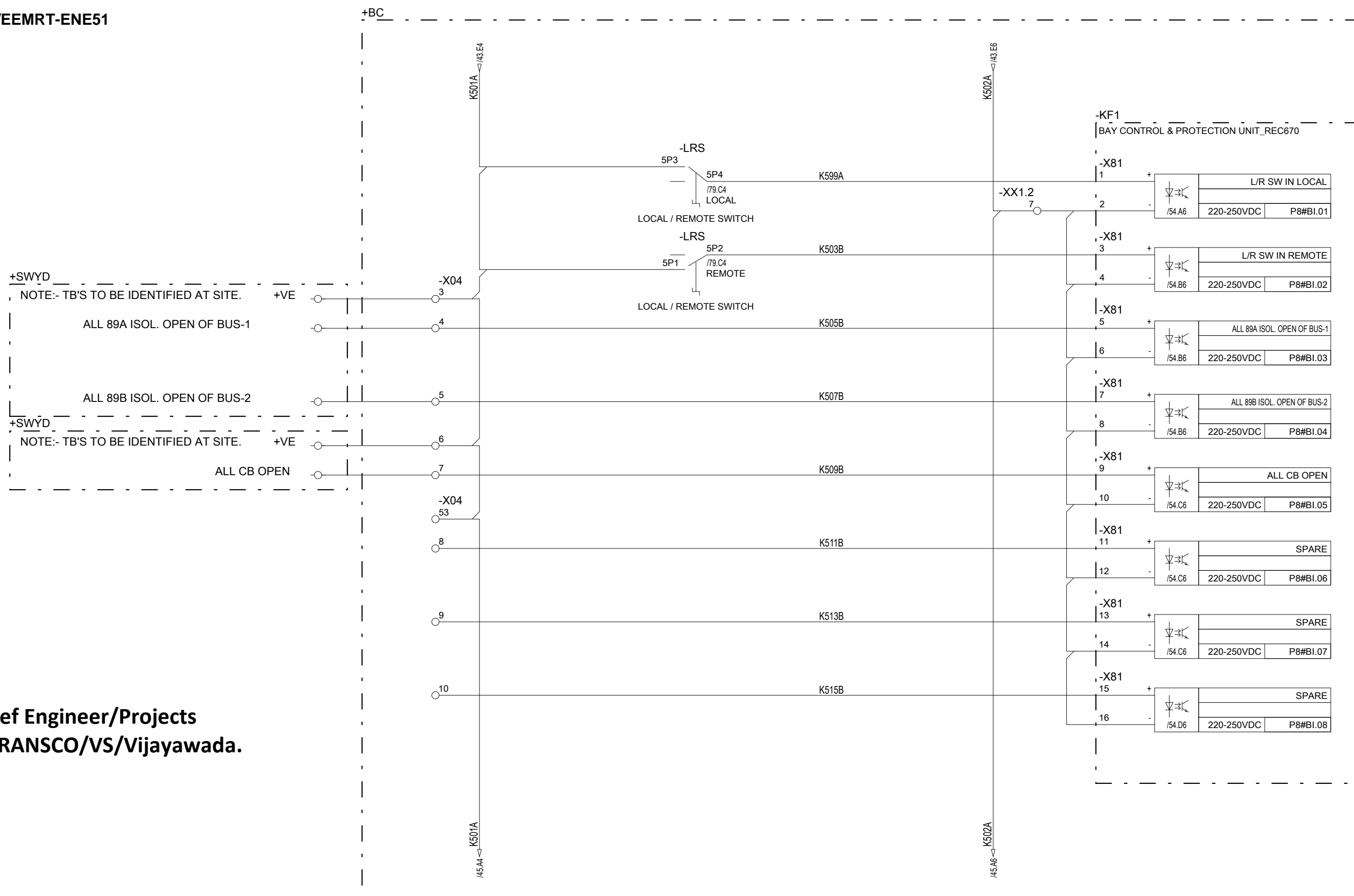
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		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	
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						n. sheet 44

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960



+SWYD
NOTE:- TB'S TO BE IDENTIFIED AT SITE. +VE

ALL 89A ISOL. OPEN OF BUS-1

ALL 89B ISOL. OPEN OF BUS-2

+SWYD
NOTE:- TB'S TO BE IDENTIFIED AT SITE. +VE

ALL CB OPEN

**Chief Engineer/Projects
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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
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		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	Doc. no. 1MNS500925-CFAA	Sheet 44	n. sheet 45
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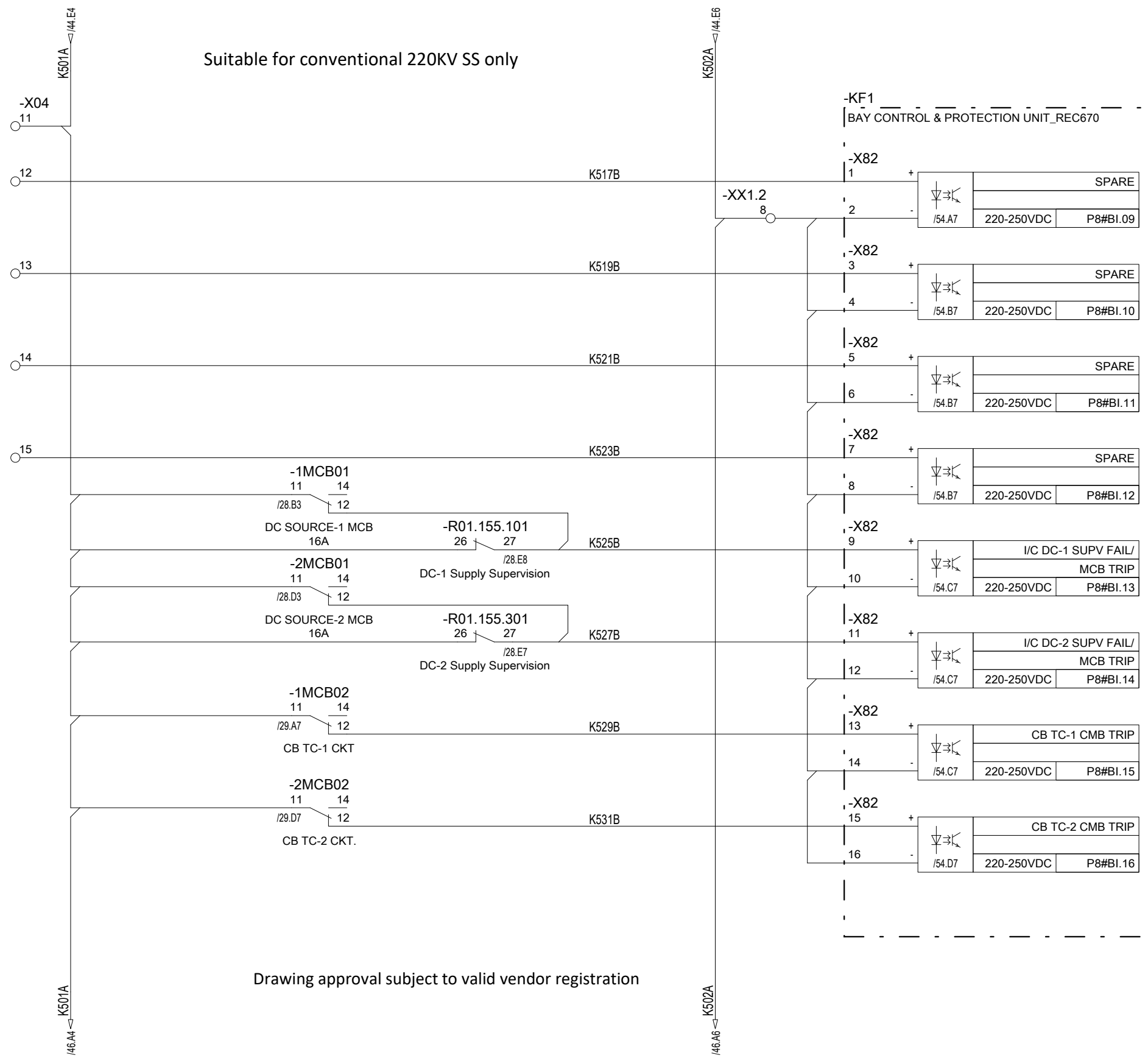
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+BC

Suitable for conventional 220KV SS only



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APTRANSCO/VS/Vijayawada.**

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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		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-CFAA	Sheet 45
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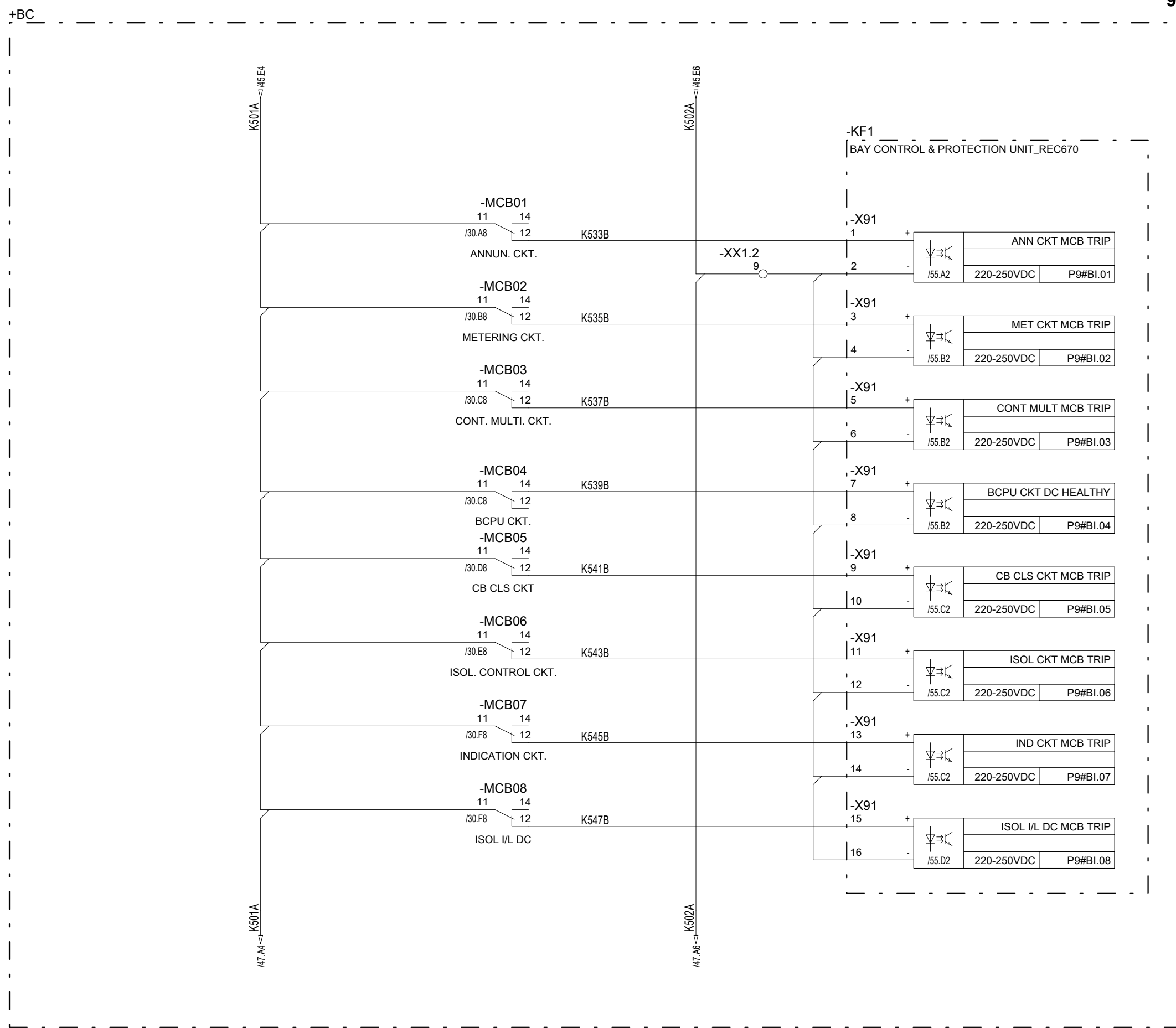
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Drawing approval subject to valid vendor registration



Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		BCPU-Binary Input Ckt.	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
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1 2 3 4 5 6 7 8

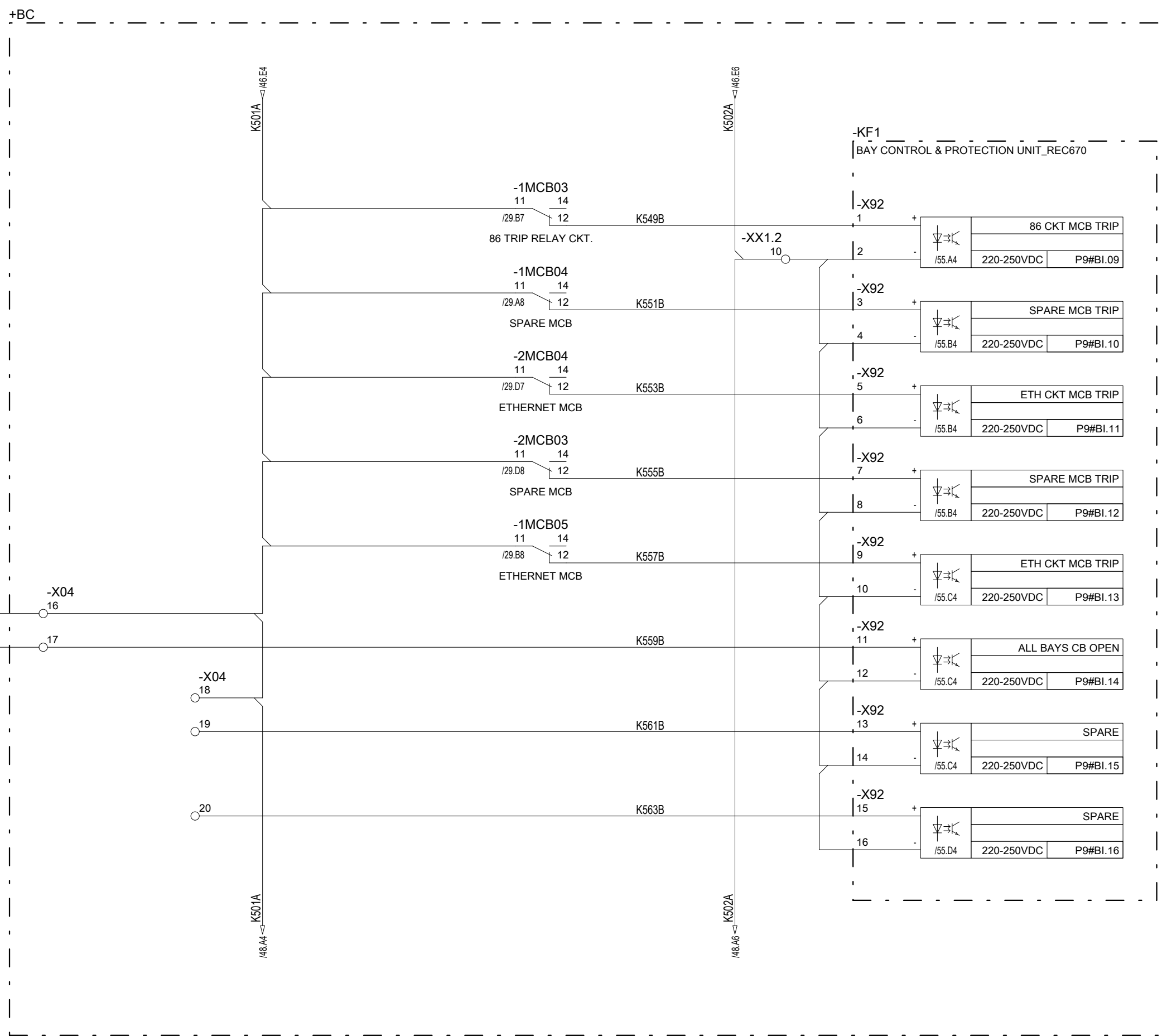
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APTRANSCO/VS/Vijayawada.**

Suitable for conventional 220KV SS only

ALL BAYS CB OPEN

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



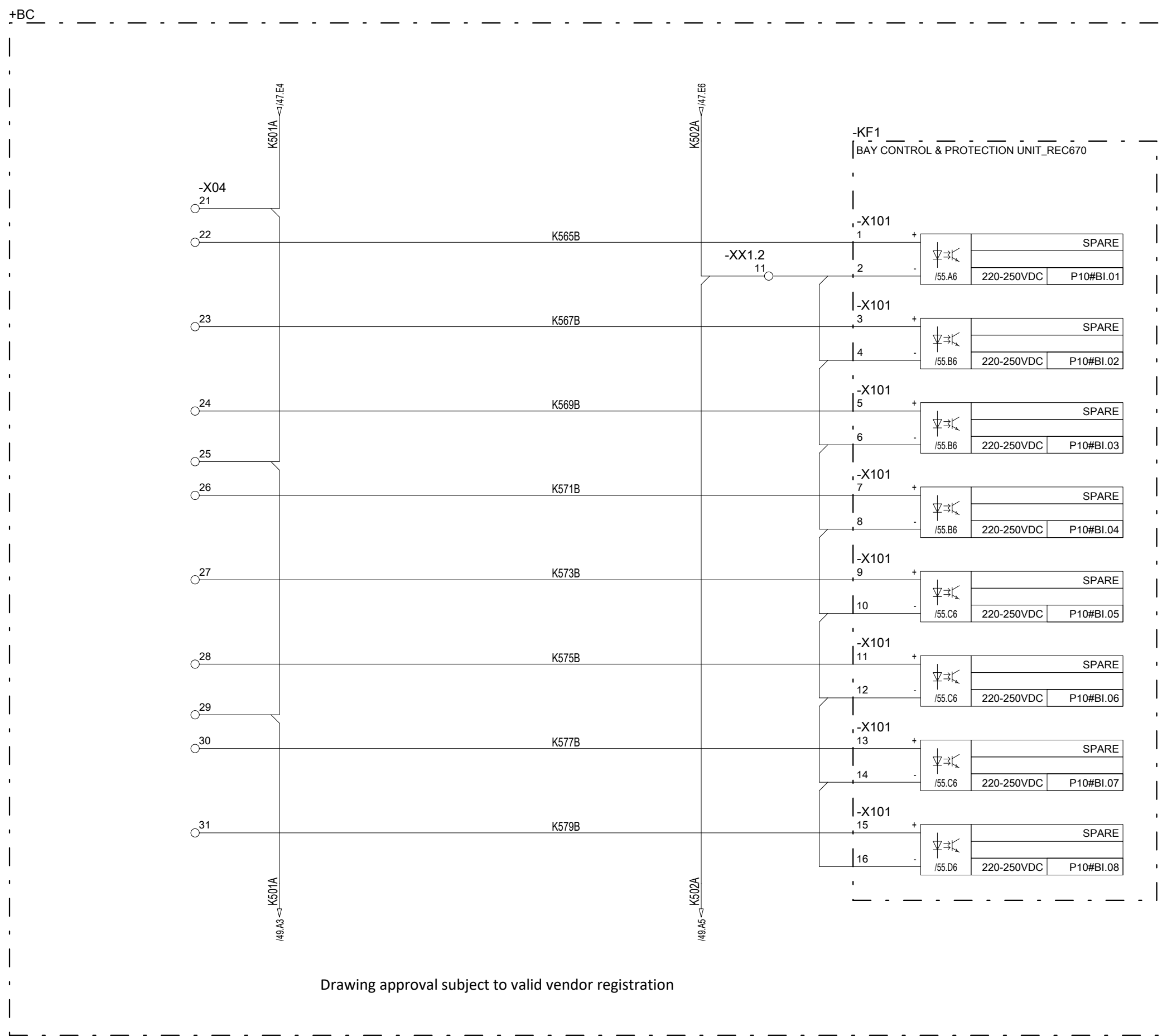
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		Project APTRANSCO		BCPU-Binary Input Ckt.	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
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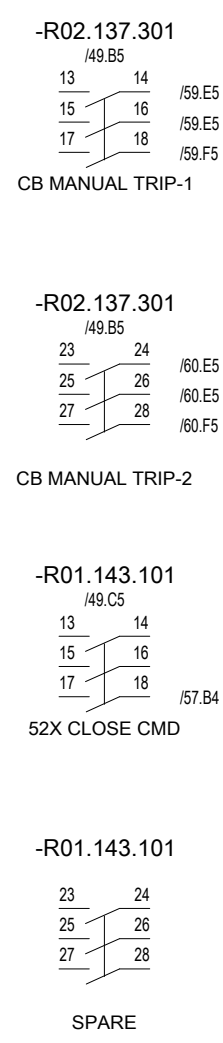
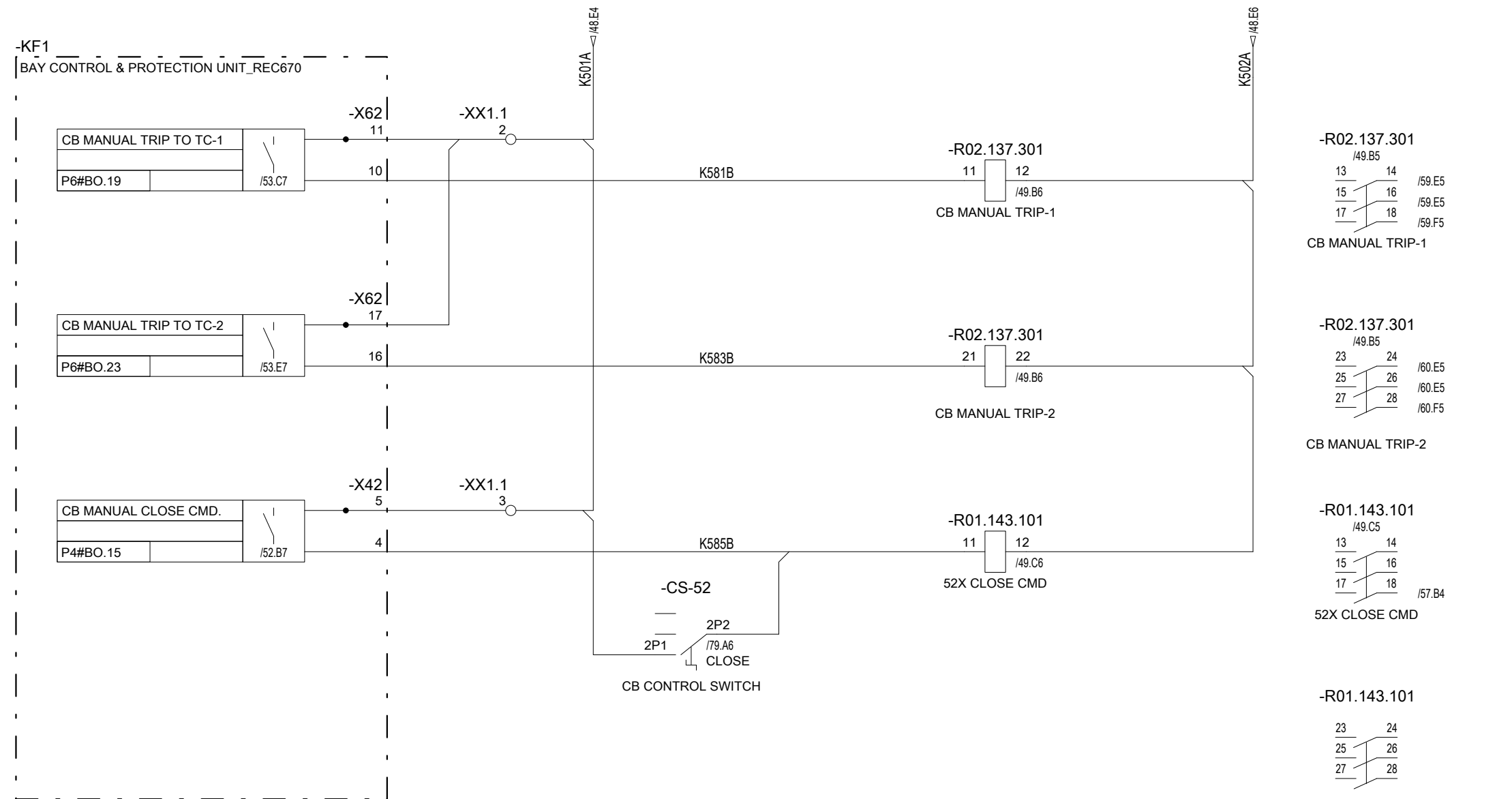
Drawing approval subject to valid vendor registration

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		STANDARD DRAWING		Hitachi Energy India Limited	Language en	Sheet 48
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	n. sheet 49
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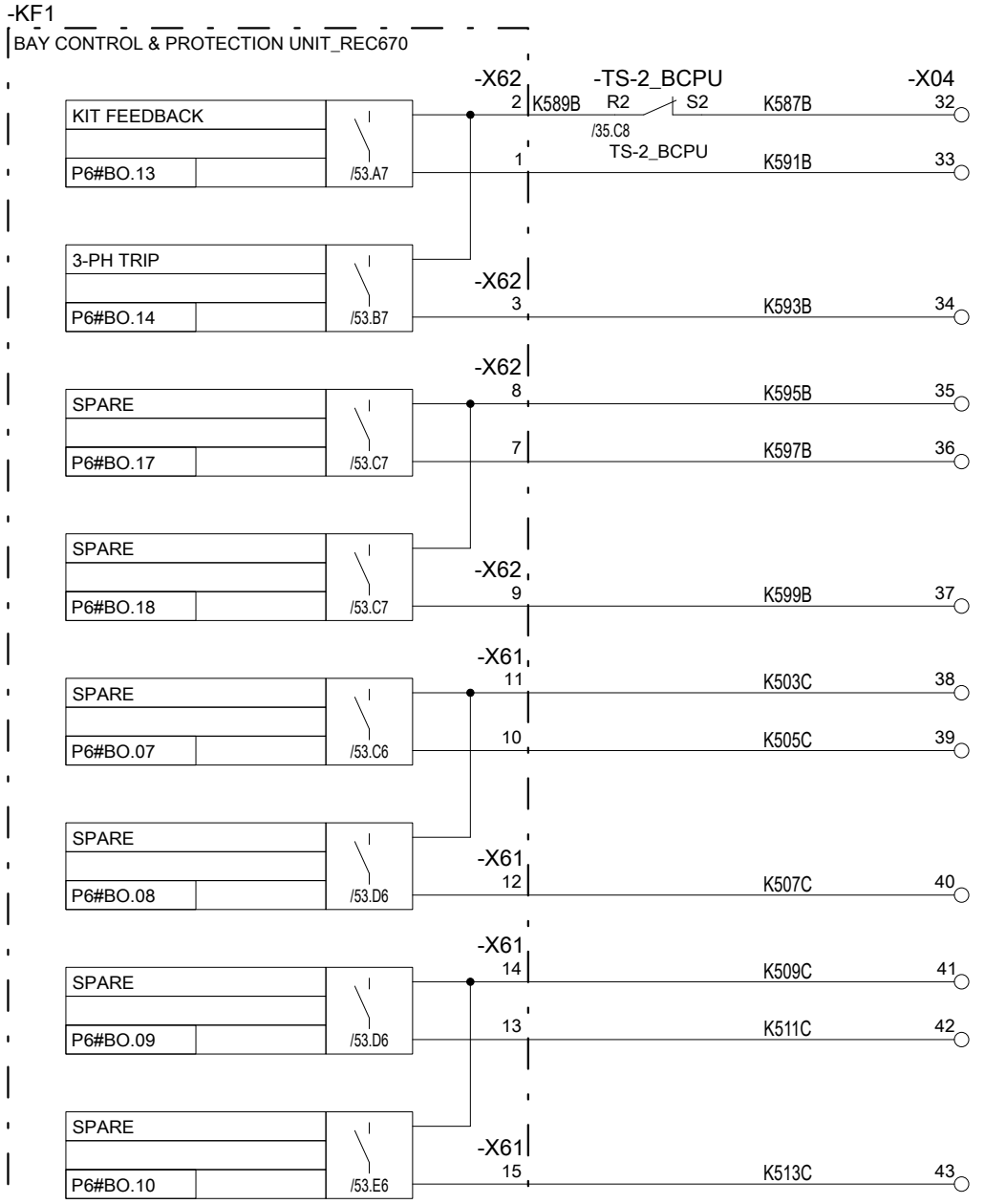
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		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
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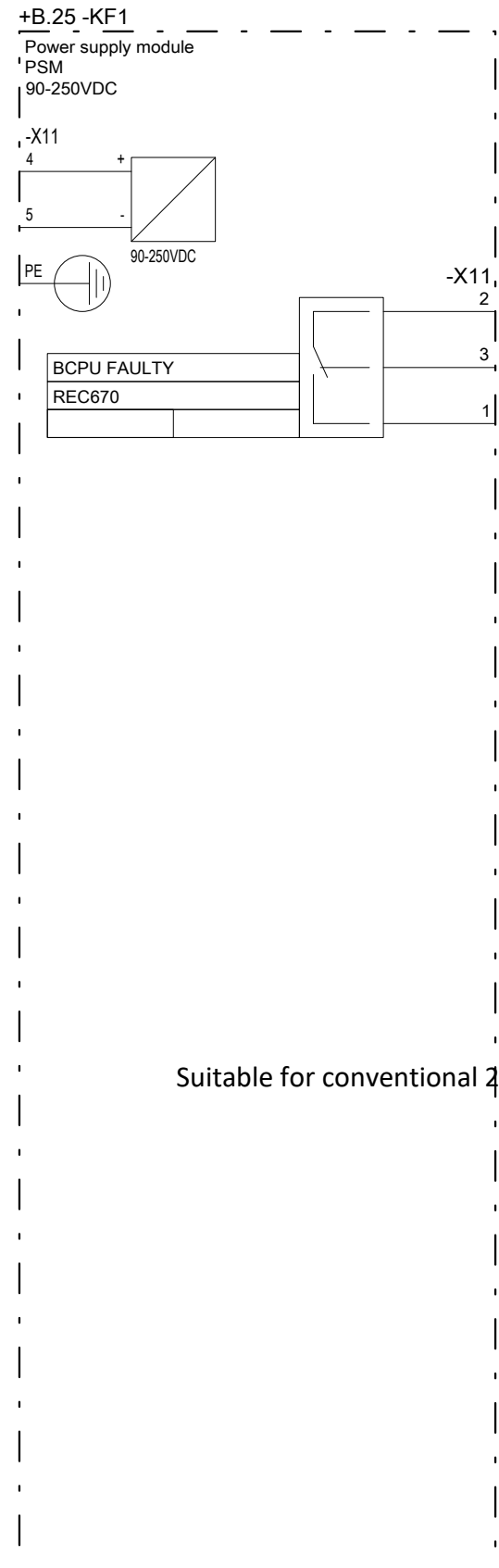
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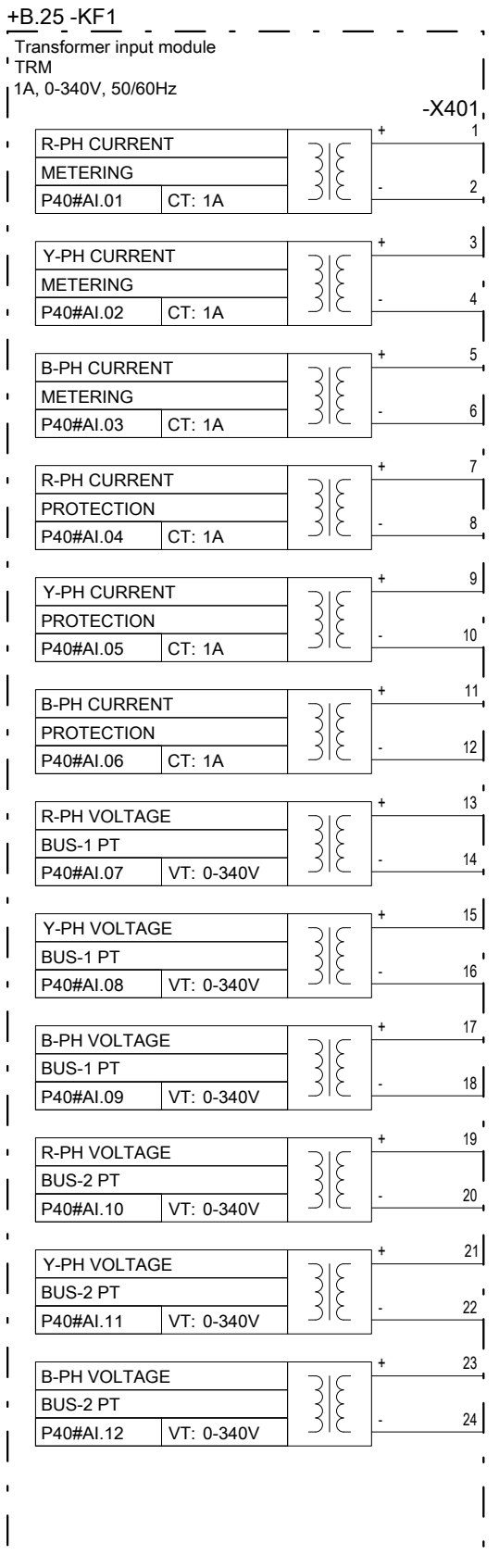
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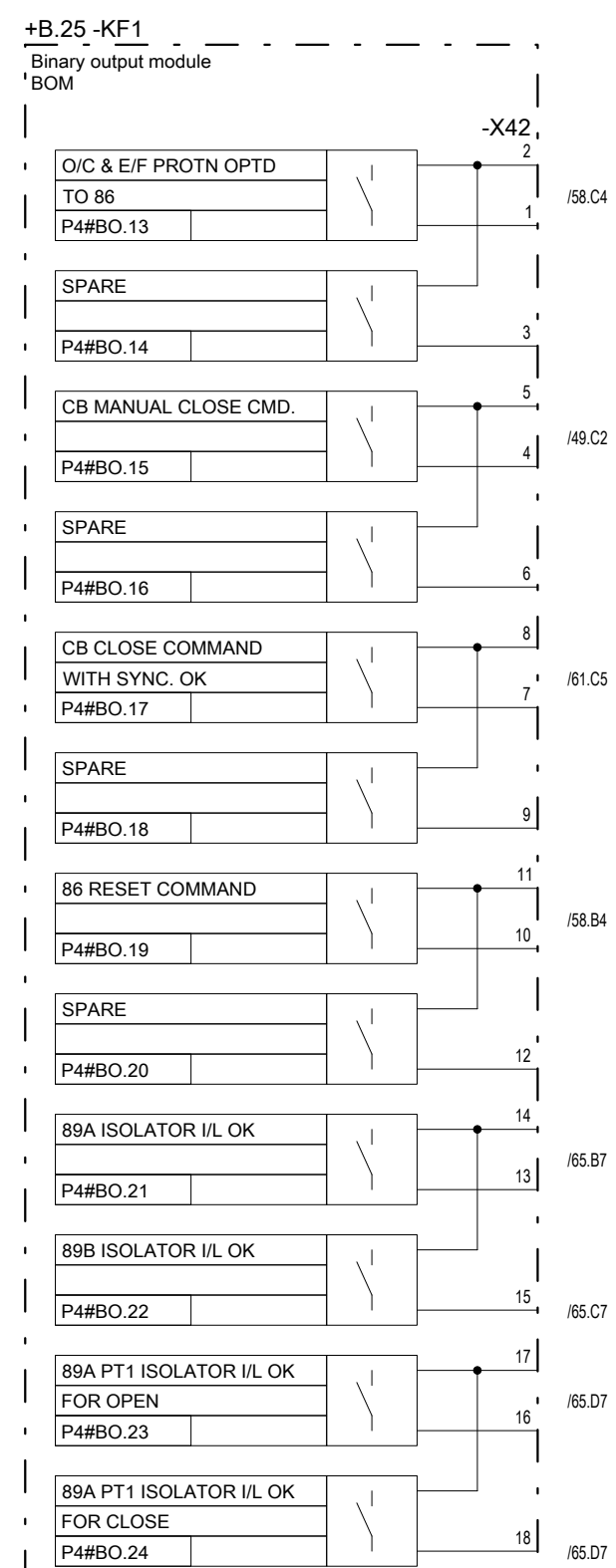
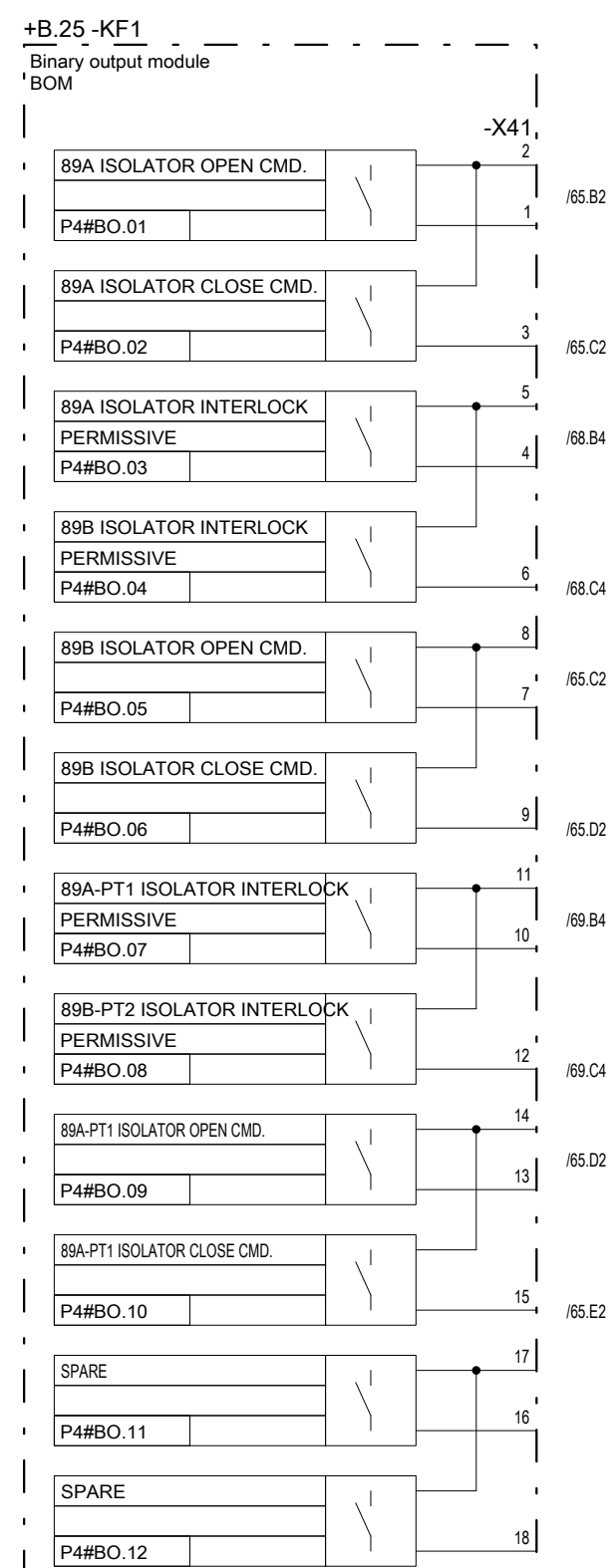
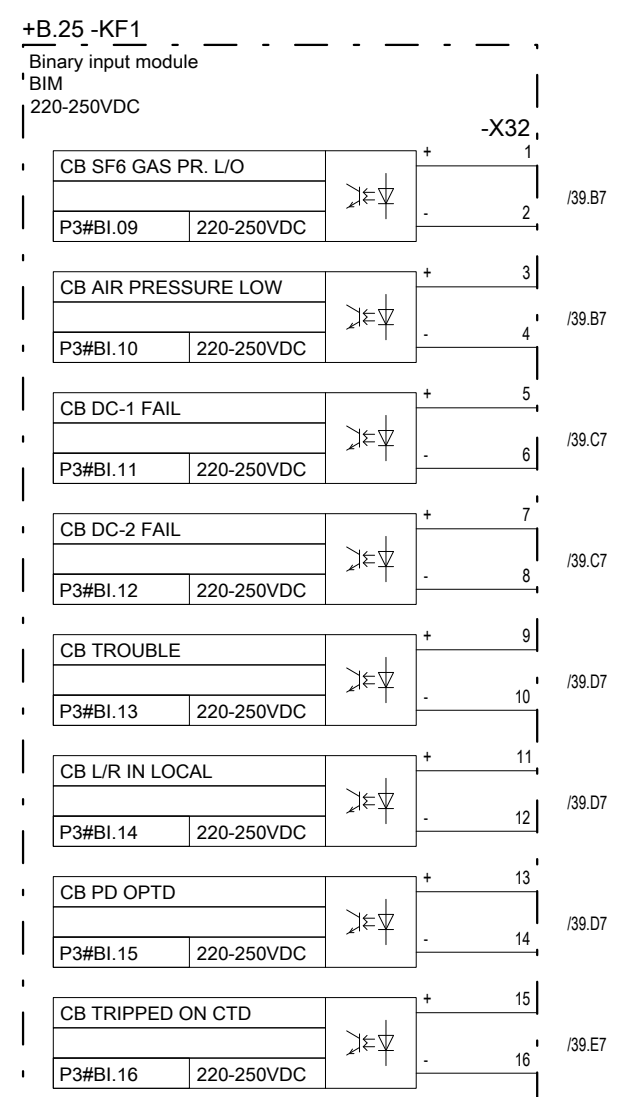
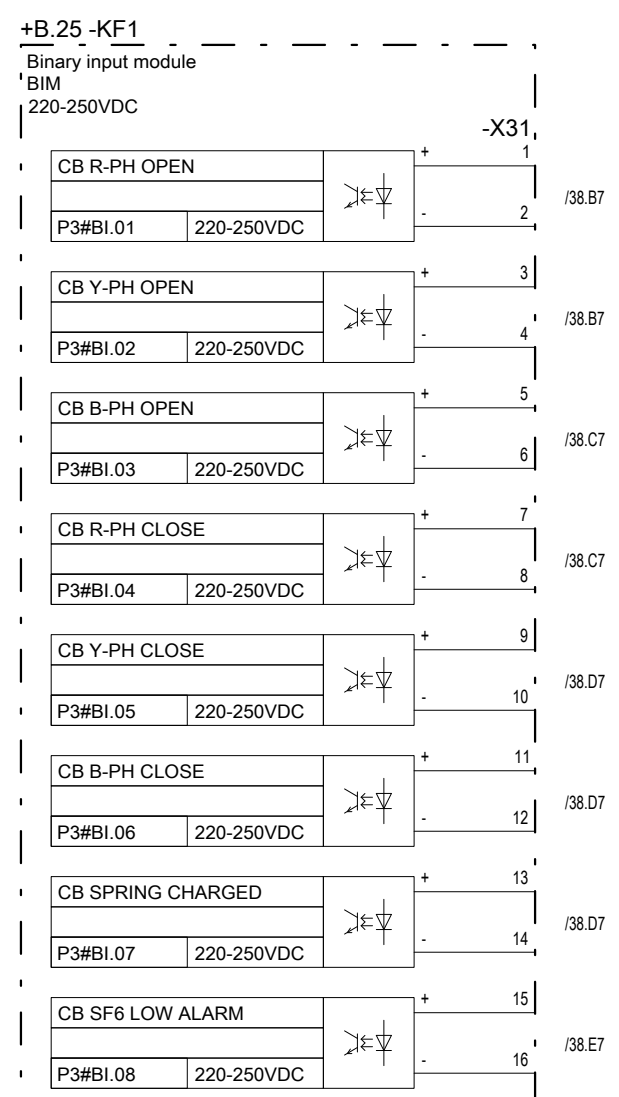
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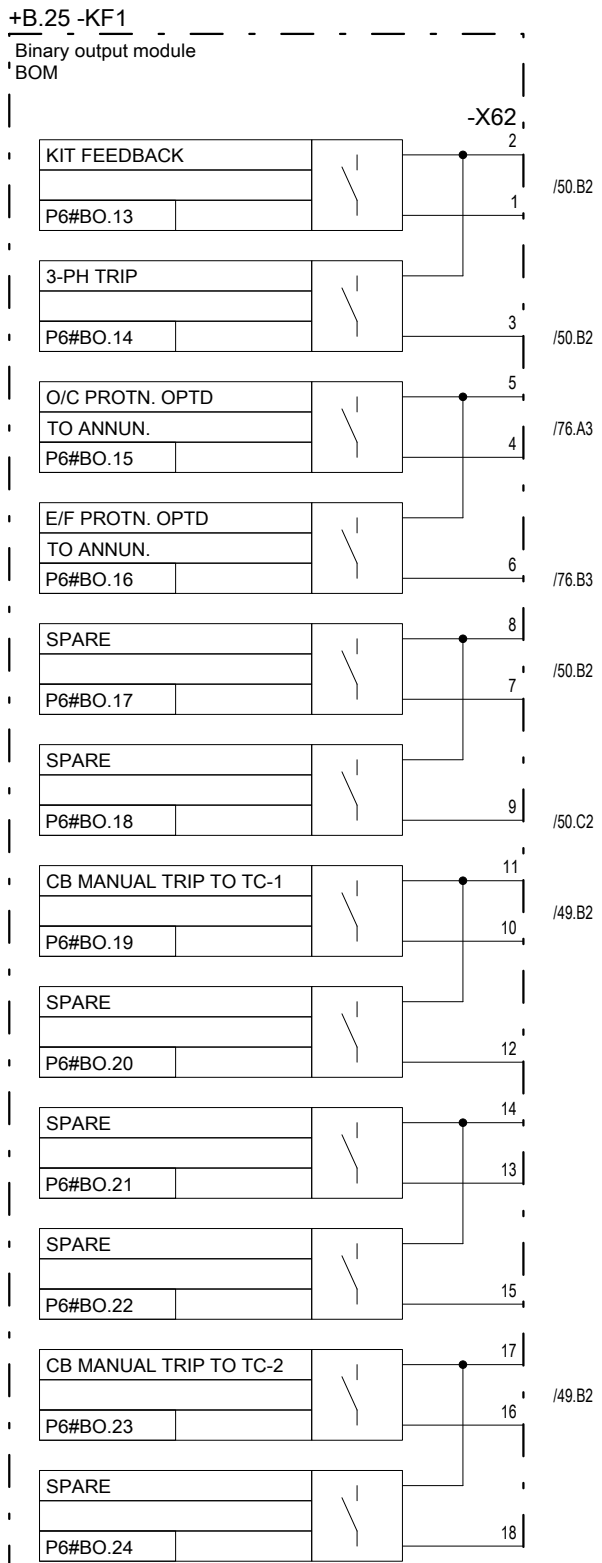
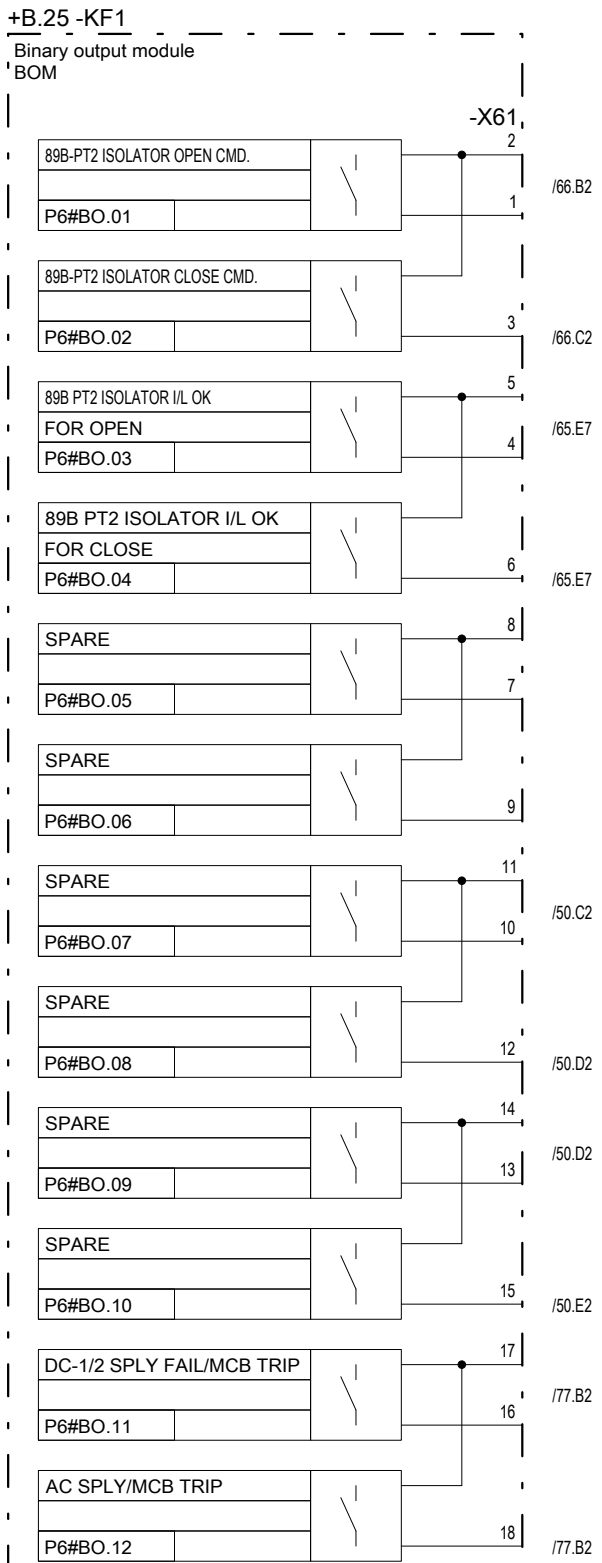
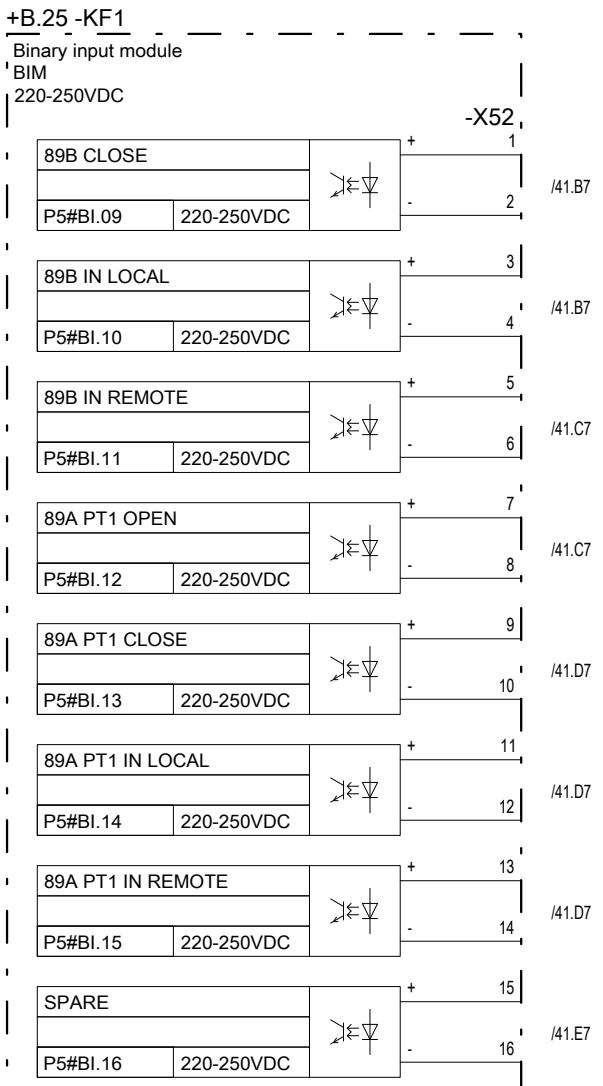
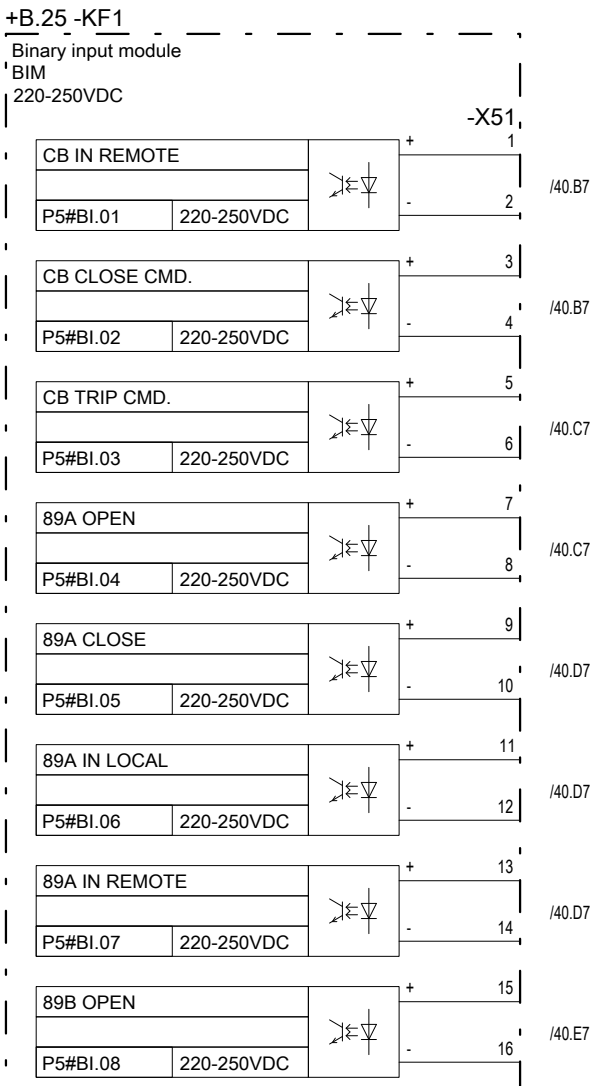
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 52
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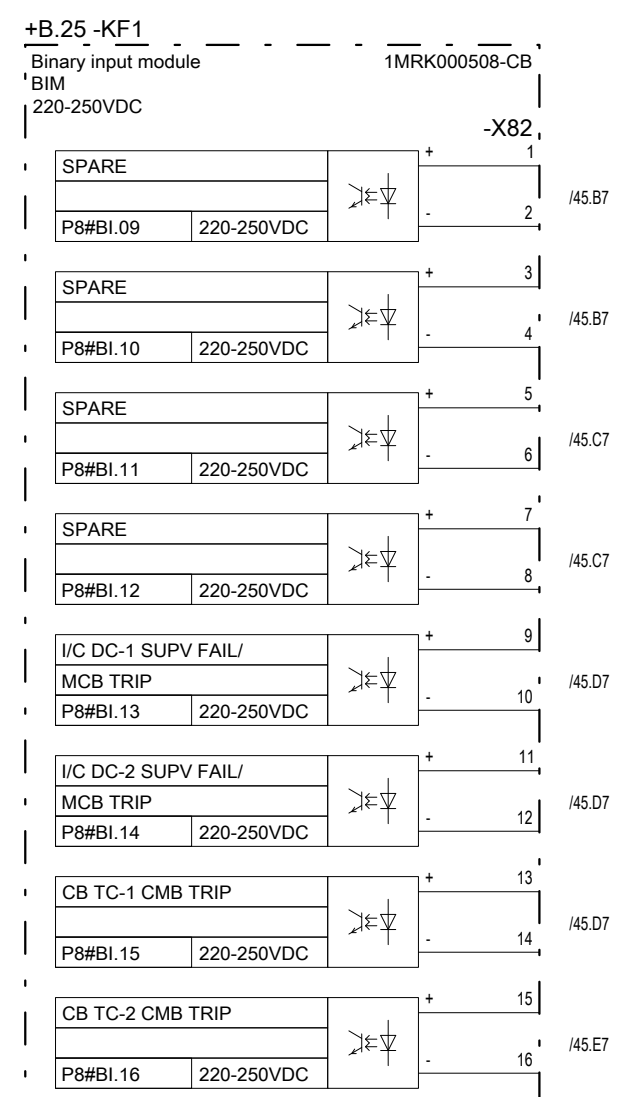
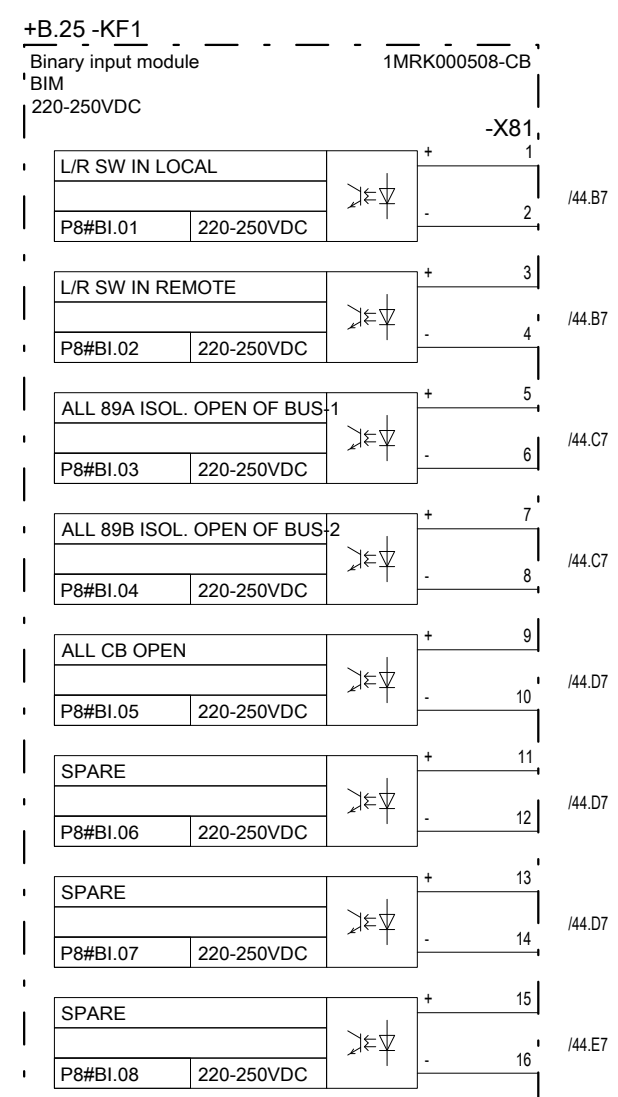
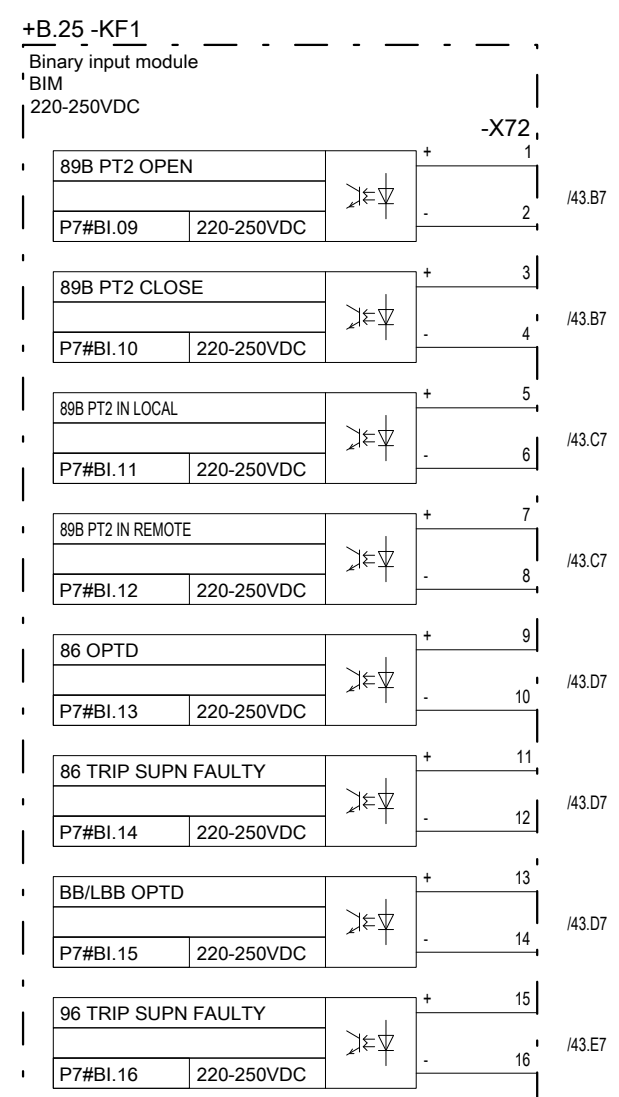
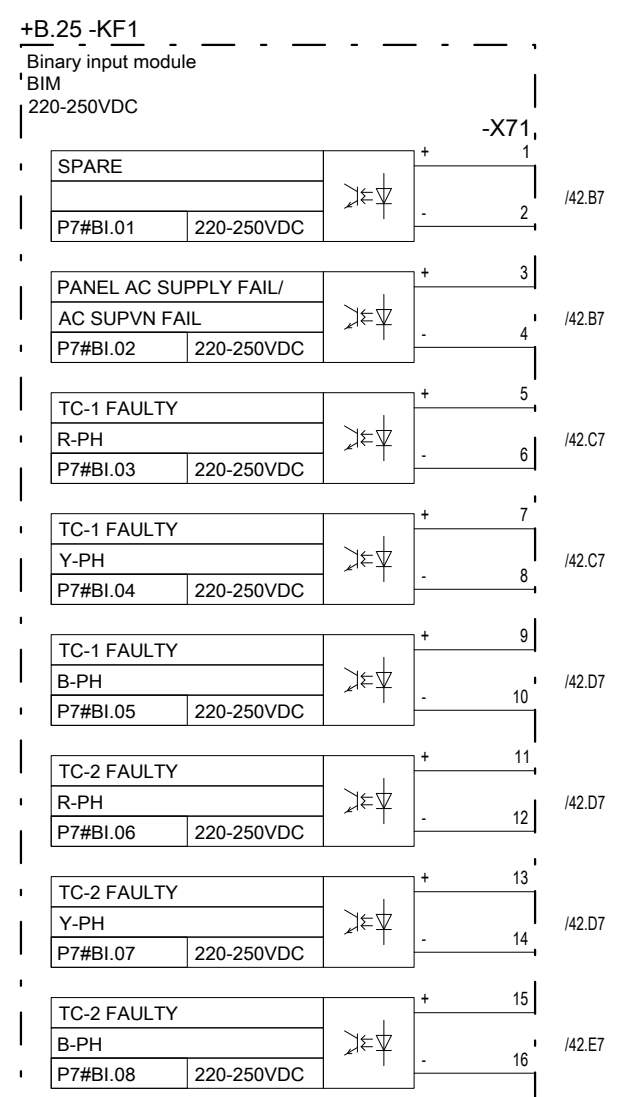


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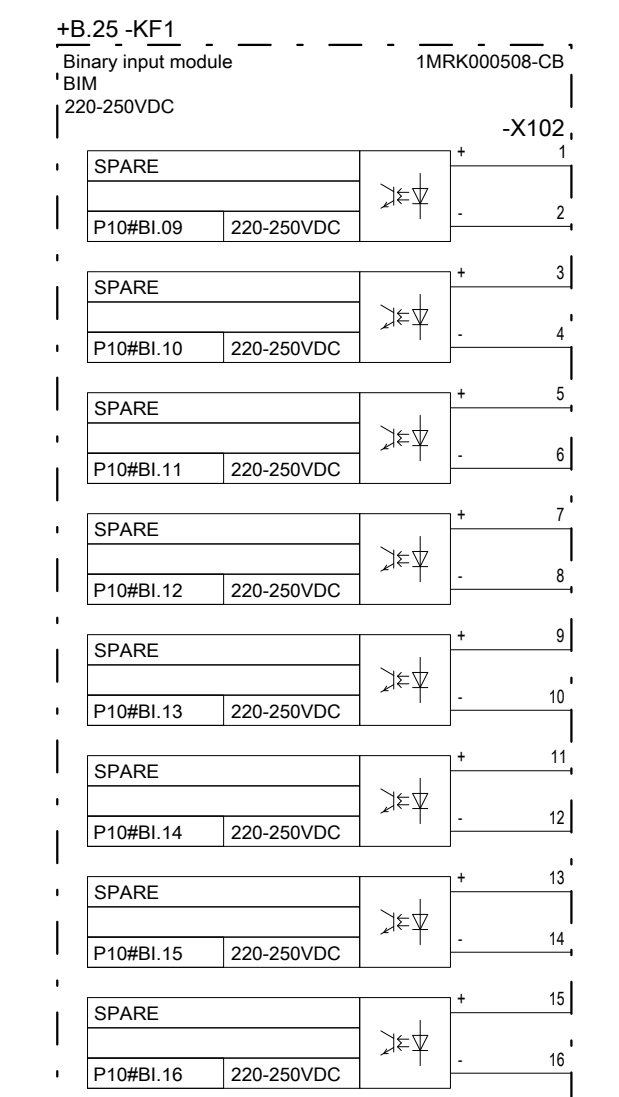
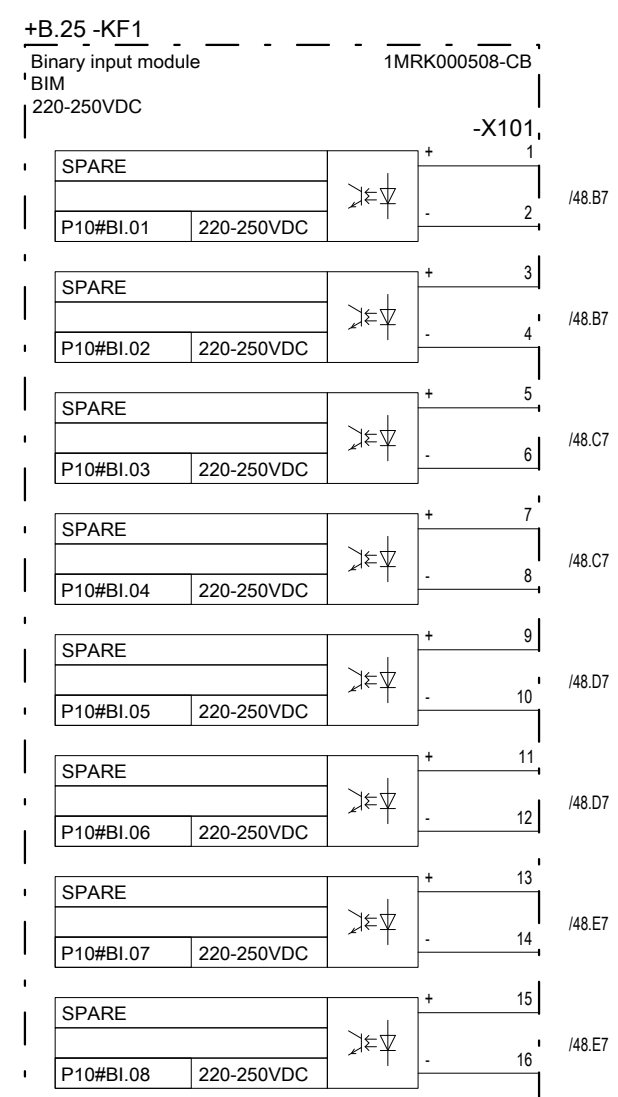
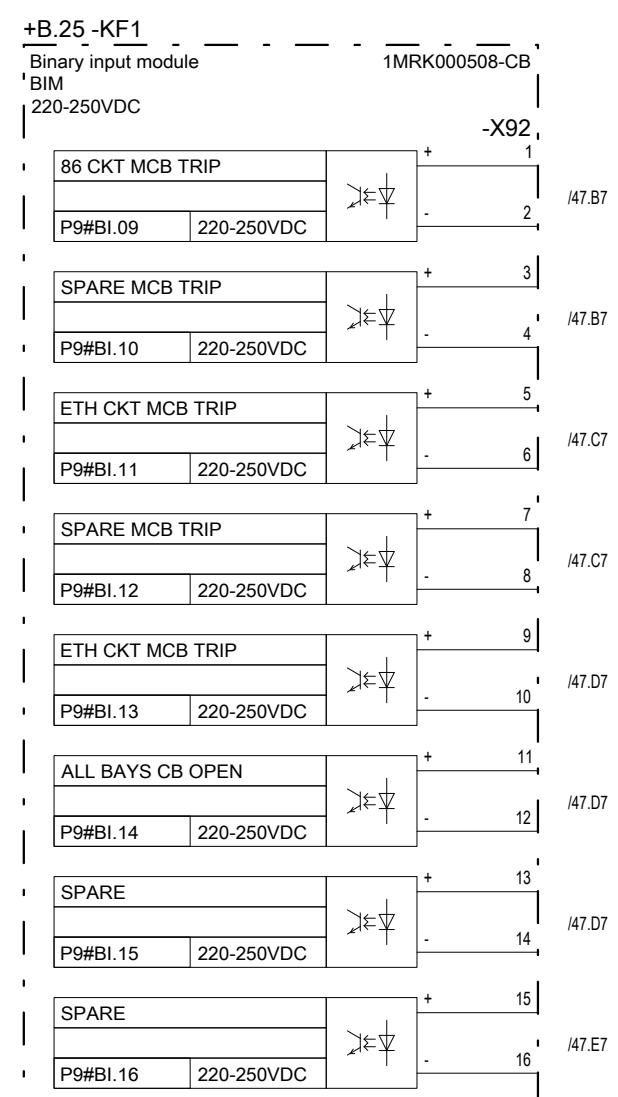
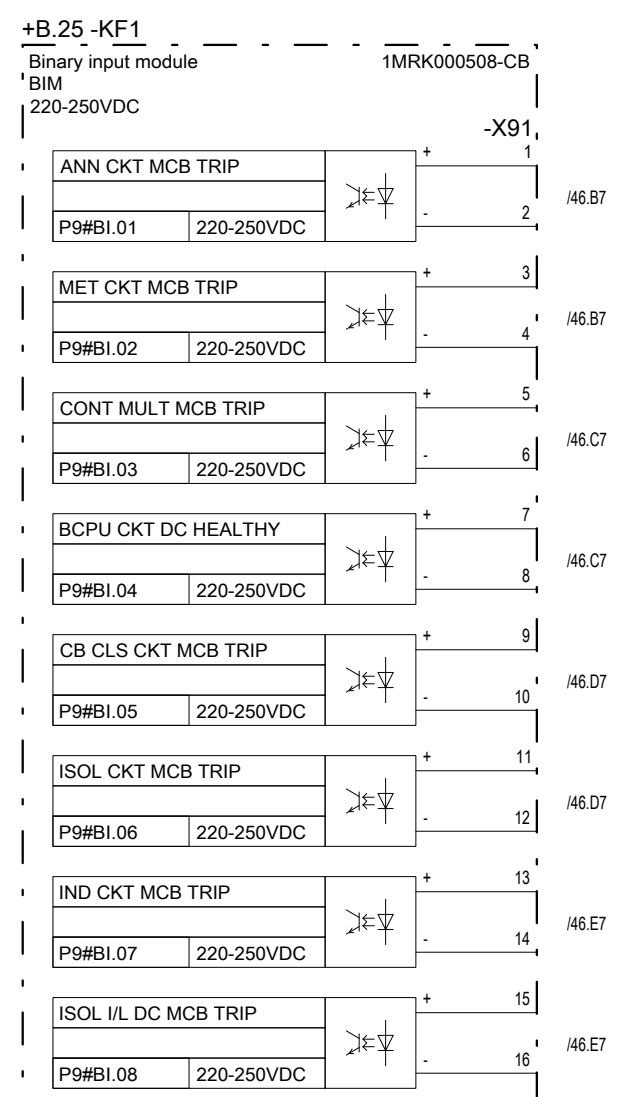
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Based on		Prepared 26.12.2023 Approved 27.12.2023		VINOD G GOURISH HEGDE		Title 220kV BUS COUPLER Control & Relay Panel BCPU-Master Blocks		Doc. kind. Circuit diagram DCC EFS		Ref.Des. =2KR	
Rev.		Revision note		Date		Name		Resp. dept. PG-GAS		Rev. ind. 0	
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								Doc. no. 1MNS500925-CFAA		n. sheet 56	

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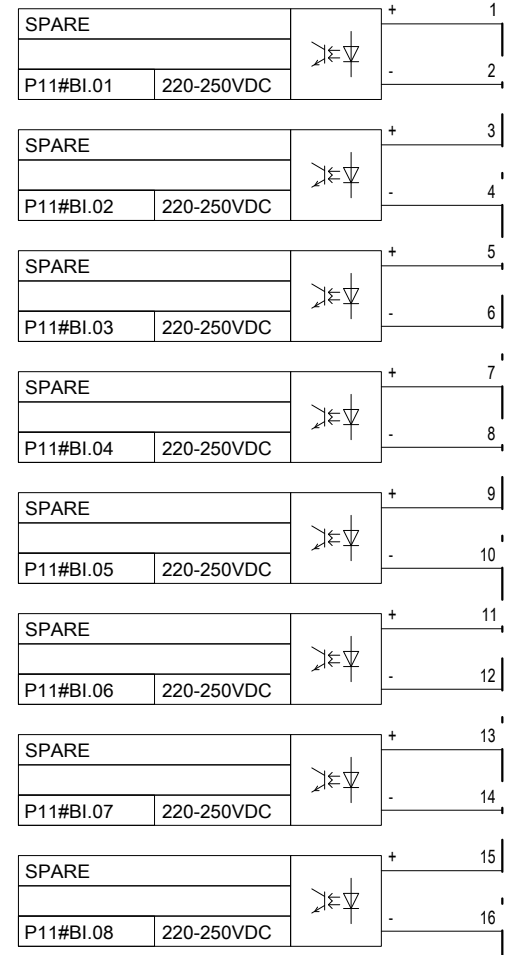
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+B.25 -KF1

Binary input module
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220-250VDC

1MRK000508-CB

-X111

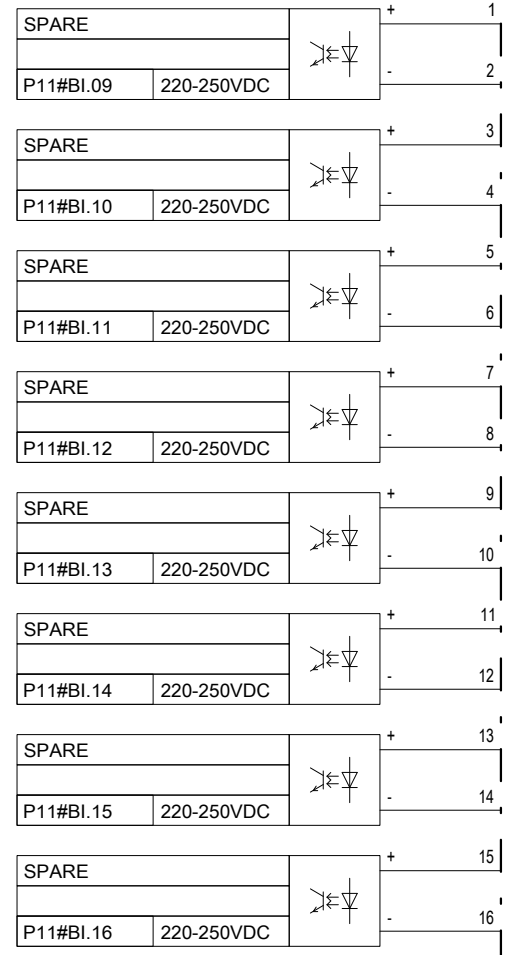


+B.25 -KF1

Binary input module
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220-250VDC

1MRK000508-CB

-X112



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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	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-CFAA	Sheet 56
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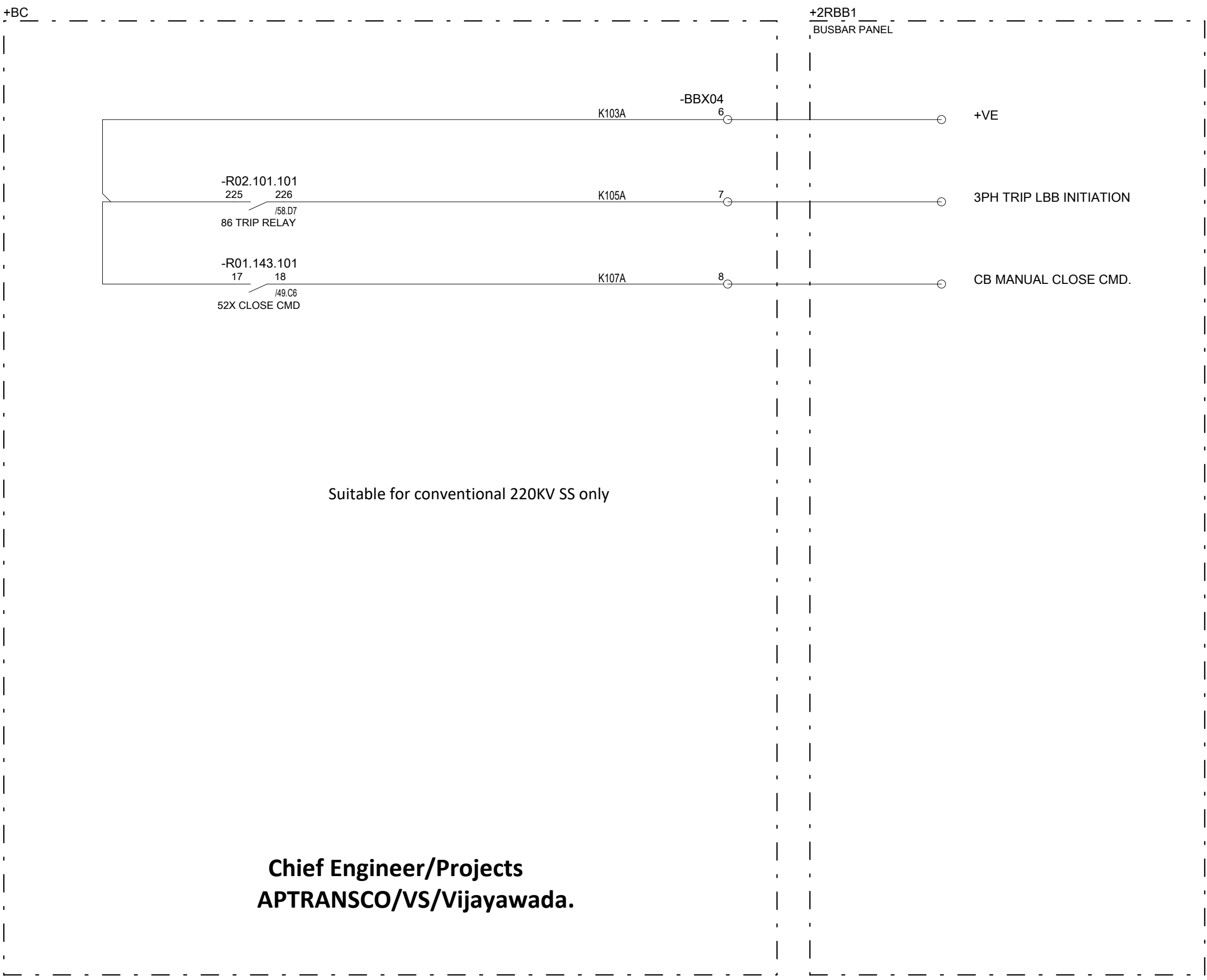
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F



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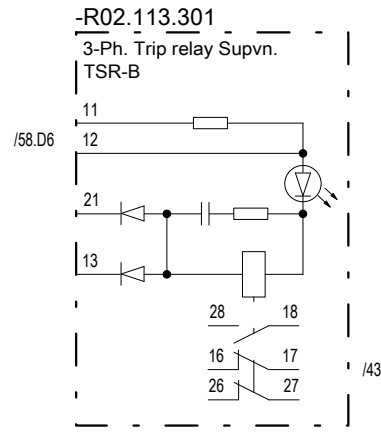
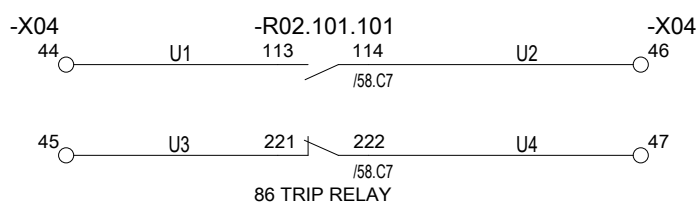
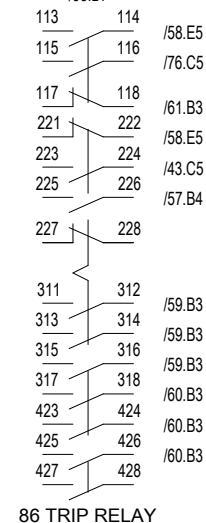
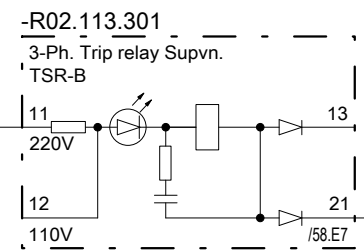
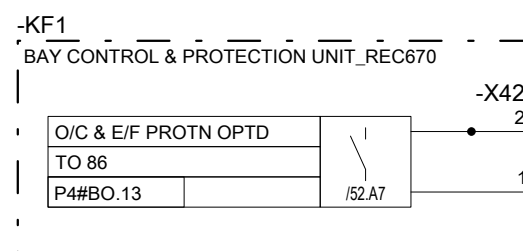
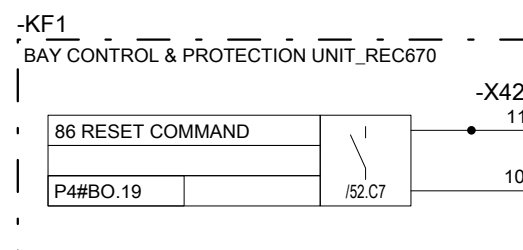
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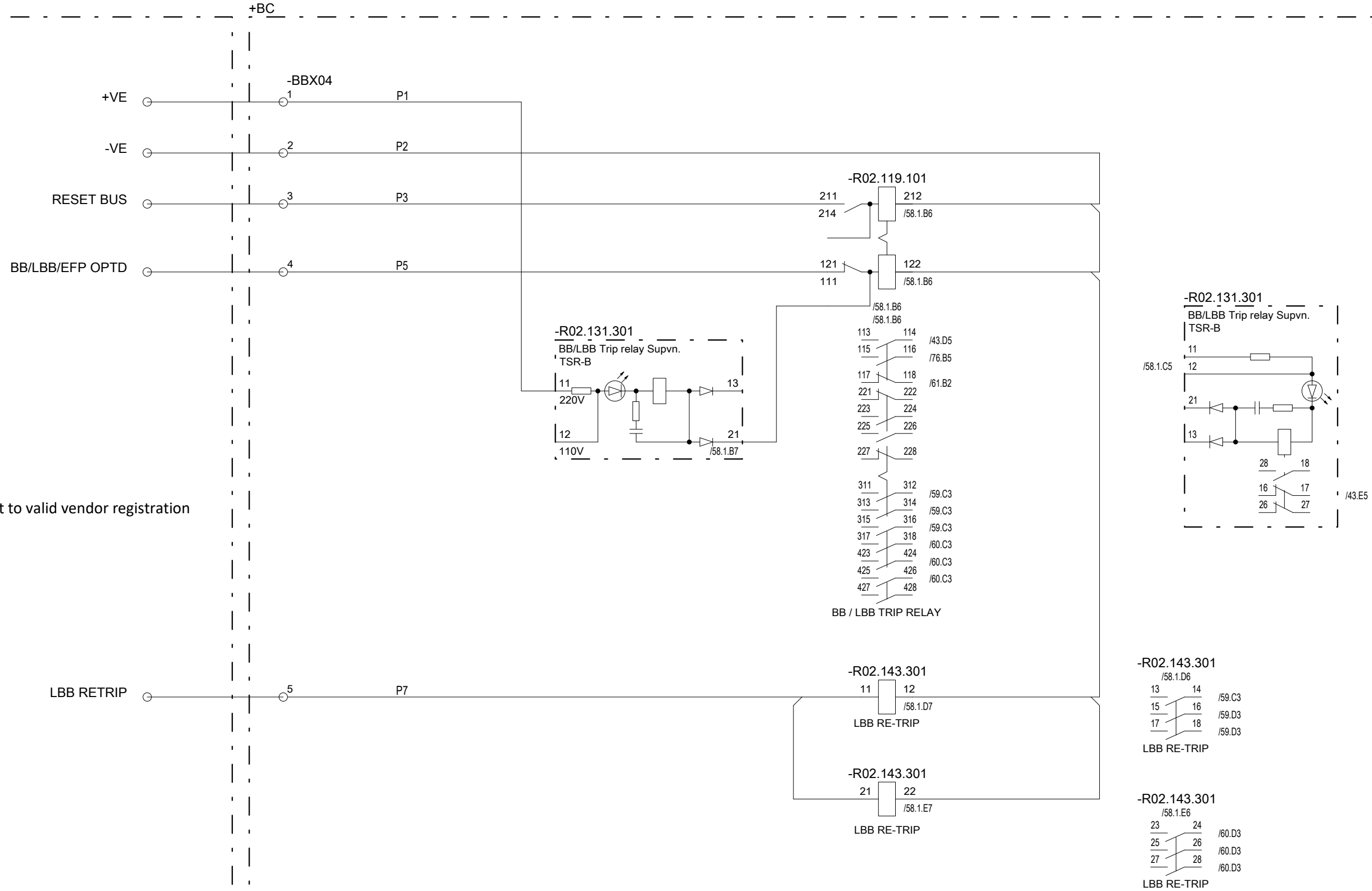


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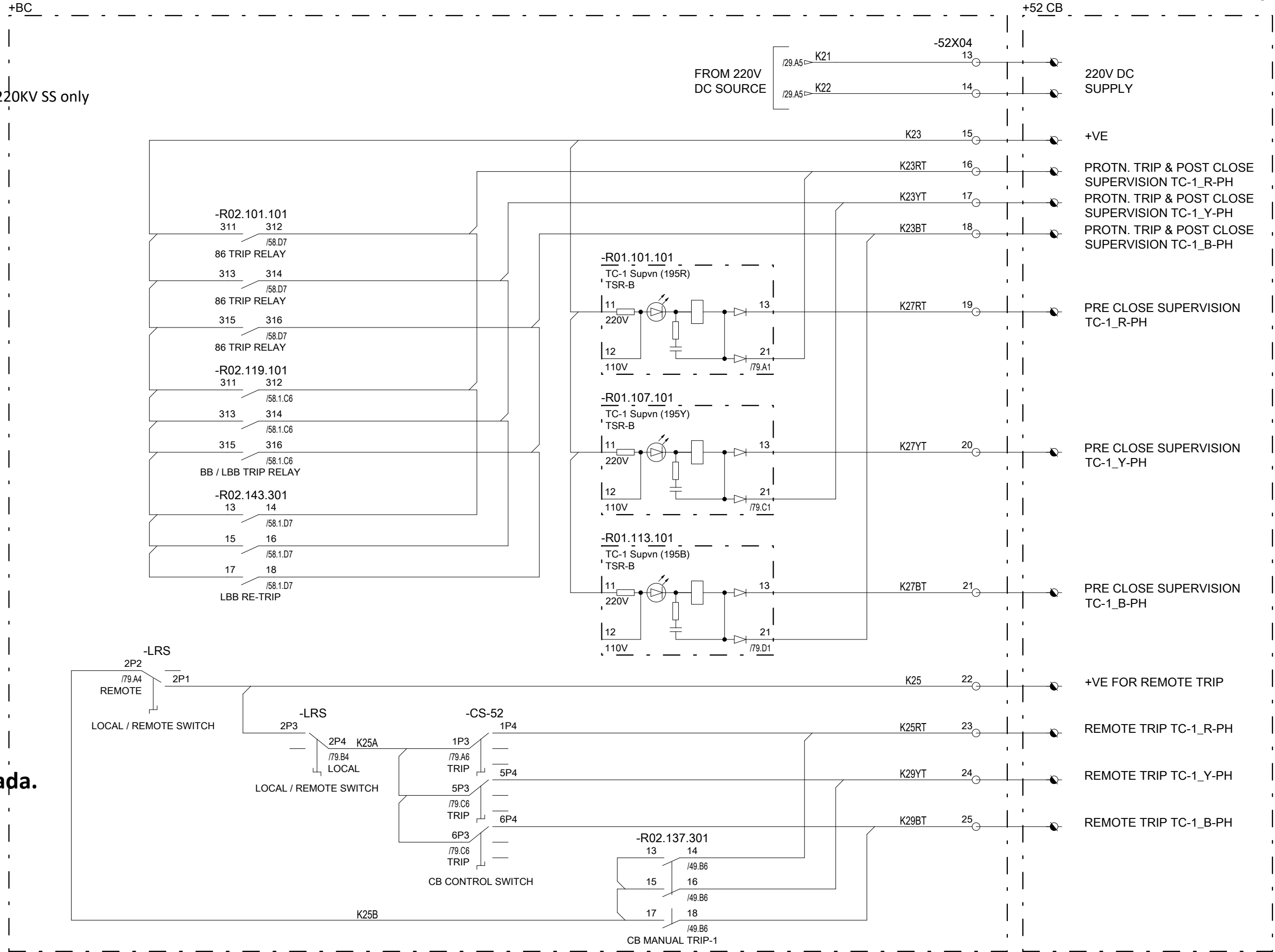
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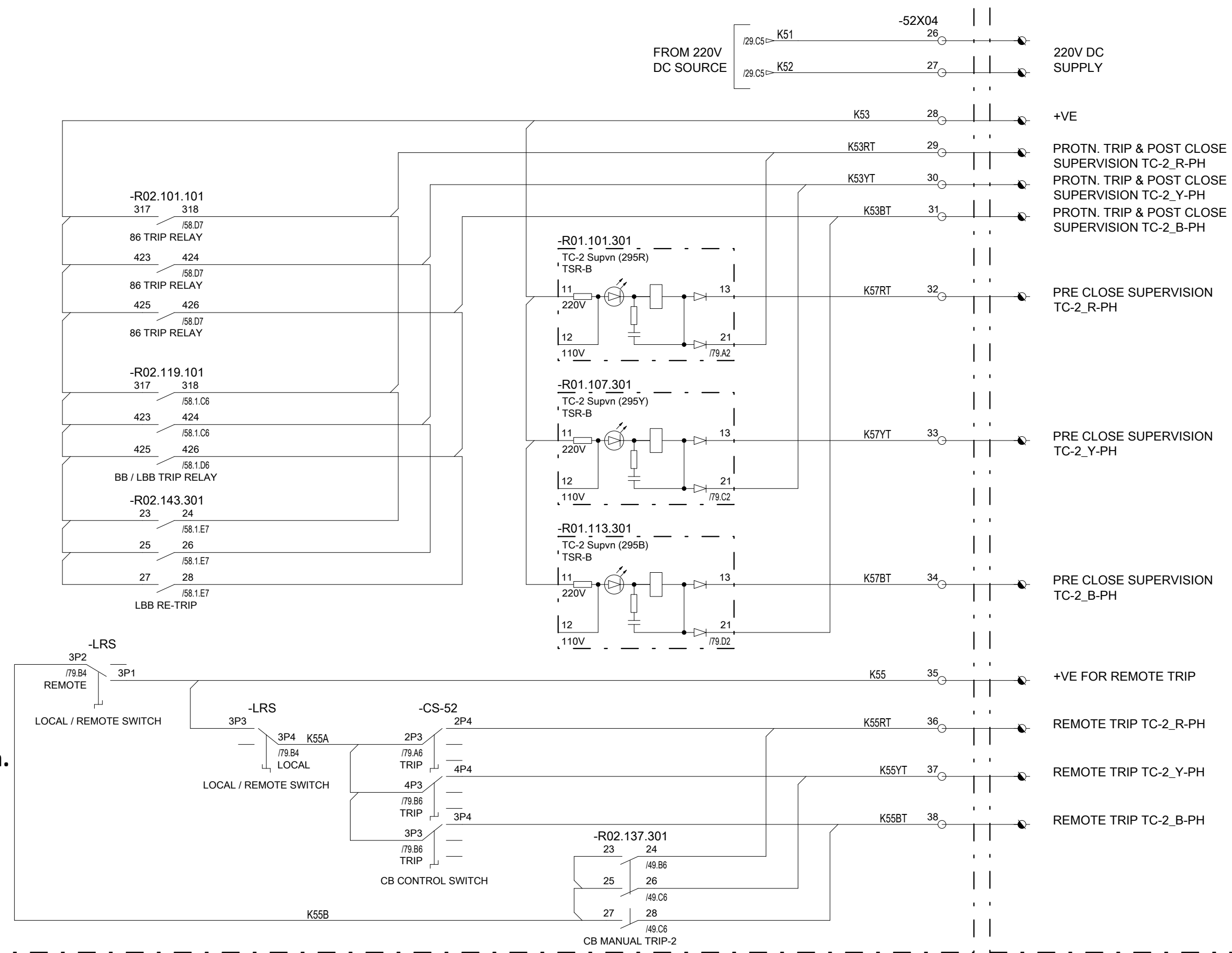
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+BC

+52 CB

977



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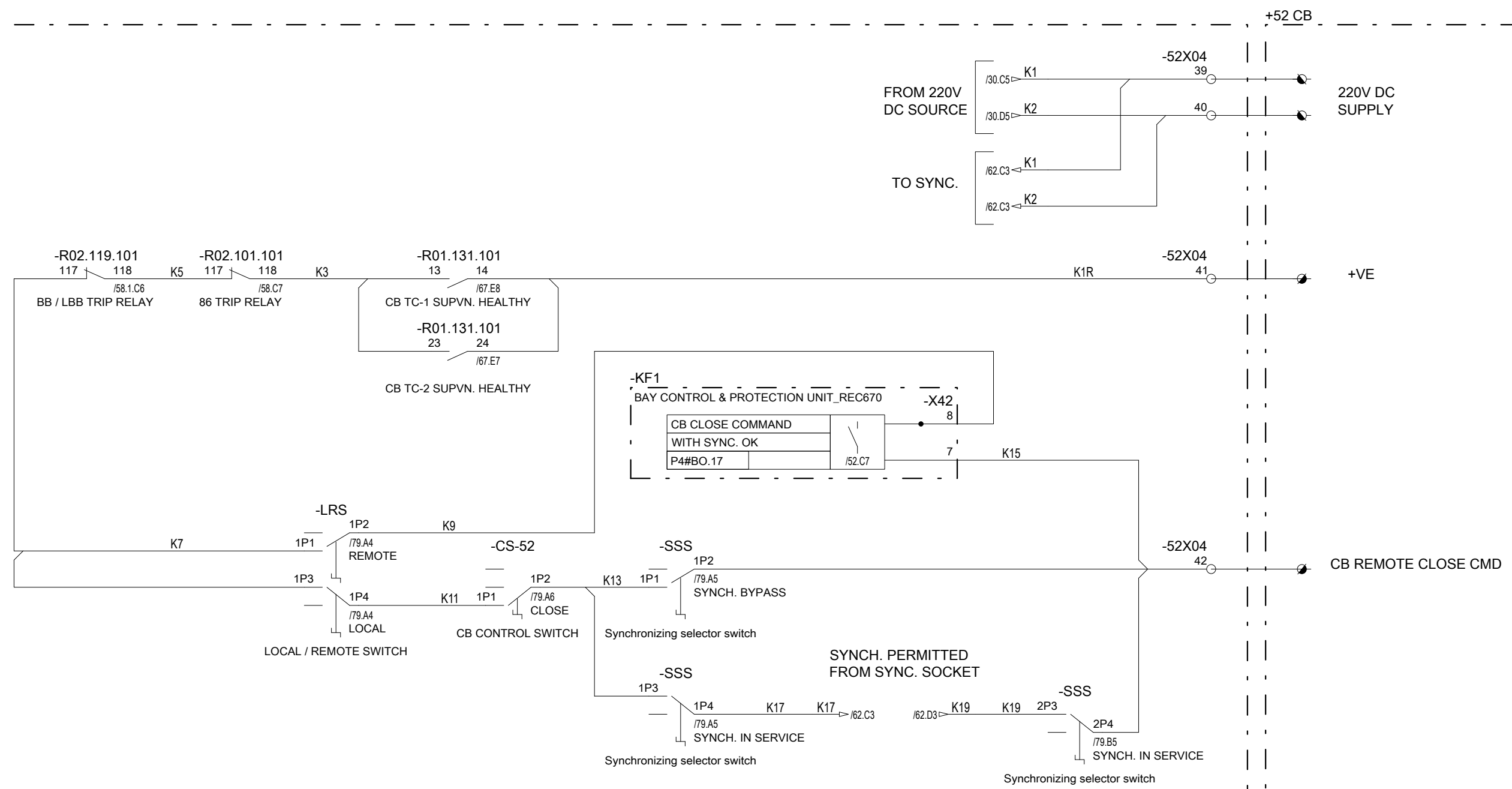
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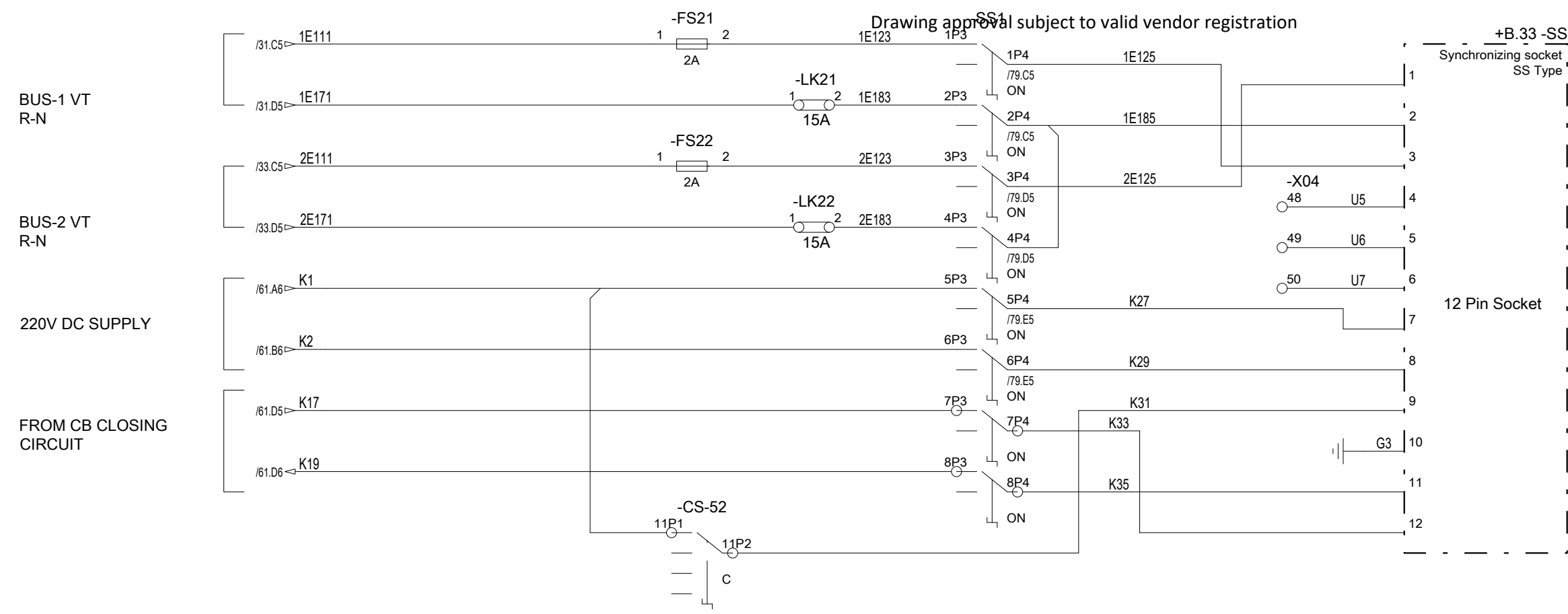
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Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 61
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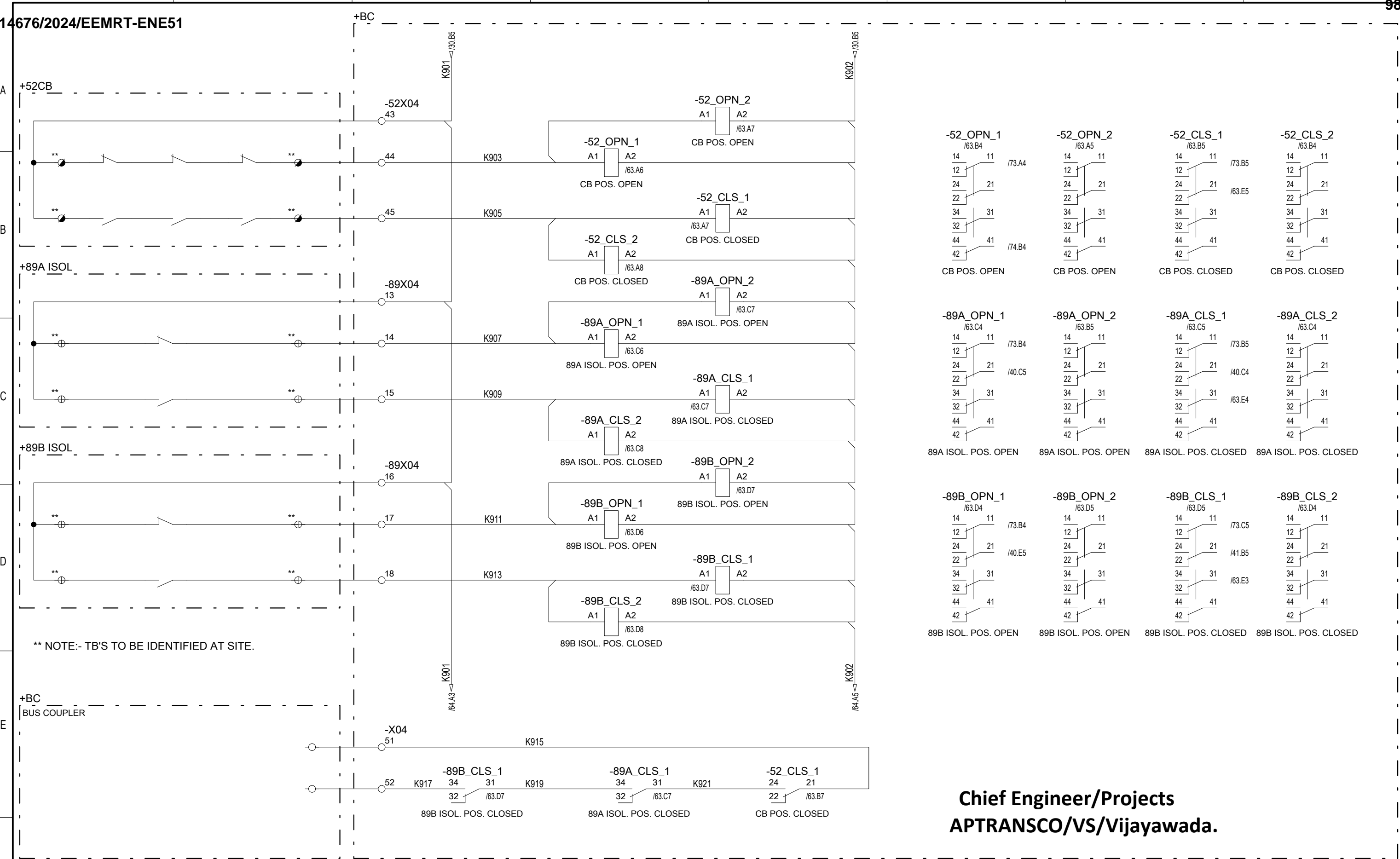
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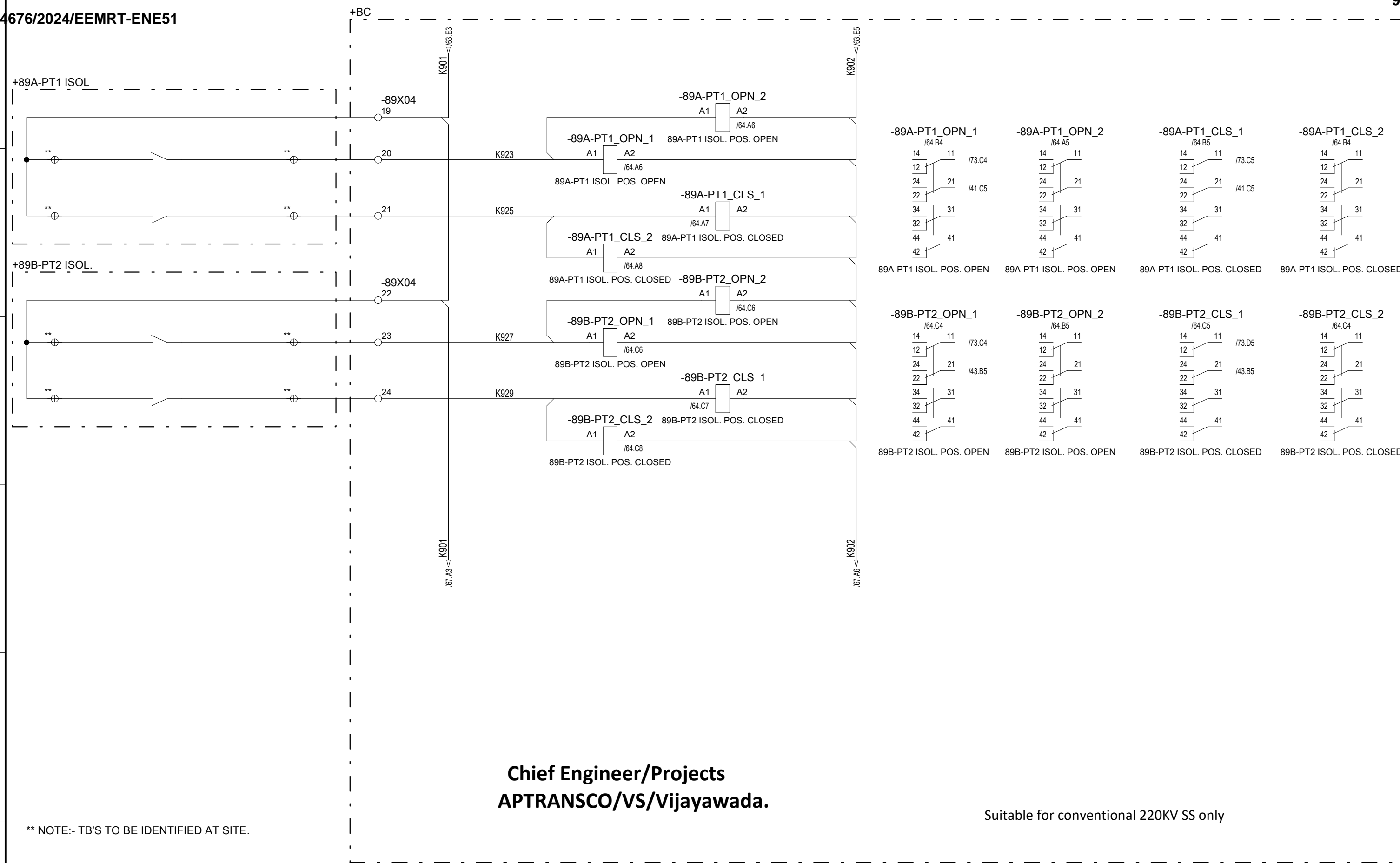
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

Based on		Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER		Doc. kind.	Circuit diagram		Ref.Des.	=2KR	
		Approved	27.12.2023	GOURISH HEGDE	Control & Relay Panel		DCC EFS						
		Project	APTRANSCO		CB & Isolator multpn Circuit		Resp. dept.	PG-GAS		Rev. ind.	0	Language	en
		STANDARD DRAWING		HITACHI		Hitachi Energy India Limited		Doc. no.		1MNS500925-CFAA		Sheet	63
Rev.	Revision note	Date	Name									n. sheet	64
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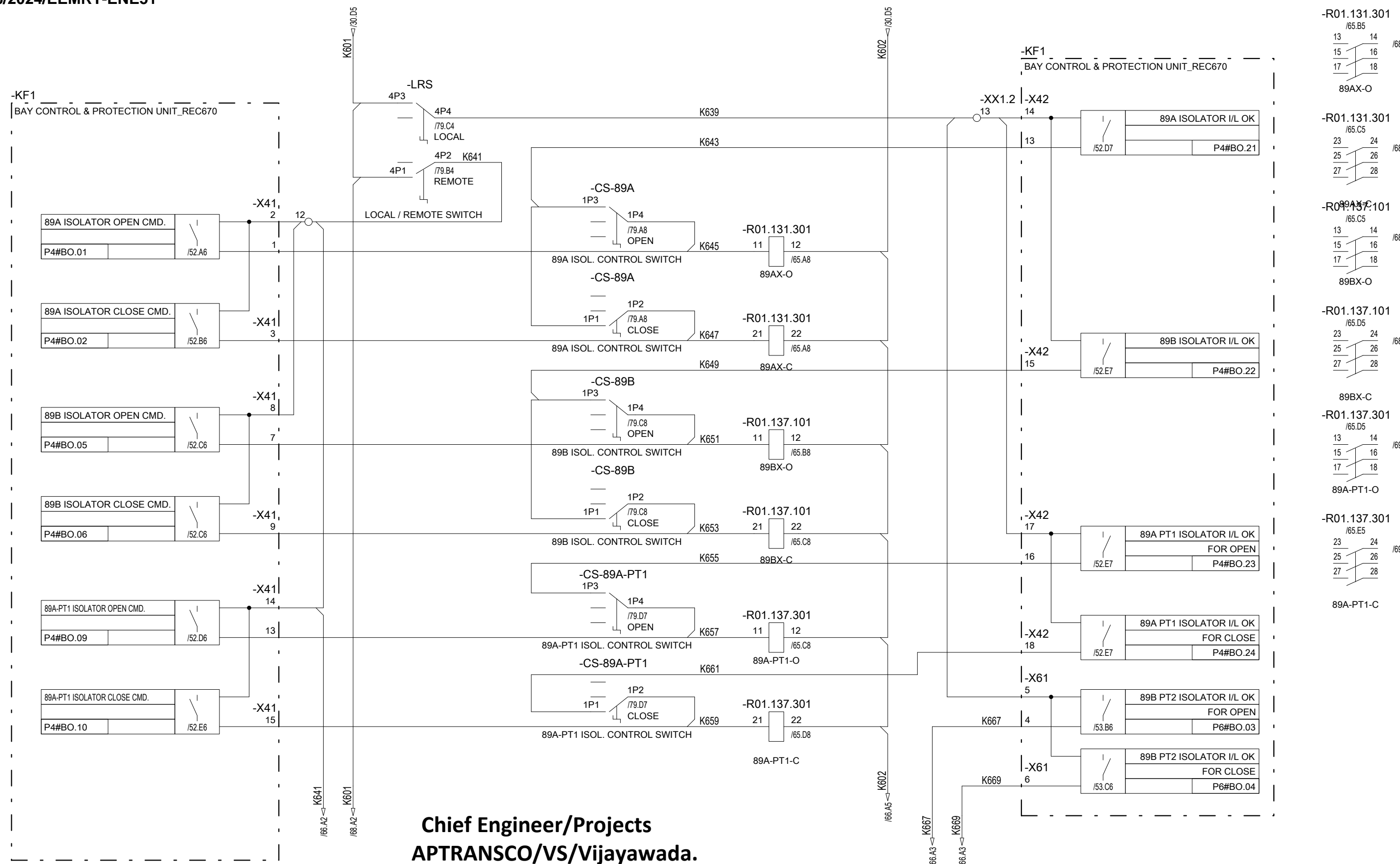
** NOTE:- TB'S TO BE IDENTIFIED AT SITE.

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		Approved	27.12.2023	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				HITACHI	1MNS500925-CFAA		Doc. no.		
											n. sheet	65

1MYN691003-102(A3)REV01

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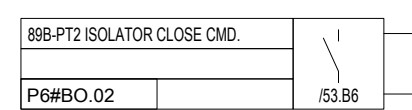
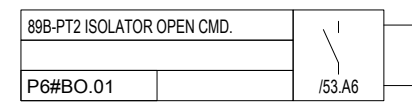
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		Project APTRANSCO		Isolator Command Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 65
1MYN691003-102(A3)REV01						n. sheet 66

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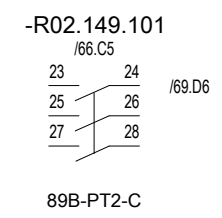
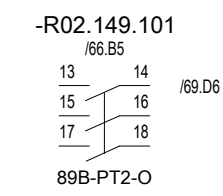
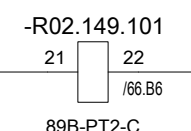
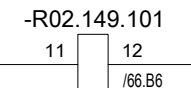
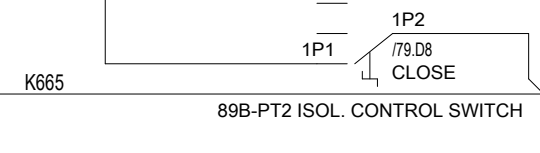
8814676/2024/EEMRT-ENE51

-KF1
BAY CONTROL & PROTECTION UNIT_REC670



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2

-X61
3



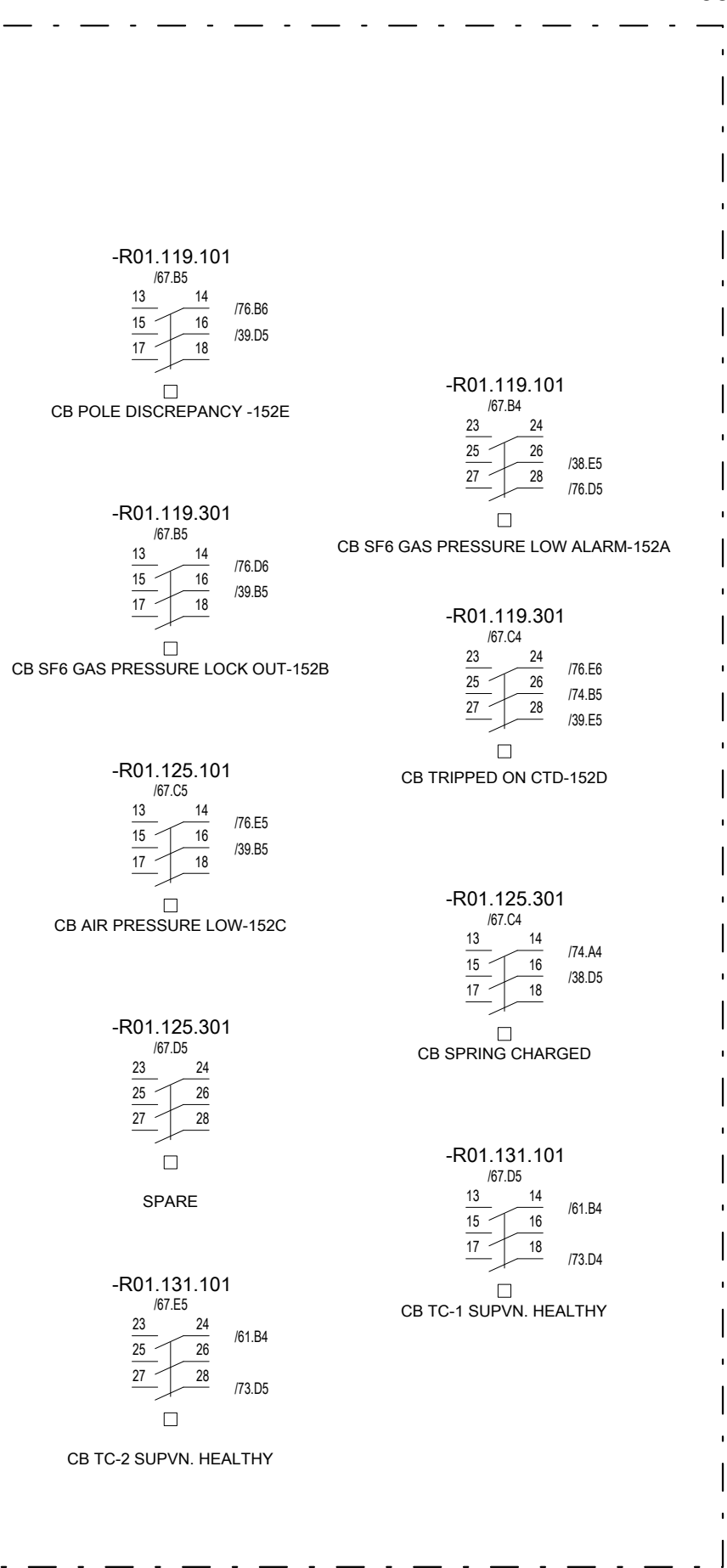
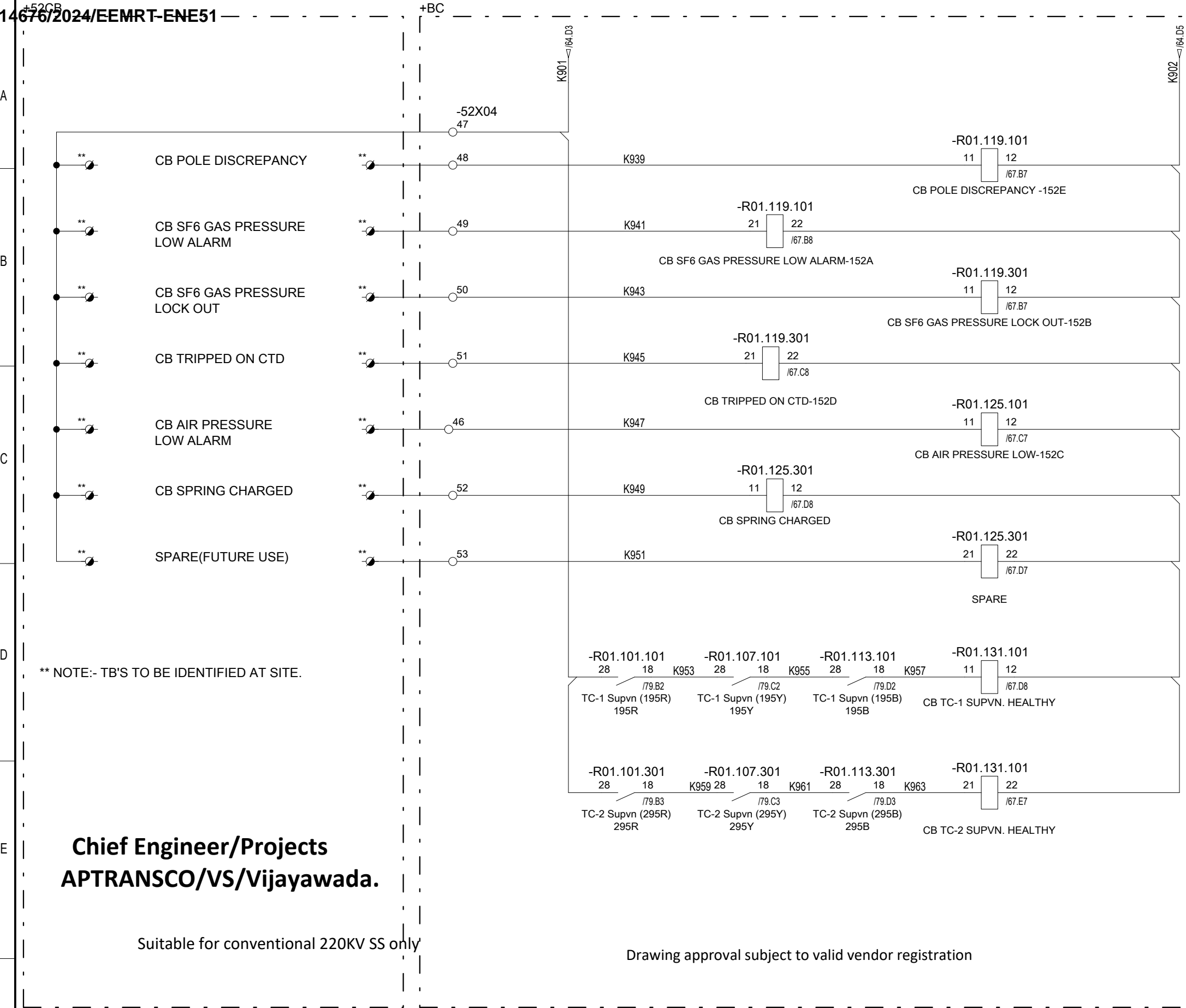
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

K602 /68.A2

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		Project APTRANSCO		Isolator Command Circuit	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAA	Sheet 66
1MYN691003-102(A3)REV01					n. sheet 67	

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Suitable for conventional 220KV SS only

Drawing approval subject to valid vendor registration

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	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-CFAA	Sheet 67
1MYN691003-102(A3)REV01						n. sheet 68

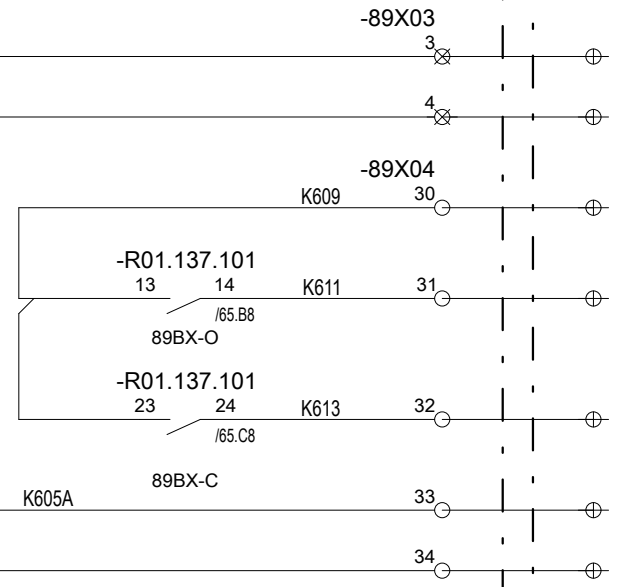
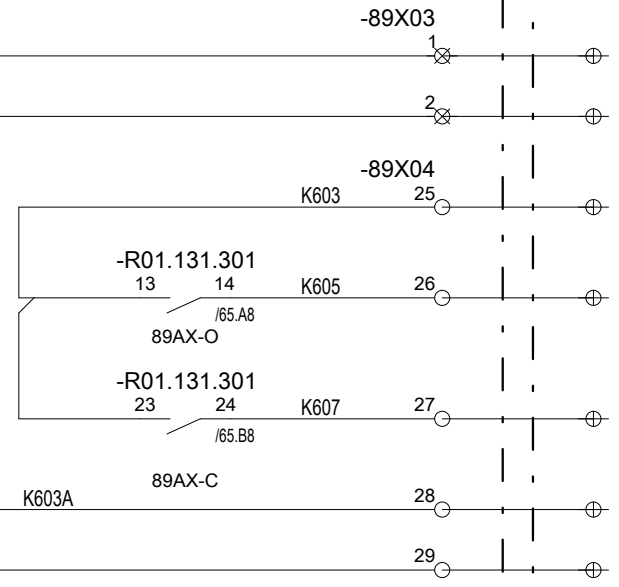
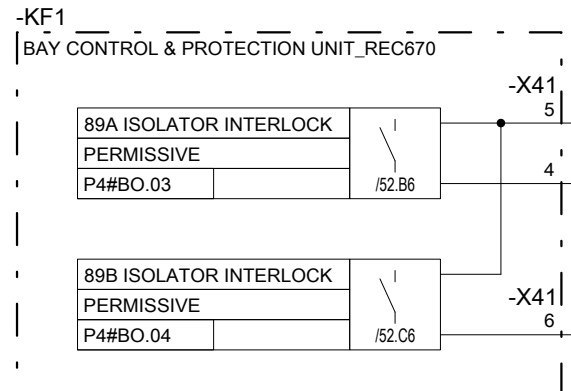
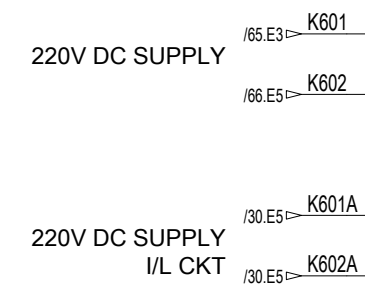
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985

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/69.A2 < K601
/69.A2 < K602

/69.A2 < K601A
/69.B2 < K602A

Based on	Prepared 26.12.2023	VINOD G	
	Approved 27.12.2023	GOURISH HEGDE	
	Project APTRANSCO		
	STANDARD DRAWING		
Rev.	Revision note	Date	Name
1	1MYN691003-102(A3)REV01		

Title	220kV BUS COUPLER Control & Relay Panel 89A, 89B Isol. Control Circuit
Hitachi Energy India Limited	

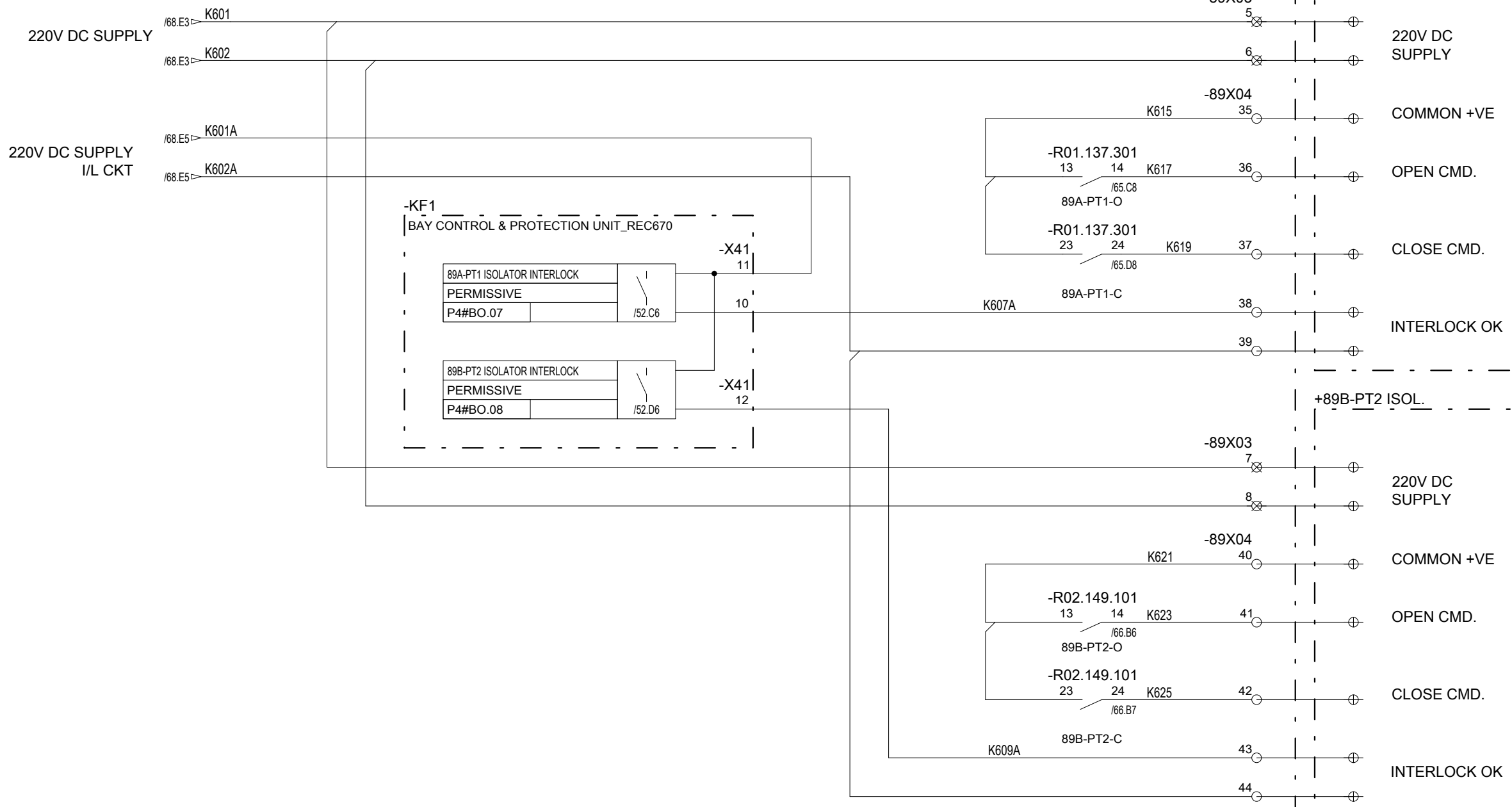
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Resp. dept.	PG-GAS	Rev. ind.	0
		Language	en
Doc. no.	1MNS500925-CFAA	Sheet	68
		n. sheet	69

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Drawing approval subject to valid vendor registration

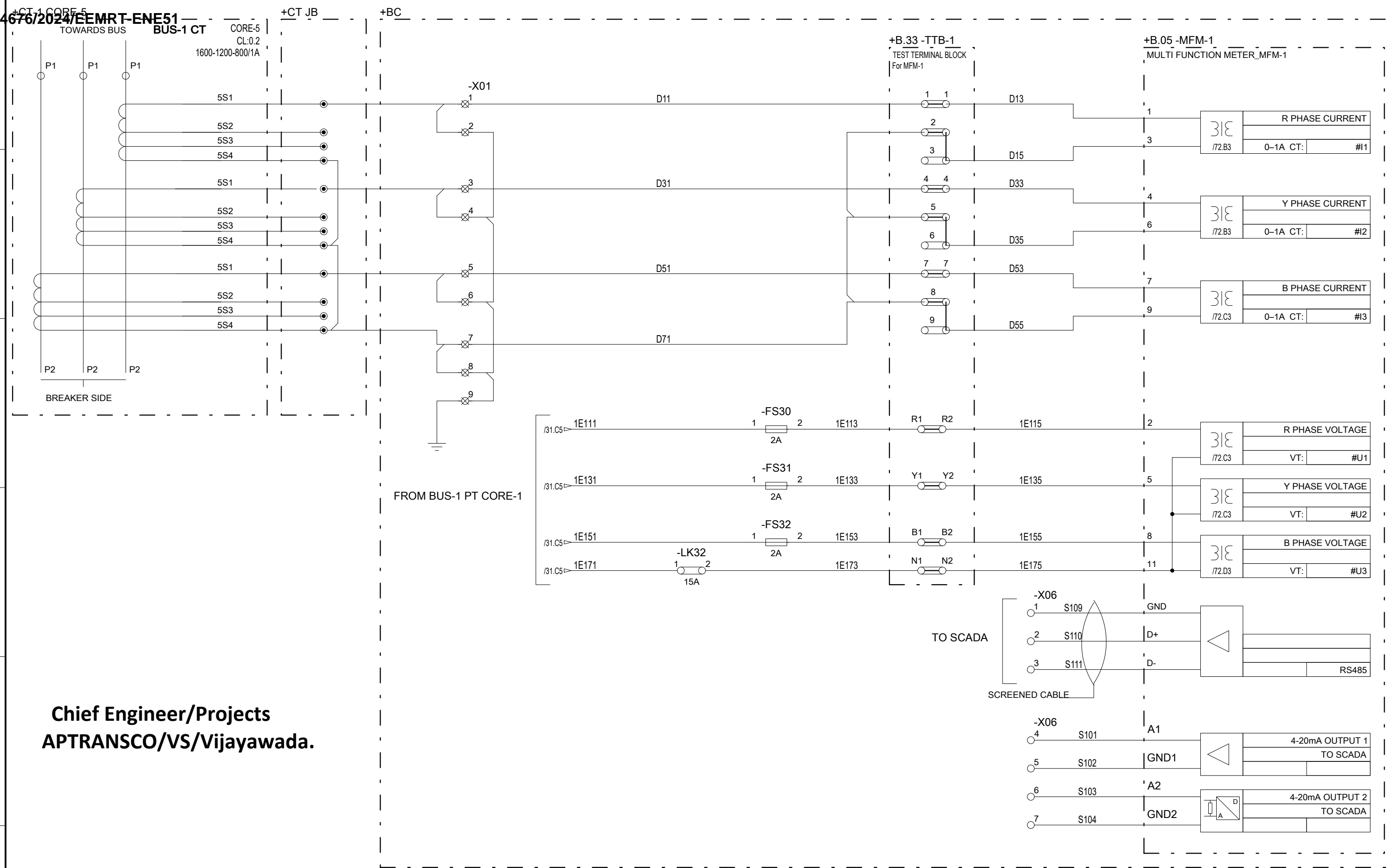
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		Approved	27.12.2023	GOURISH HEGDE	Control & Relay Panel		DCC EFS			
		Project	APTRANSCO		89A-PT1 & 89B-PT2 Isol. Control Circuit		Resp. dept.	PG-GAS	Rev. ind.	0
		STANDARD DRAWING			Hitachi Energy India Limited		Language		en	
Rev.	Revision note	Date	Name		HITACHI	Doc. no.	1MNS500925-CFAA		Sheet	69
1MYN691003-102(A3)REV01				n. sheet					70	

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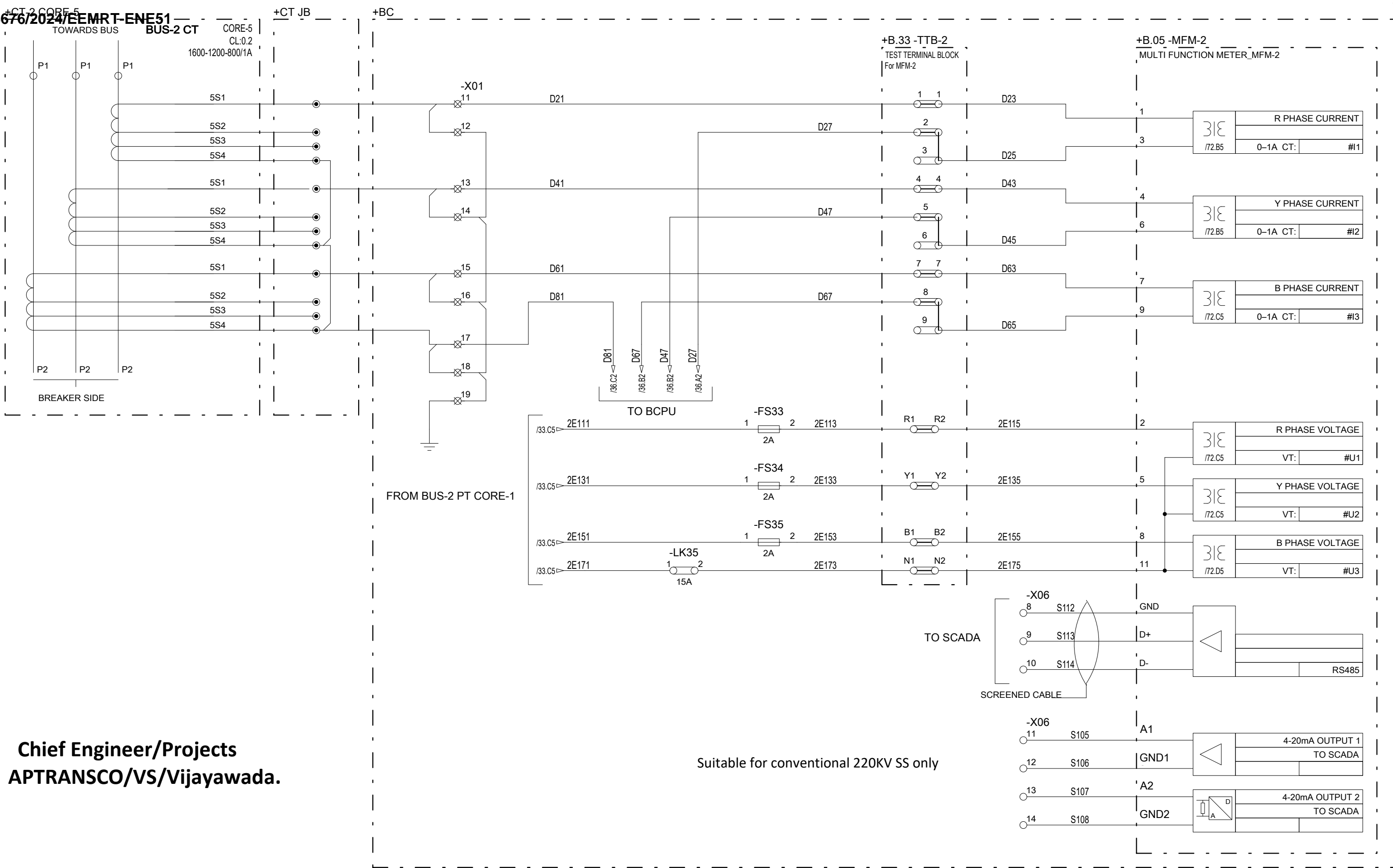


Chief Engineer/Projects
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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		Project APTRANSCO		Metering Circuit- MFM-1	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 70
1MYN691003-102(A3)REV01						n. sheet 71

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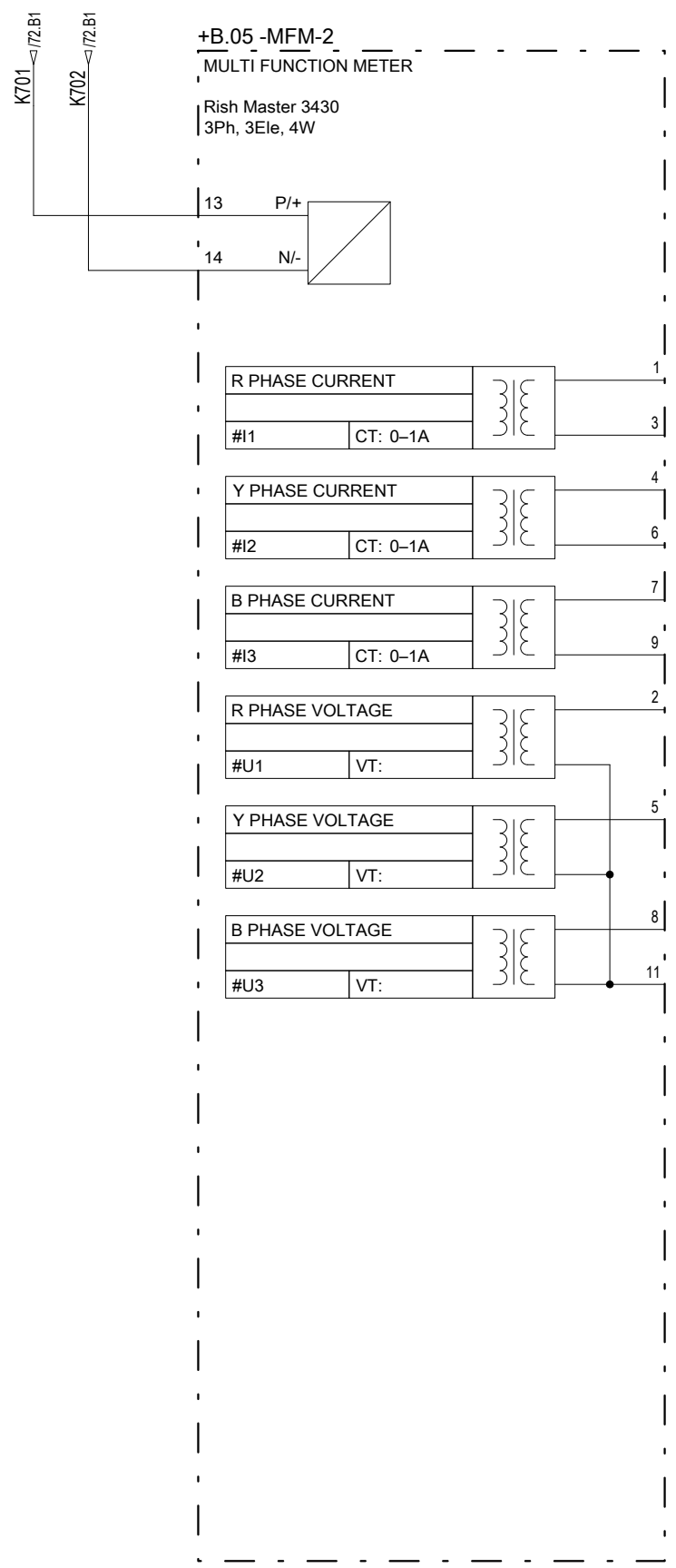
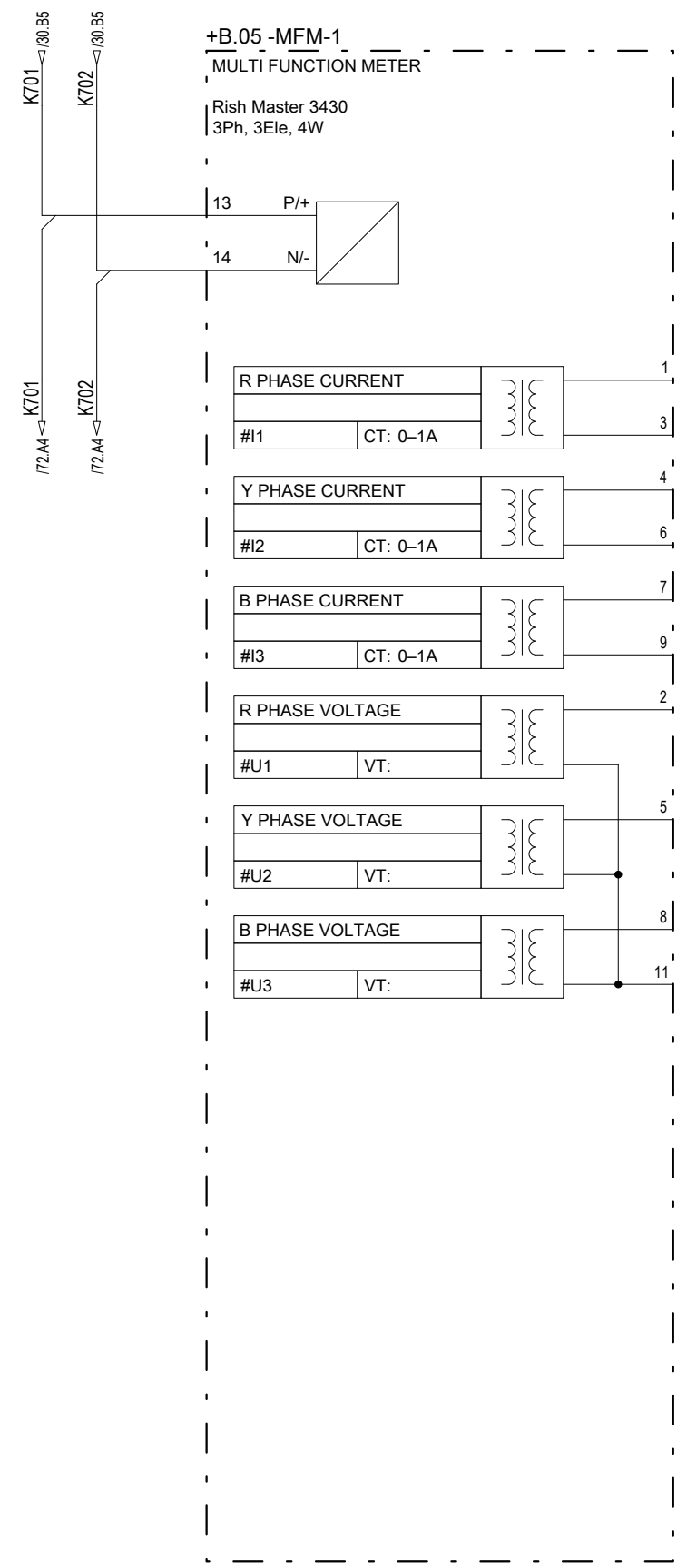
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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		Project APTRANSCO		Metering Circuit- MFM-2	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 71
1MYN691003-102(A3)REV01						n. sheet 72

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Drawing approval subject to valid vendor registration

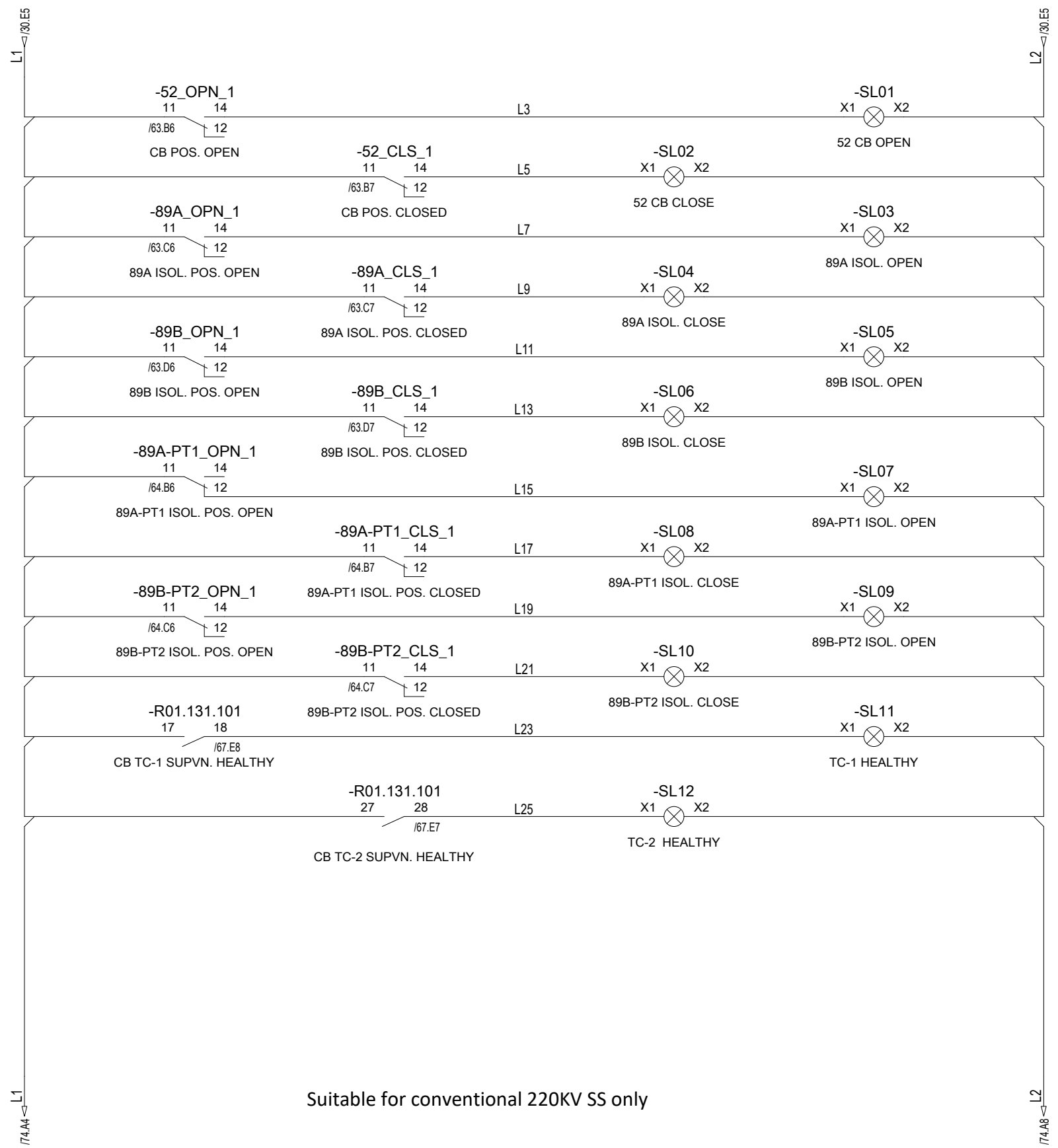
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

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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-CFAA	Sheet 72
1MYN691003-102(A3)REV01						n. sheet 73

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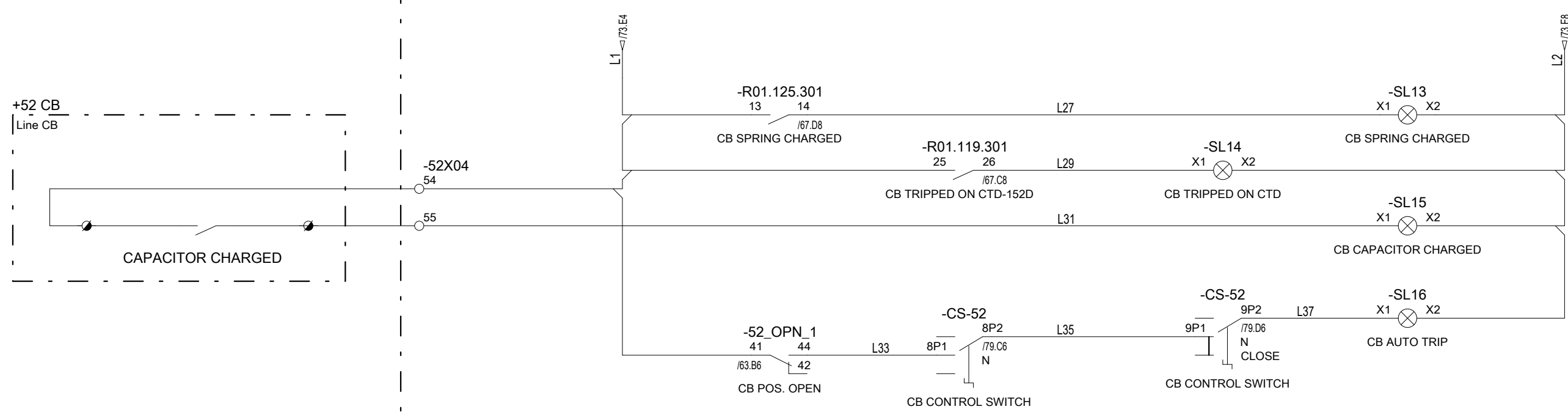
**Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.**

Suitable for conventional 220KV SS only

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		STANDARD DRAWING		HITACHI Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAA	
1MYN691003-102(A3)REV01					Sheet 73	n. sheet 74

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Based on		Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER	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-CFAA		Sheet	74
1MYN691003-102(A3)REV01										n. sheet	75

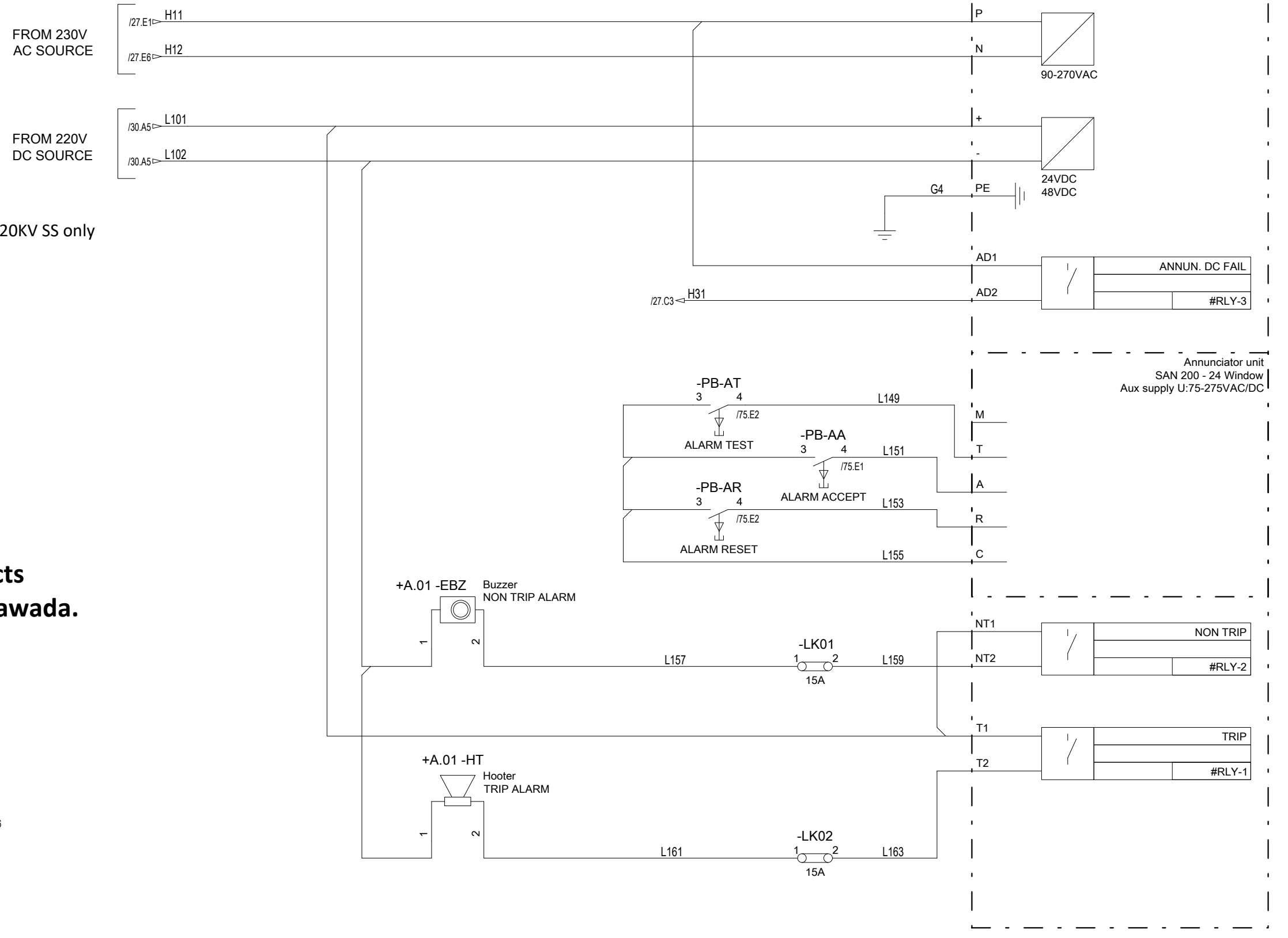
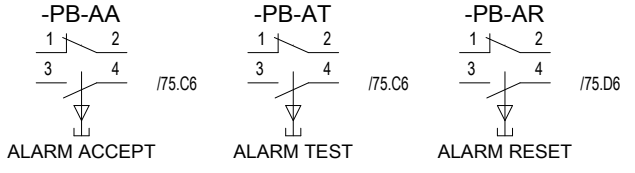
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Chief Engineer/Projects
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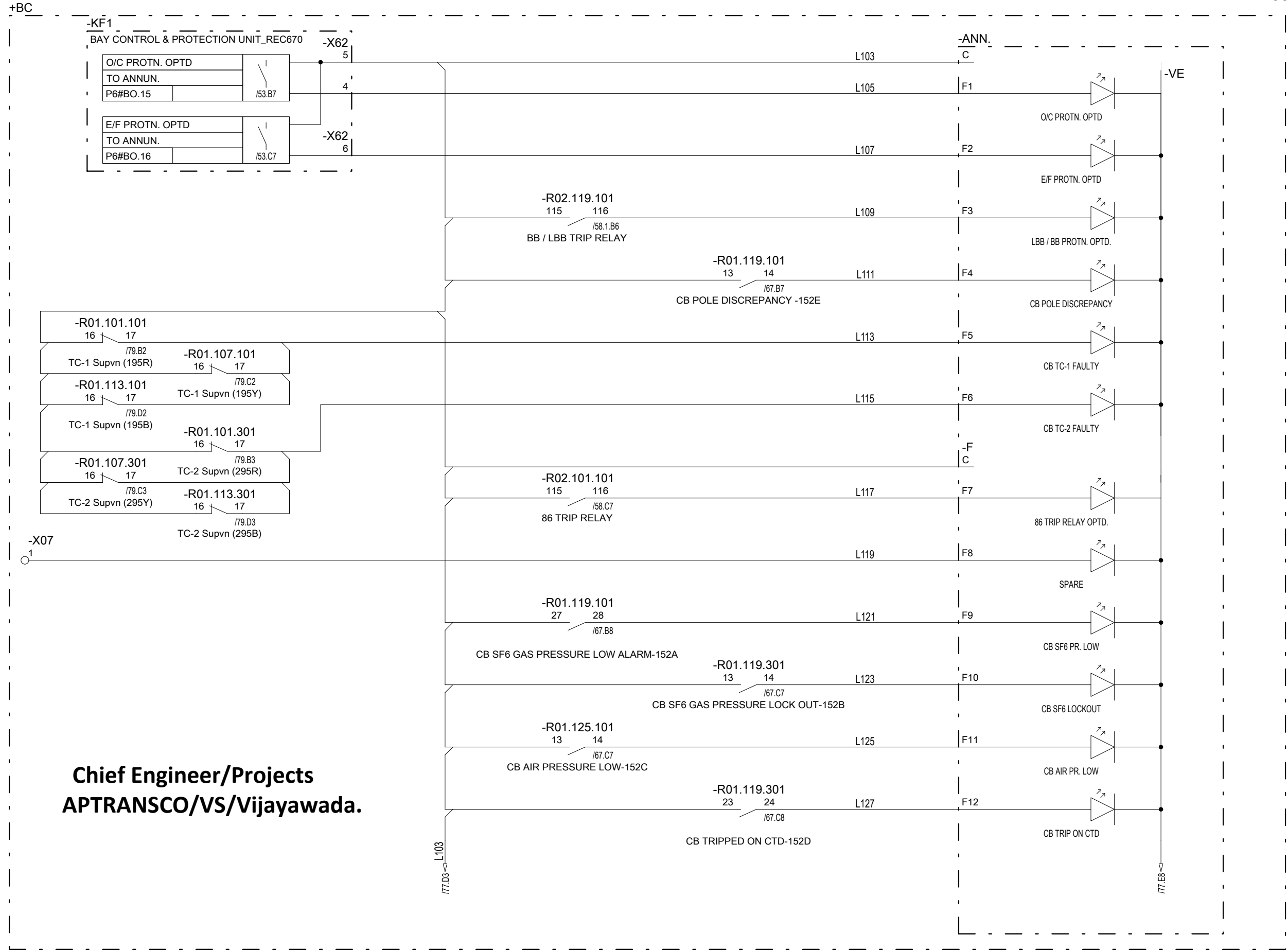


Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Annunciation Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	
1MYN691003-102(A3)REV01					Sheet 75	n. sheet 76

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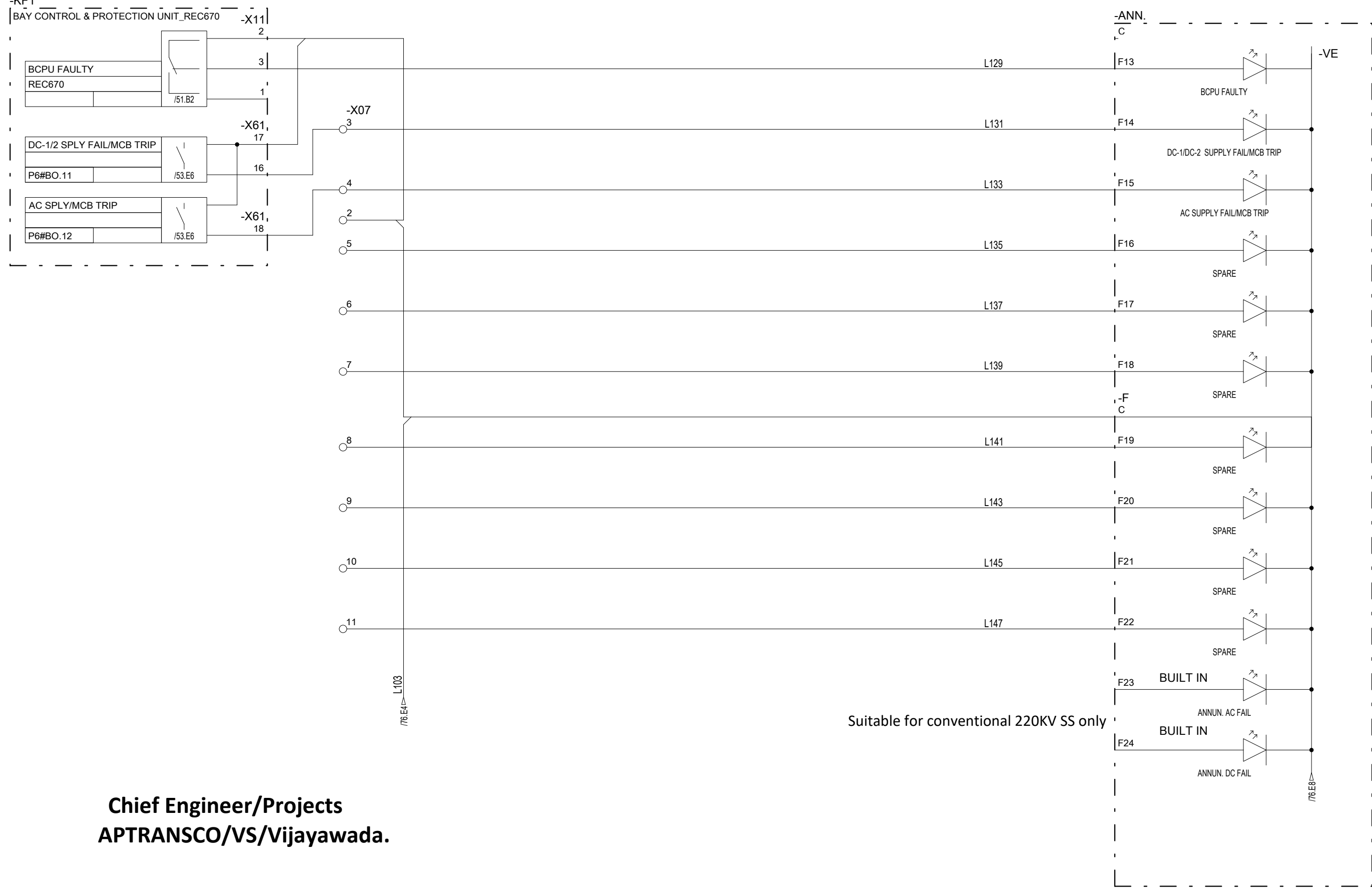


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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Annunciation Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	Sheet 76
1MYN691003-102(A3)REV01						n. sheet 77

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Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel	DCC EFS	
		Project APTRANSCO		Annunciation Circuit	Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		HITACHI Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name		Doc. no. 1MNS500925-CFAA	Sheet 77
1MYN691003-102(A3)REV01						n. sheet 78

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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

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

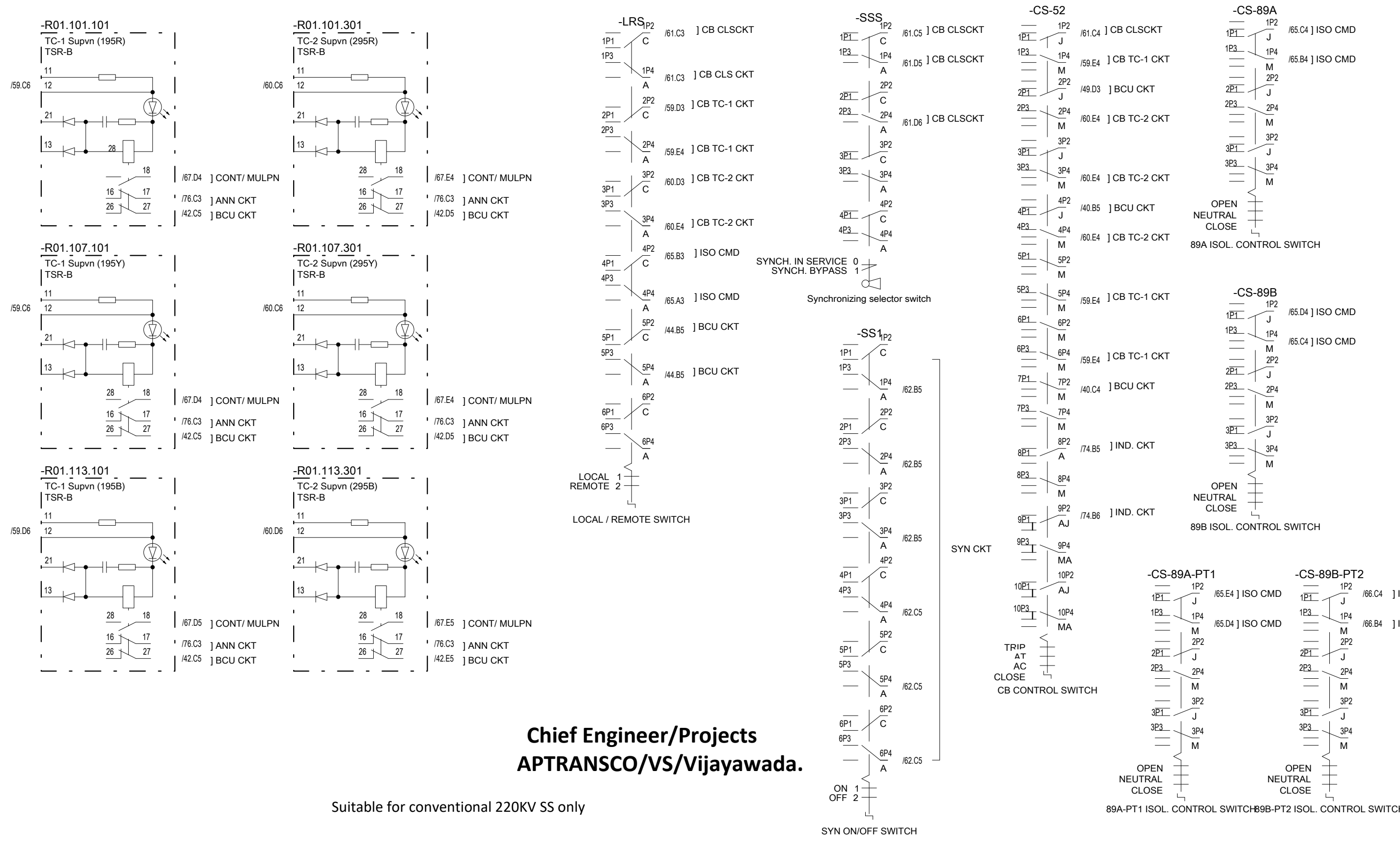
Chief Engineer/Projects
APTRANSCO/VS/Vijayawada.

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER		Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	Control & Relay Panel		DCC EFS	
		Project APTRANSCO		Annunciation Incriptions		Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en	
Rev.	Revision note	Date	Name	HITACHI		1MNS500925-CFAA	
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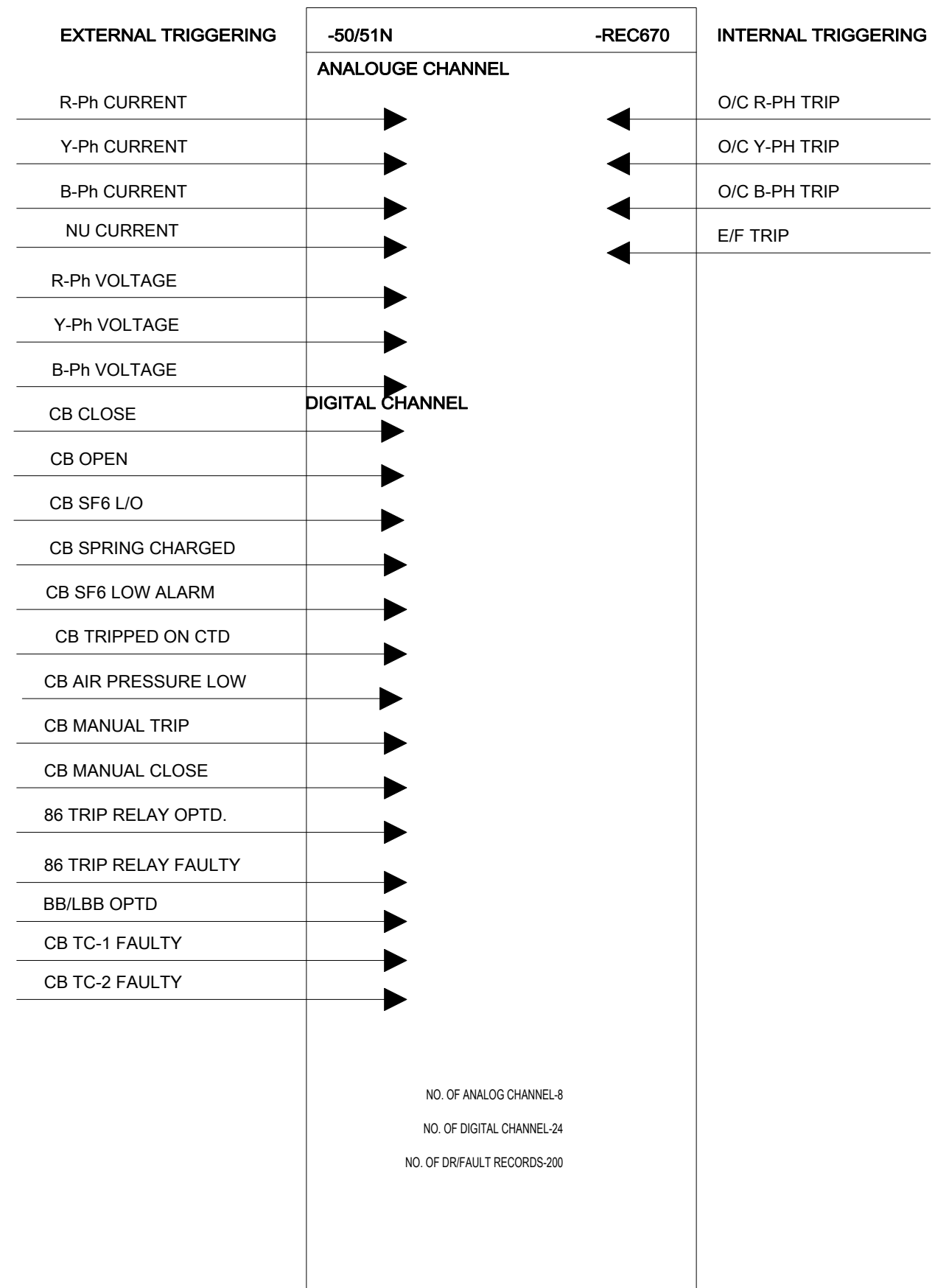
Suitable for conventional 220KV SS only

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER	Doc. kind. Circuit diagram	Ref.Des. =2KR
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		Project APTRANSCO		Contact Distribution Circuit	PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited	Language en	
Rev.	Revision note	Date	Name	HITACHI	Doc. no. 1MNS500925-CFAA	
1MYN691003-102(A3)REV01					Sheet 79	n. sheet 80

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DISTURBANCE / EVENT RECORDED SIGNALS



DIGITAL CHANNEL

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

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

Suitable for conventional 220KV SS only

Based on		Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER Control & Relay Panel Disturbance Recorder	Doc. kind.	Circuit diagram	Ref.Des.	=2KR	
		Approved	27.12.2023	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			HITACHI	Doc. no.	1MNS500925-CFAA		Sheet	80
1MYN691003-102(A3)REV01									n. sheet	81	

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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: 8
(20%)Spare: 2
Total: 10

9 ○ 10 ○

-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: 55
(20%)Spare: 8
Total: 63

56 ○ 58 ○ 57 ○ 59 ○ 60 ○ 61 ○ 62 ○ 63 ○

-89X04

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

45 ○ 47 ○ 49 ○ 51 ○ 53 ○ 55 ○ 56 ○
46 ○ 48 ○ 50 ○ 52 ○ 54 ○

-XX1.2

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

XX1.2
16 ○ 17 ○ 18 ○

-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

13~~⊗~~ 14~~⊗~~ 15~~⊗~~

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

Suitable for conventional 220kV SS only

Based on		Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER		Doc. kind. Circuit diagram	Ref.Des. =2KR
		Approved 27.12.2023	GOURISH HEGDE	SPARE TERMINALS		DCC EFS	+BC
		Project APTRANSCO		SPARE TERMINALS		Resp. dept. PG-GAS	Rev. ind. 0
		STANDARD DRAWING		Hitachi Energy India Limited		Language en	Sheet 81
Rev.	Revision note	Date	Name	HITACHI		Doc. no. 1MNS500925-CFAA	n. sheet 1001
1MYN691003-102(A3)REV01							

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	1	+A.01	-ACMCB01	Miniature circuit breaker	-	16A	240VAC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/26	A		
													Auxiliary contact block	-	1CO
B	2	+A.01	-EBL	Bell for DC Fail Alarm	AUH-1122	80-140V/160-280VAC/DC	Three tone electronic bell	1MYN593002-002	Alan electronic systems pvt.ltd		1	1MNS500925-CFAA/27			
	3	+A.01	-EBZ	Electronic buzzer for Non-Trip Alarm	Buzzer	160-280V AC/DC	96x96mm	1MYN593002-006	Alan electronic systems pvt.ltd		1	1MNS500925-CFAA/75			
	4	+A.01	-HS	On/off Switch		1-2 pos on/off switch, 5A, Flush mounting		1MYN533014-001	Switron		1	1MNS500925-CFAA/26			
	5	+A.01	-HT	Hooter for Trip alarm	Hooter	220VDC		1MYN593002-004		1MYN593002-004	1	1MNS500925-CFAA/75			
	6	+A.01	-LK01	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1				
C			Neutral link	NL	15A			ABB/EATON(cooper Bussmann) /Schneider/L&T		1	1MNS500925-CFAA/75	C			
												7	+A.01	-LK02	Control Fuse Base
D			Neutral link	NL	15A			ABB/EATON(cooper Bussmann) /Schneider/L&T		1	1MNS500925-CFAA/75				
												8	+A.01	-PS	AC Socket with Switch
E	9	+A.01	-TH	Thermostat	TH	230VAC, 15A, 50 Hz	Range : 25-85°C	IN7635-3001	GIRISH EGO		1	1MNS500925-CFAA/26			
	10	+A.03	-ACFS01	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/26			
				Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1				
11	+A.03	-ACFS02	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/27				
F			Control Fuse Base	-	32A			ABB/EATON(cooper Bussmann) /Schneider/L&T		1					
												<p style="text-align: center;">Chief Engineer/Projects APTRANSCO/VS/Vijayawada.</p>			
Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR			
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB		=BC			
				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-FAA		Sheet 1001		n. sheet 1002	
1MYN691003-102(A3)REV01															
1		2		3		4		5		6		7		8	

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814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1000						
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet				
A	+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-CFAA/26					
B	+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-CFAA/27					
C	+A.03	-FS36	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/36				
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
C	+A.03	-FS37	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/36				
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1						
D	+A.03	-FS38	Fuse	-	2A	Chief Engineer/Projects APTRANSCO/Vs/Vijayawada.	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/36				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1					
E	+A.03	-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-CFAA/36					
E	+A.05	-1MCB01	Miniature circuit breaker	-	16A	220VDC, 2P, C-curve, Icn-10kA	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAA/28				
			Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAA/28,45				
F	+A.05	-1MCB02	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, Icn-10kA	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAA/29				
			Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/ Siemens	-	1	1MNS500925-CFAA/29,45				
Based on				Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER		Doc. kind.	Parts list	Ref.Des.	=2KR +BC		
				Approved	27.12.2023	GOURISH HEGDE		Parts list =2KR+BC			DCC EPB				
				Project	APTRANSCO STANDARD DRAWING			=2KR+BC		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en
								HITACHI Hitachi Energy India Limited						Sheet	1002
Rev.	Revision note		Date	Name						Doc. no.		1MNS500925-FAA		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	1001			
A	20	+A.05	-1MCB03	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29	-	-	-
											1	1MNS500925-CFAA/29,47			
B	21	+A.05	-1MCB04	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29	-	-	-
											1	1MNS500925-CFAA/29,47			
C	22	+A.05	-1MCB05	Miniature circuit breaker	-	4A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29	-	-	-
											1	1MNS500925-CFAA/29,47			
D	23	+A.05	-MCB01	Miniature circuit breaker	-	2A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	-	-	-
											1	1MNS500925-CFAA/30,46			
E	24	+A.05	-MCB02	Miniature circuit breaker	-	2A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	-	-	-
											1	1MNS500925-CFAA/30,46			
F	25	+A.05	-MCB03	Miniature circuit breaker	-	4A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	-	-	-
											1	1MNS500925-CFAA/30,46			
G	26	+A.05	-MCB08	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	-	-	-
											1	1MNS500925-CFAA/30,46			
H	27	+A.07	-2MCB01	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/28	-	-	-
											1	1MNS500925-CFAA/28,45			
I	28	+A.07	-2MCB02	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29	-	-	-
											1	1MNS500925-CFAA/29,45			
Chief Engineer/Projects APTRANSCO/VS/Vijayawada.															
Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER				Doc. kind. Parts list		Ref.Des. =2KR +BC	
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC				DCC EPB			
				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-FAA		Sheet 1003	
1MYN691003-102(A3)REV01														n. sheet 1004	

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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	1002				
A	29	+A.07	-2MCB03	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29	A			
				Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29,47				
B	30	+A.07	-2MCB04	Miniature circuit breaker	-	4A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29	B			
				Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/29,47				
C	31	+A.07	-MCB04	Miniature circuit breaker	-	6A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	C			
				Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30,46				
C	32	+A.07	-MCB05	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	C			
				Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30,46				
D	33	+A.07	-MCB06	Miniature circuit breaker	-	10A	220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	C			
				Auxiliary contact block	-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30,46				
D	34	+A.07	-MCB07	Miniature circuit breaker	- Chief Engineer/Projects APTRANSCO/VS/Vijayawada.		220VDC, 2P, C-curve, lcn-10kA	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/30	D			
				Auxiliary contact block		-		1CO	-	ABB/Schneider/L&T/Siemens	-	1	1MNS500925-CFAA/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-CFAA/70,71,81	D			
	36	+A.09	-XX1.2	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		18	1MNS500925-CFAA/38,39,40,41,42,43,44,45,46,47,48,58,65,68,81	E			
E	37	+A.10	-52X04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		66	1MNS500925-CFAA/38,39,59,60,61,63,67,74,81	E			
	38	+A.11	-89X03	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		15	1MNS500925-CFAA/68,69,81	E			
E	39	+A.11	-ACX03	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		5	1MNS500925-CFAA/26,27,81	E			
	40	+A.11	-BBX04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		10	1MNS500925-CFAA/57,58,1,81	E			
F	41	+A.11	-DCX03	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		15	1MNS500925-CFAA/28,29,81	F			
	42	+A.11	-X07	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		14	1MNS500925-CFAA/76,77,81	F			
F	43	+B.01	-DS	Door limit switch	DLS	230V AC, 5A	Single pole, 1NO, Cover for Insulation	IIN5374-3001-1	Kaycee		1	1MNS500925-CFAA/26	F			
Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR		=2KR		
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB				+BC		
				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-FAA		Sheet 1004		n. sheet 1005		
1MYN691003-102(A3)REV01																
1		2		3		4		5		6		7		8		

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8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1003				
Pos.	Location	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-CFAA/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-CFAA/75,76,77		
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-CFAA/70,72		
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-CFAA/71,72		
48	+B.09	-1SL01	Indicator light	-	230V AC, 7mA	WHITE	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/27		
49	+B.09	-86 -PB	Push button	-	1NO, 1NC	Green, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/58		
50	+B.09	-PB-AA	Push button	-	1NO, 1NC	Red, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/75		
51	+B.09	-PB-AR	Push button	-	1NO, 1NC	Black, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/75		
52	+B.09	-PB-AT	Push button	-	1NO, 1NC	Yellow, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/75		
53	+B.09	-PB-DC1-FT	Push button	-	1NO, 1NC	Yellow, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/28		
54	+B.09	-PB-DC2-FT	Push button	-	1NO, 1NC	Yellow, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/28		
55	+B.09	-PB-DCFA	Push button	-	1NO, 1NC	Red, Compact, momentary	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/27		
56	+B.15	-1SL02	Indicator light	-	60VDC/60VAC, 7mA	RED	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/36		
57	+B.15	-1SL03	Indicator light	-	60VDC/60VAC, 7mA	YELLOW	-	ABB/L&T/Teknic/ Schneider/SECO	-	1	1MNS500925-CFAA/36		
Chief Engineer/Projects APTRANSCO/VIS/Vijayawada.													
Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR +BC	
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB			
				Project APTRANSCO				=2KR+BC		PG-GAS		Rev. ind. 0	
				STANDARD DRAWING				Hitachi Energy India Limited		Rev. ind. 0		Language en	
Rev. Revision note				Date		Name		HITACHI		Doc. no. 1MNS500925-FAA		Sheet 1005	
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8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1004							
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-CFAA/36	A			
	59	+B.15	-2SL01	Indicator light	-	60VDC/60VAC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/37				
	60	+B.15	-2SL02	Indicator light	-	60VDC/60VAC, 7mA	YELLOW	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/37				
B	61	+B.15	-2SL03	Indicator light	-	60VDC/60VAC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/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-CFAA/40, 49,59,60,61,74,79				
	63	+B.15	-CS-89A	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-CFAA/65,79				
C	64	+B.15	-CS-89A-PT1	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-CFAA/65,79	C			
	65	+B.15	-CS-89B	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-CFAA/65,79				
	66	+B.15	-SL01	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73				
D	67	+B.15	-SL02	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73	D			
	68	+B.15	-SL03	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73				
	69	+B.15	-SL04	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73				
	70	+B.15	-SL05	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73				
E	71	+B.15	-SL06	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73	E			
	72	+B.15	-SL07	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73				
	73	+B.15	-SL08	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73				
Based on				Prepared	26.12.2023	VINOD G	Title	220kV BUS COUPLER		Doc. kind.	Parts list		Ref.Des.	=2KR		
				Approved	27.12.2023	GOURISH HEGDE	Parts list		DCC EPB				+BC			
				Project	APTRANSCO		=2KR+BC		Resp. dept.	PG-GAS		Rev. ind.	0	Language	en	
				STANDARD DRAWING			HITACHI		Hitachi Energy India Limited		Doc. no.		1MNS500925-FAA		Sheet	1006
Rev.	Revision note		Date	Name								n. sheet		1007		
1MYN691003-102(A3)REV01																
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Chief Engineer/Projects
APTRANSCO/VIS/Vijayawada.

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8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1005					
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet			
A	74	+B.15	-SL09	Indicator light	-	220VDC, 7mA	GREEN	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73	A	
	75	+B.15	-SL10	Indicator light	-	220VDC, 7mA	RED	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73		
	76	+B.15	-SL11	Indicator light	-	220VDC, 7mA	WHITE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73		
B	77	+B.15	-SL12	Indicator light	-	220VDC, 7mA	WHITE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/73	B	
	78	+B.15	-SL13	Indicator light	-	220VDC, 7mA	BLUE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/74		
	79	+B.15	-SL14	Indicator light	-	220VDC, 7mA	AMBER	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/74		
	80	+B.15	-SL15	Indicator light	-	220VDC, 7mA	WHITE	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/74		
C	81	+B.15	-SL16	Indicator light	-	220VDC	AMBER	-	ABB/L&T/Teknic/Schneider/SECO	-	1	1MNS500925-CFAA/74	C	
	82	+B.17	-CS-89B-PT2	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-CFAA/66,79		
	83	+B.17	-LRS	Cam Switch	12-2-pos. contacts	32A, 660V	Stay put with Pistol grip handle, lockable and key removable in both pos. with 90D Switching angle	1MYN910009-AAAG	Switron	1MYN910009-AAAG	1	1MNS500925-CFAA/44, 59,60,61,65,79	D	
D	84	+B.17	-SS1	Rotary Switch	12-2-pos. contacts	32A, 660V	Wing knob type stayput with 90 Degree switching angle	1MNS500925-NAAB	Switron	1MNS500925-NAAB	1	1MNS500925-CFAA/62,79	D	
	85	+B.17	-SSS	Rotary Switch	8 2-pos. contacts	32A, 660V	Stayput, Lever Handle, Key removable in both positions, 90D Switching angle	1MYN533019-001	Switron		1	1MNS500925-CFAA/61,79	E	
E	Chief Engineer/Projects APTRANSCO/VS/Vijayawada.											E		
F	Based on			Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR +BC		F
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB				
				Project APTRANSCO				Hitachi Energy India Limited		Resp. dept. PG-GAS		Rev. ind. 0		Language en
				STANDARD DRAWING				HITACHI		Doc. no. 1MNS500925-FAA		Sheet 1007		
	Rev.	Revision note	Date	Name							n. sheet 1008			
	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
A	+B.25	-KF1	Numerical bay control IED	REC670			1MNS500925-XCAE	ABB	1MNS500925-XCAE	1	1MNS500925-CFAA/35
			Power supply module	PSM	90-250VDC	50/60Hz	.	ABB	.	1	1MNS500925-CFAA/35,51,77
			Binary input module	BIM	220-250VDC	16 inputs	.	ABB	.	7	1MNS500925-CFAA/38, 39,40,41,42,43,44,45, 46,47,48,52,53,54,55, 56
			Binary output module	BOM		24 output relays	.	ABB	.	2	1MNS500925-CFAA/49, 50,52,53,58,61,65,66, 68,69,76,77
			Ethernet module	SFP	100Base-FX, LC connectors	Version 2.2	.	ABB	.	1	1MNS500925-CFAA/51
			Transformer input module	TRM	1A, 0-340V, 50/60Hz	6I+6U	.	ABB	.	1	1MNS500925-CFAA/36,37,51
			Rack casing 15 LED indication module	1/1x19" rack casing LED	14xI/O, 1xTRM	Normal size, Rex670 V2.2	.	ABB ABB	.	1 3	1MNS500925-CFAA/35
C	+B.25	-TS-1_BCPU	Test block	MPG	10NC		1MNS500925-NXAA	GE	1MNS500925-NXAA	1	1MNS500925-CFAA/35,36
C	+B.25	-TS-2_BCPU	Test block	MPG	10NC		1MNS500925-NXAA	GE	1MNS500925-NXAA	1	1MNS500925-CFAA/35, 37,50,58

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

Based on				Prepared	26.12.2023	VINOD G	Title		220kV BUS COUPLER		Doc. kind.	Parts list		Ref.Des.	=2KR +BC		
				Approved	27.12.2023	GOURISH HEGDE	Title		Parts list =2KR+BC		DCC EPB						
				Project			APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited		Resp. dept.	PG-GAS	Rev. ind.	0	Language	en	
								HITACHI				Doc. no.		1MNS500925-FAA		Sheet	1008
Rev.				Revision note		Date		Name								n. sheet	1009
1MYN691003-102(A3)REV01																	

8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1007																																																																																				
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																																																																																			
		-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																																																																																			
		-R01.137.301	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																																																																																			
		-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																																																																																			
		-R02.137.101	Auxiliary relay	RXMH2	220VDC	4NO, 4NC, without flag	RK 223069-AS	ABB	RK 223069-AS	1																																																																																			
-R02.137.301	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1																																																																																					
-R02.143.301	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1																																																																																					
-R02.149.101	Auxiliary relay	RXMM1	220-250VDC	6NO	RK214-003-AS	ABB	RK214-003-AS	1																																																																																					
91	+B.33	-SS	Synchronizing socket	SS Type	500VAC/DC	Panel mounting socket	IN 5381 3001-1	BCH Electric limited		1	1MNS500925-CFAA/62																																																																																		
92	+B.33	-TTB-1	Test Terminal Block for MFM-1	TTB	1100V, 50A	Compact, Flush mounting	1MYN266015-003	Deepl		1	1MNS500925-CFAA/70																																																																																		
<table border="1"> <tr> <td colspan="4">Based on</td> <td colspan="2">Prepared 26.12.2023</td> <td colspan="2">VINOD G</td> <td colspan="2">Title 220kV BUS COUPLER</td> <td colspan="2">Doc. kind. Parts list</td> <td colspan="2">Ref.Des. =2KR</td> </tr> <tr> <td colspan="4"></td> <td colspan="2">Approved 27.12.2023</td> <td colspan="2">GOURISH HEGDE</td> <td colspan="2">Parts list =2KR+BC</td> <td colspan="2">DCC EPB</td> <td colspan="2">+BC</td> </tr> <tr> <td colspan="4"></td> <td colspan="2">Project APTRANSCO</td> <td colspan="2"></td> <td colspan="2">=2KR+BC</td> <td colspan="2">Resp. dept. PG-GAS</td> <td colspan="2">Rev. ind. 0</td> </tr> <tr> <td colspan="4"></td> <td colspan="2">STANDARD DRAWING</td> <td colspan="2"></td> <td colspan="2">HITACHI Hitachi Energy India Limited</td> <td colspan="2">Language en</td> <td colspan="2">Sheet 1009</td> </tr> <tr> <td colspan="4">Rev. Revision note</td> <td colspan="2">Date</td> <td colspan="2">Name</td> <td colspan="2"></td> <td colspan="2">Doc. no. 1MNS500925-FAA</td> <td colspan="2">n. sheet 1010</td> </tr> <tr> <td colspan="12">1MYN691003-102(A3)REV01</td> </tr> </table>												Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR						Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB		+BC						Project APTRANSCO				=2KR+BC		Resp. dept. PG-GAS		Rev. ind. 0						STANDARD DRAWING				HITACHI Hitachi Energy India Limited		Language en		Sheet 1009		Rev. Revision note				Date		Name				Doc. no. 1MNS500925-FAA		n. sheet 1010		1MYN691003-102(A3)REV01											
Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR																																																																																	
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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
102	+C.01	-LK12	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/36
			Neutral link	NL	15A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
103	+C.01	-LK21	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/62
			Neutral link	15A	15A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
104	+C.01	-LK32	Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/70
			Neutral link	NL	15A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
105	+C.03	-FS13	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/37
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
106	+C.03	-FS14	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/37
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		
107	+C.03	-FS15	Fuse	-	2A	Chief Engineer/Projects APTRANSCO/VS/Vijayawada.	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/37
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	
108	+C.03	-FS22	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/62
			Control Fuse Base	-	32A	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1		

Based on				Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER		Doc. kind. Parts list	Ref.Des. =2KR +BC	
				Approved 27.12.2023	GOURISH HEGDE	Parts list =2KR+BC		DCC EPB		
				Project APTRANSCO		Hitachi Energy India Limited		Resp. dept. PG-GAS	Rev. ind. 0	Language en
				STANDARD DRAWING		HITACHI		Doc. no. 1MNS500925-FAA		Sheet 1011
Rev.	Revision note	Date	Name							n. sheet 1012

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Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet																																																																																				
A	+C.03	-FS33	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/71																																																																																				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																																																					
B	+C.03	-FS34	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/71																																																																																				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																																																					
C	+C.03	-FS35	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/71																																																																																				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																																																					
C	+C.03	-FS39	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/37																																																																																				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																																																					
D	+C.03	-FS40	Fuse	-	2A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/37																																																																																				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																																																					
E	+C.03	-FS41	Fuse	-	2A	Chief Engineer/Projects APTRANSCO/VS/Vijayawada.	-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1	1MNS500925-CFAA/37																																																																																				
			Control Fuse Base	-	32A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1																																																																																					
E	+C.03	-LK15	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-CFAA/37																																																																																				
<table border="1"> <tr> <td colspan="4">Based on</td> <td colspan="2">Prepared 26.12.2023</td> <td colspan="2">VINOD G</td> <td colspan="2">Title 220kV BUS COUPLER</td> <td colspan="2">Doc. kind. Parts list</td> <td colspan="2">Ref.Des. =2KR +BC</td> </tr> <tr> <td colspan="4"></td> <td colspan="2">Approved 27.12.2023</td> <td colspan="2">GOURISH HEGDE</td> <td colspan="2">Parts list =2KR+BC</td> <td colspan="2">DCC EPB</td> <td colspan="2"></td> </tr> <tr> <td colspan="4"></td> <td colspan="2">Project APTRANSCO</td> <td colspan="2"></td> <td colspan="2">=2KR+BC</td> <td colspan="2">PG-GAS</td> <td colspan="2">Rev. ind. 0</td> </tr> <tr> <td colspan="4"></td> <td colspan="2">STANDARD DRAWING</td> <td colspan="2"></td> <td colspan="2">Hitachi Energy India Limited</td> <td colspan="2">Rev. ind. 0</td> <td colspan="2">Language en</td> </tr> <tr> <td colspan="4">Rev. Revision note</td> <td colspan="2">Date</td> <td colspan="2">Name</td> <td colspan="2">HITACHI</td> <td colspan="2">Doc. no. 1MNS500925-FAA</td> <td colspan="2">Sheet 1012</td> </tr> <tr> <td colspan="4">1MYN691003-102(A3)REV01</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">n. sheet 1013</td> </tr> </table>												Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR +BC						Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB								Project APTRANSCO				=2KR+BC		PG-GAS		Rev. ind. 0						STANDARD DRAWING				Hitachi Energy India Limited		Rev. ind. 0		Language en		Rev. Revision note				Date		Name		HITACHI		Doc. no. 1MNS500925-FAA		Sheet 1012		1MYN691003-102(A3)REV01												n. sheet 1013	
Based on				Prepared 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR +BC																																																																																			
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB																																																																																					
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				STANDARD DRAWING				Hitachi Energy India Limited		Rev. ind. 0		Language en																																																																																			
Rev. Revision note				Date		Name		HITACHI		Doc. no. 1MNS500925-FAA		Sheet 1012																																																																																			
1MYN691003-102(A3)REV01												n. sheet 1013																																																																																			

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Pos.	Location	ENE51 Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet
116	+C.03	-LK22	Control Fuse Base Neutral link	- 15A	32A 15A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1 1	1MNS500925-CFAA/62
117	+C.03	-LK35	Control Fuse Base Neutral link	- NL	32A 15A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1 1	1MNS500925-CFAA/71
118	+C.03	-LK41	Control Fuse Base Neutral link	- NL	32A 15A		-	ABB/EATON(cooper Bussmann) /Schneider/L&T ABB/EATON(cooper Bussmann) /Schneider/L&T	-	1 1	1MNS500925-CFAA/37
119	+C.05	-89B-PT2_CLS_2	Relay Diode module Relay Socket Retaining bracket	REL-IR-BL/L-220DC/4X21 DP-12-220 DC ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting) ECOR-RH-2L	220VDC 6-230VDC	4CO, screw connection, test button, mechanical indicator - -	1MNS500579-CRMA 1MNS500579-CRMC 1MNS500579-CRMB 1MNS500579-CRMD	Phoenix Contact Phoenix contact Phoenix contact Phoenix contact	1109562 2907517 2907521 1051972	1 1 1 1	1MNS500925-CFAA/64
120	+C.07	-52_CLS_1	Relay Diode module Relay Socket Retaining bracket	REL-IR-BL/L-220DC/4X21 DP-12-220 DC ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting) ECOR-RH-2L	220VDC 6-230VDC	4CO, screw connection, test button, mechanical indicator - -	1MNS500579-CRMA 1MNS500579-CRMC 1MNS500579-CRMB 1MNS500579-CRMD	Phoenix Contact Phoenix contact Phoenix contact Phoenix contact	1109562 2907517 2907521 1051972	1 1 1 1	1MNS500925-CFAA/63,73
121	+C.07	-52_CLS_2	Relay Diode module Relay Socket Retaining bracket	REL-IR-BL/L-220DC/4X21 DP-12-220 DC ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting) ECOR-RH-2L	220VDC 6-230VDC	4CO, screw connection, test button, mechanical indicator - -	1MNS500579-CRMA 1MNS500579-CRMC 1MNS500579-CRMB 1MNS500579-CRMD	Phoenix Contact Phoenix contact Phoenix contact Phoenix contact	1109562 2907517 2907521 1051972	1 1 1 1	1MNS500925-CFAA/63
Chief Engineer/Projects APTRANSCO/VS/Vijayawada.											
Based on				Prepared	26.12.2023	VINOD G		Title		220kV BUS COUPLER	
				Approved	27.12.2023	GOURISH HEGDE		Doc. kind.		Parts list	
				Project	APTRANSCO		Parts list		DCC EPB		Ref.Des.
				STANDARD DRAWING		=2KR+BC		Resp. dept.		PG-GAS	
								Hitachi Energy India Limited		Rev. ind. 0	
								Doc. no.		1MNS500925-FAA	
Rev.				Revision note		Date		Language		en	
								Sheet		1013	
								n. sheet		1014	
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1011
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8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1012				
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet		
A	122	+C.07	-52_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/63,73,74		
				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	123	+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-CFAA/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	124	+C.07	-89A_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/40,63,73		
				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	125	+C.07	-89A_CLS_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/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	126	+C.07	-89A_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/40,63,73		
				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 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR+BC	
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB			
				Project APTRANSCO				=2KR+BC		PG-GAS		Rev. ind. 0	
				STANDARD DRAWING				Hitachi Energy India Limited		Rev. ind. 0		Language en	
Rev. Revision note				Date		Name		HITACHI		Doc. no. 1MNS500925-FAA		Sheet 1014	
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8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1013				
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet		
A	127	+C.07	-89A_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/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	128	+C.07	-89A-PT1_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/41,64,73		
				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	129	+C.07	-89A-PT1_CLS_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/64		
				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	130	+C.07	-89A-PT1_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/41,64,73		
				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	131	+C.07	-89A-PT1_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/64		
				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 26.12.2023		VINOD G		Title 220kV BUS COUPLER		Doc. kind. Parts list		Ref.Des. =2KR	
				Approved 27.12.2023		GOURISH HEGDE		Parts list =2KR+BC		DCC EPB		+BC	
				Project APTRANSCO				=2KR+BC		Resp. dept. PG-GAS		Rev. ind. 0	
				STANDARD DRAWING				HITACHI Hitachi Energy India Limited		Language en		Sheet 1015	
Rev. Revision note				Date		Name		Doc. no. 1MNS500925-FAA		Rev. ind. 0		n. sheet 1016	
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8814676/2024/EEMRT-ENE51	1	2	3	4	5	6	7	8	1014						
Pos.	Location	Device designation	Device description	Type designation	Technical data	Remark	Article number	Manufacturer	Manufacturer number	Qty.	Document / sheet				
A	132	+C.07	-89B_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/41,63,73				
				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	133	+C.07	-89B_CLS_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/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	134	+C.07	-89B_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/40,63,73				
				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	135	+C.07	-89B_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/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	136	+C.07	-89B-PT2_CLS_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	Phoenix Contact	1109562	1	1MNS500925-CFAA/43,64,73				
				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	26.12.2023	VINOD G	Title		220kV BUS COUPLER	Doc. kind.	Parts list	Ref.Des.	=2KR +BC		
				Approved	27.12.2023	GOURISH HEGDE	Parts list		=2KR+BC	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-FAA		Sheet	1016	
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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.07	-89B-PT2_OPN_1	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	1MNS500579-CRMA	Phoenix Contact	1109562	1	1MNS500925-CFAA/43,64,73
			Diode module Relay Socket	DP-12-220 DC ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	6-230VDC	- -	1MNS500579-CRMC 1MNS500579-CRMB	Phoenix contact Phoenix contact	2907517 2907521	1 1	
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972	1		
B	+C.07	-89B-PT2_OPN_2	Relay	REL-IR-BL/L-220DC/4X21	220VDC	4CO, screw connection, test button, mechanical indicator	1MNS500579-CRMA	Phoenix Contact	1109562	1	1MNS500925-CFAA/64
			Diode module Relay Socket	DP-12-220 DC ECOR-2-BSC3/4X21 (Screw connection & DIN rail mounting)	6-230VDC	- -	1MNS500579-CRMC 1MNS500579-CRMB	Phoenix contact Phoenix contact	2907517 2907521	1 1	
			Retaining bracket	ECOR-RH-2L	-	1MNS500579-CRMD	Phoenix contact	1051972	1		
C	+C.09	-X04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		64	1MNS500925-CFAA/41, 42,44,45,47,48,50,58, 62,63,81
	+C.09	-XX1.1	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		3	1MNS500925-CFAA/49,81
	+C.10	-89X04	Feed-through terminal	CAT M4	800V, 45A	2.5-6mm ² , grey	IN2662-3001-3	Elmex		56	1MNS500925-CFAA/40, 41,43,63,64,68,69,81
D	+C.11	-X01	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		33	1MNS500925-CFAA/37, 70,71,81
	+C.11	-X02	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		20	1MNS500925-CFAA/31, 32,33,34,81
	+C.11	-X12	Disconnect terminal	CATD M4	800V, 41A	2.5-6mm ²	1MYN266003-002	Elmex		20	1MNS500925-CFAA/31, 32,33,34,81

Drawing approval subject to valid vendor registration

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

Suitable for conventional 220KV SS only

Based on				Prepared 26.12.2023	VINOD G	Title 220kV BUS COUPLER		Doc. kind. Parts list	Ref.Des. =2KR +BC	
				Approved 27.12.2023	GOURISH HEGDE	Parts list =2KR+BC		DCC EPB		
				Project APTRANSCO STANDARD DRAWING		Hitachi Energy India Limited		Resp. dept. PG-GAS	Rev. ind. 0	Language en
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