Amendment No.-III to the Bidding Documents for AIS Bay extension works (SS-02)

i) Under NERES-XXIII

a) Extension of 132kV Pasighat (DoP, Arunachal Pradesh) S/s.

b) Extension 132kV Roing (POWERGRID) S/s.

c) Extension 132kV Tezu (POWERGRID) S/s.

d) Extension of 132kV Namsai (POWERGRID) S/s

ii) Under NERES-29A

a) Installation of new 1x50MVA, 132/33kV (3rd) ICT at Namsai (POWERGRID) S/s

(Specification No. NER/NT/W-AIS/DOM/H00/25/08534)

S No.	Volume/ Section/ Clause No.	Existing Provision/ Bidder's Queries	Amended as/ POWERGRID's Reply
1	Volume II- Technical Specification	**Bidder's Queries** i) As per the attached pdf attached herein	**Clarifications/Amended as New Documents**: i) As per the attached pdf attached herein

	Pre-Bid Queries and the Requirements	POWERGRID reply
	SUPPLY PORTION NAMSAI POWER GRID SUBSTATION	
1	Present Actual Archeitecture along with complete devices protocol types	SAS architecture attached as Annexure-A
2	Exisitng all devices (All relay, BCU, Ethernet switch, Spare port availability details, GPS details,....etc) Model No along with software version.	BCU model no provided in BCU model sheet
3	All PC's OS details, RAM details, Port details, Spare port availability details.	This shall be part of detailed engineering
4	Existing all SAS related documents and backup are required. (SCE Database & PACIS Database or ECOSUI Database and its version)	This shall be part of detailed engineering
5	Note: Assumed as all the spare ports are healthy.	OK
6	Control Room Blue Print required with complete dimensions to locate our panel.	This shall be part of detailed engineering
7	Existing Board formation	This shall be part of detailed engineering
8	Existing SLD	This shall be part of detailed engineering
9	Existing bays scheme drawing	This shall be part of detailed engineering
10	In existing there is no Busbar protection systerm at site. Please confirm, do we need to supply Busbar protection panels for Exising bays including extension bays (2 no's of Extension bays).	Yes bus bar protection includes both present and existing scope.
11	SEIL scope is limited to Configuration, Testing & Commissioning of Schneider supplied materials.	NA to EPC contractor. EPC to execute as per TS and scope
	SUPPLY PORTION TEZU POWER GRID SUBSTATION	
1	Present Actual Archeitecture along with complete devices protocol types	SAS architecture attached as Annexure-C
2	Exisitng all devices (All relay, BCU, Ethernet switch, Spare port availability details, GPS details,....etc) Model No along with software version.	BCU model no provided in BCU model sheet
3	All PC's OS details, RAM details, Port details, Spare port availability details.	This shall be part of detailed engineering
4	Existing all SAS related documents and backup are required. (SCE Database & PACIS Database or ECOSUI Database and its version)	This shall be part of detailed engineering
5	Note: Assumed as all the spare ports are healthy.	OK
6	Control Room Blue Print required with complete dimensions to locate our panel.	This shall be part of detailed engineering
7	Existing Board formation	Attached
8	Existing SLD	Already provided with Tender
9	Existing bays scheme drawing	This shall be part of detailed engineering
10	In existing there is no Busbar protection systerm at site. Please confirm, do we need to supply Busbar protection panels for Exising bays including extension bays (2 no's of Extension bays).	This has been aptly provided in section project. Pl refer cl.
11	SEIL scope is limited to Configuration, Testing & Commissioning of Schneider supplied materials.	NA to EPC contractor.EPC to execute as per TS and scope
	SUPPLY PORTION ROING POWER GRID SUBSTATION	
1	Present Actual Archeitecture along with complete devices protocol types	SAS architecture attached as Annexure-B
2	Exisitng all devices (All relay, BCU, Ethernet switch, Spare port availability details, GPS details,....etc) Model No along with software version.	BCU model no provided in BCU model sheet
3	All PC's OS details, RAM details, Port details, Spare port availability details.	This shall be part of detailed engineering
4	Existing all SAS related documents and backup are required. (SCE Database & PACIS Database or ECOSUI Database and its version)	This shall be part of detailed engineering
5	Note: Assumed as all the spare ports are healthy.	OK
6	Control Room Blue Print required with complete dimensions to locate our panel.	This shall be part of detailed engineering
7	Existing Board formation	This shall be part of detailed engineering
8	Existing SLD	Already provided with Tender
9	Existing bays scheme drawing	This shall be part of detailed engineering
10	Dismantling of Existing all Busbar relays (both PU & CU) by our new relays is not in SEIL scope. All wirings are also not in SEIL scope. SEIL scope is to supply the relays as loose material and further testing & commissioning the same after successfully retrofitting by customer.	NA to EPC contractor.EPC to execute as per TS and scope
11	SEIL scope is limited to Configuration, Testing & Commissioning of Schneider supplied materials.	NA to EPC contractor.EPC to execute as per TS and scope
	SUPPLY PORTION PASIGHAT POWER GRID SUBSTATION	
1	Control Room Blue Print required with complete dimensions to locate our panel.	This shall be part of detailed engineering
2	Existing Board formation	This shall be part of detailed engineering
3	Existing SLD	Already provided with tender
4	Existing bays scheme drawing	This shall be part of detailed engineering
6	SEIL scope is limited to Configuration, Testing & Commissioning of Schneider supplied materials.	NA to EPC contractor.EPC to execute as per TS and scope

	BCU Model
Tezu	C264M11I691001230400003111 1N00
Roing	C264M11I691001230400003111 1N00
Namsai	C264U11I6A100160330000U1111N10

संदर्भ/Ref : CC-ENGG-TB202215-1001828-SS1718-SAS-SCH **Date :** 16/07/2024

From : Sumit Mishra
DGM

To : TRANSRAIL LIGHTING LIMITED
A-201/209 BOOMERANG COMPLEX MUMBAI
400072
400072

Cc : NA

Subject : Substation Package SS-01for (i) Extn. of 400kV AIS switchyard and Creation of 220kV GIS at 400/132kV Banka (POWERGRID) S/s under ERSS-XXV (ii) Extn. of 132kV AIS switchyard and Upgradation of existing 132kV Namsai (POWERGRID) S/s to 220kV (with 220kV side as GIS) including 1x50MVAR, 245kV Bus Reactor under NERSS-XV and (iii) 2 nos. of 220kV GIS line bays at Kathalguri (NEEPCO) switchyard under NERSS-XV through Tariff Based Competitive Bidding (TBCB) route.

LOA Ref : TBCB/ERSS-XXV & NERSS-XV/220KV GIS/G7/NOA-1/03 & NOA-II/04 Dated 12/10/2022

Please find enclosed following drawings/ documents for necessary action at your end.

Vendor Drg. No.	:	G508-TLL-NAM-VEN-SAS-SCH
Orgn. Drg. No.	:	TB202215-1001828-SS1718-SAS-SCH
Revision No.	:	02
Drg. Title	:	Namsai- SAS Panel Scheme
App. Category	:	CAT-I
Release Date	:	16/07/2024

Scan to verfiy

Comments : Document in order.

अनुमोदित श्रेणी/App. Category:

I. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी।
Approved/released for fabrication/construction.

II. फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइजड दस्तावेज अनुमोदनार्थ प्रस्तुत करें।
Approved/released for fabrication/ construction subject to incorporation of comments and modification as noted. Revised drawing required for approval.

III. टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें।
To be resubmitted for approval after incorporating the comments.

IV. सूचनार्थ एवं रिकार्ड हेतु।
For information and record.

CATREL/ REL-CON निर्माण हेतु जारी।
Released for construction.

नोट/**Note:**

1. Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.
2. The approval conveyed vide this letter does not cover the approval of make for sub-vendor items.

REV	DESCRIPTION	DATE	DESIGN	CHECK	APPROVE
2	Revised as per PGCIL comments dated 03.12.2023	04.06.2024	MSB	MSB	SSC
1	Revised as per PGCIL comments dated 03.12.2023	01.02.2024	MSB	MSB	SSC
0	First Submission	31.10.2023	MSB	MSB	SSC

COMPANY	NR NER TRANSMISSION LIMITED					
CONSULTANT :	पावरग्रिड POWERGRID / पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड (भारत सरकार का उद्यम) POWER GRID CORPORATION OF INDIA LIMITED (A Government of India Enterprise)					
CONTRACTOR :	TRANSRAIL					
PROJECT :	SUBSTATION PACKAGE SS01 FOR (I) EXTN. OF 400KV AIS SWITCHYARD AND CREATION OF 220KV GIS AT 400/132KV BANKA (POWERGRID) UNDER ERSS-XXV, (II) EXTN. OF 132KV AIS SWITCHYARD AND UPGRADATION OF EXISTING 132KV NAMSAI (POWERGRID) S/S TO 220KV GIS INCLUDING 1X50MVAR, 245KV BUS REACTOR UNDER NERSS-XV AND (III) 2 NOS. OF 220KV GIS LINE BAYS AT KATHALGURI (NEEPCO) SWITCHYARD UNDER NERSS-XV.					
LOA NO :	TBCB/ERSS-XXV & NERSS-XV/220KV GIS/G7/NOA-I/03 DTD.12.10.2022 TBCB/ERSS-XXV & NERSS-XV/220KV GIS/G7/NOA-II/04 DTD.12.10.2022					
TITLE :	NAMSAI SUBSTATION AUTOMATION SYSTEM INTEGRATION					
STATUS :	For Informarion ☐	For Approval [X]	For Execution ☐	As Built ☐		
DOCUMENT NUMBER	**TLL DOCUMENT NUMBER : G508-TLL-NAM-VEN-SAS-SCH**					**REV. 2**
	PGCIL DOCUMENT NUMBER : TB202215-1001828-SS1718-SAS-SCH					

Compliance Report			
Customer	PGCIL		
Project	EXTENSION OF 132KV AND UPGRADATION TO 220KV AT NAMSAI SS		
Po.No.	2120004146		
Comments Reference:	TB202215-1001828-SS1718-SAS-SCH_1		
Compliance Reference:	I1-226017525-DCS-Comp-01		
Comment.No	**CUSTOMER COMMENTS**	**Drawing Sheet No**	**Compliance**
1	1. Table for BOQ to be shown in this drg. 2. Present scope of SAS Aug shall be marked. 3. for EFS- existing used for present bays & new used for present scope, following details shall be provided in table format: a) total no of Fibre & RJ45 ports b) port Used for present scope c) spare available for future use.	Sht No.005	1. Noted, the same has been Updated. 2. Present scope of SAS supply are marked with BLUE colored boundaries.. 3. Existing EFS Ports are not utilized for the present scope of supply. Existing EFS port details are aded in table form. The EFS port details markup shall be provided during site commissioning, ASBUILT drawing of the same will be provided.
2	P546 & other relays to be included as per CRP scheme	Sht No.005	Noted, the same has been Updated.

LIST OF DOCUMENTS

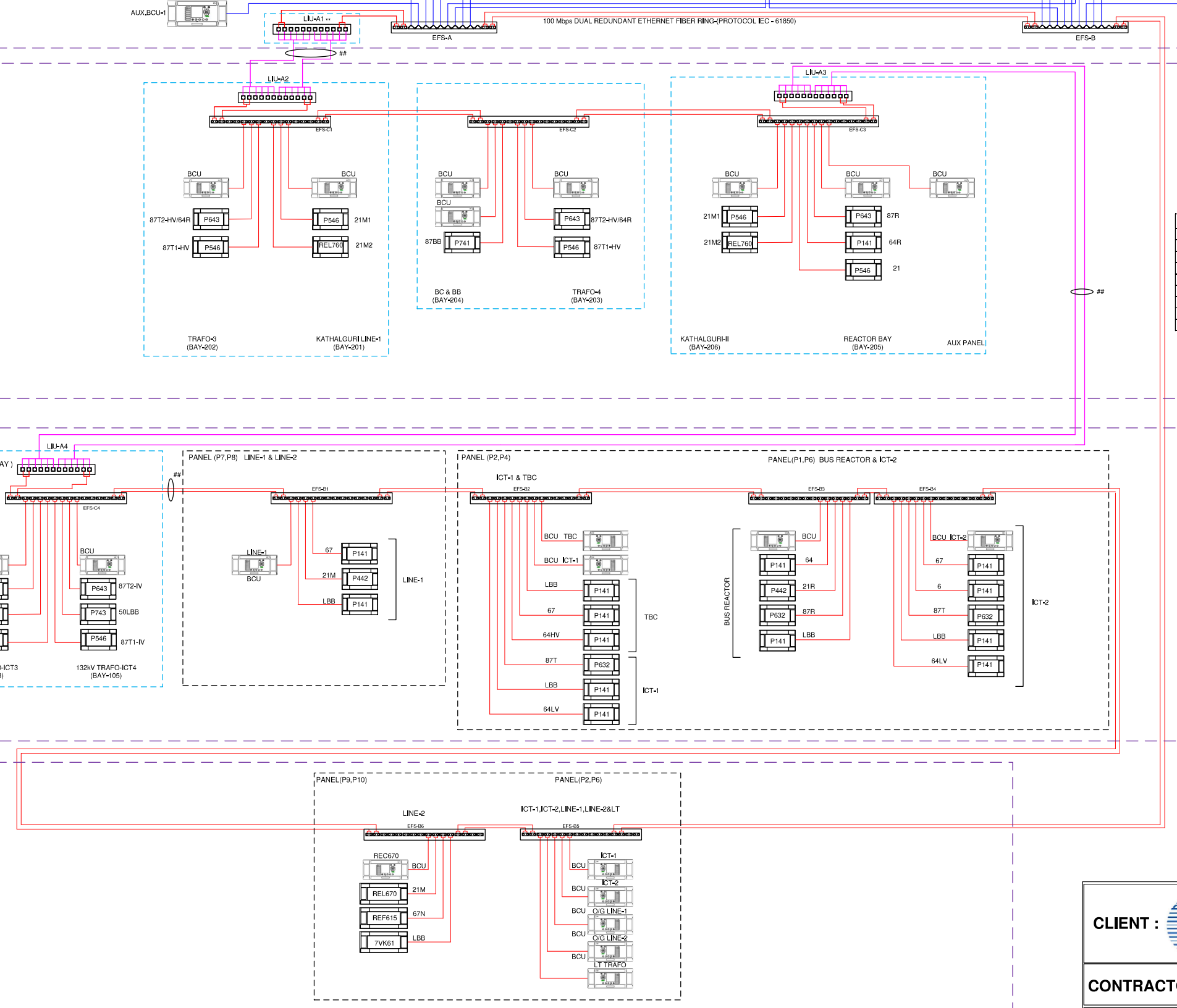
DRAWING	DESCRIPTION.	REVISION	DATE	ISSUE
25-4-002	ARCHITECTURE DRAWING	C	22-05-2024	FOR APPROVAL

PANEL TYPES :

PGCIL **POWER GRID CORPORATION OF INDI**

TRANSRAIL **TRANSRAIL LIGHTING LTD.**

PROJECT : EXTN. OF 400KV A/S & UPGRADA



BOQ:

SNO	DESCRIPTION
1	EFS-C1,C2,C3,C4
2	LIU-A1,A2,A3,A4
3	BCU (C264)
4	P643
5	P141
6	P546
7	REL670
8	P741
9	P743

REV.	DESCRIPTION
C	THIRD ISSUE
B	SECOND ISSUE
A	FIRST ISSUE

CLIENT : POWER G

CONTRACTOR : TRANSRAIL TR

EXISTING 132kV & 33kV BAYS EFS DETAILS										
SR.	**LOCATION/PANEL**	**EFS NAME**	**TOTAL NO OF PORTS**		**TYPE OF PORTS**		**USED PORTS**		**SPARE PORTS**	
			FX (FIBRE)	**TX/RJ45 (COPPER)**	**FX (FIBRE)**	**TX/RJ45 (COPPER)**	**FX (FIBRE)**	**TX/RJ45 (COPPER)**	**FX (FIBRE)**	**TX/RJ45 (COPPER)**
1	TEZU LINE BREAKER PANEL(P7B)	HIRCHMANN	32	1	Multimode	RJ45	16	0	16	1
2	ICT-2 PROTECTION PANEL(P6A)	HIRCHMANN	32	1			18	0	14	1
3	ICT-1 PROTECTION PANEL(P2A)	HIRCHMANN	32	1			14	0	18	1
4	BUS REACTOR BREAKER PANEL(P1B)	HIRCHMANN	32	1			32	0	0	1
6	NETWORKING PANEL-1	HIRCHMANN	8	13			8	9	0	4
7	NETWORKING PANEL-2	HIRCHMANN	8	13			8	8	0	5
8	33 KV BCU PANEL	HIRCHMANN	32	1			22	0	10	1

B	FA	KM 12-01-2024	DG 12-01-2024	PJ 12-01-2024	FOR APPROVAL	
A	FA	KM 13-10-2023	DG 13-10-2023	PJ 13-10-2023	FIRST SUBMISSION	
REVISION	ISSUE STATUS	PREPARED BY DATE	CHECKED BY DATE	APPROVED BY DATE	**MODIFICATIONS**	RETURN STATUS

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CUSTOMER:

POWERGRID CORPORATION OF INDIA LIMITED

CONTRACTOR:

TRANSRAIL LIGHTING LIMITED, INDIA

PROJECT:

EXTN. OF 132kV AIS & UPGRADATION TO 220kV GIS AT NAMSAI (POWERGRID) S/S

PO NUMBER:

2120004146/17.08.2023

CURRENT REVISION	NAME	DATE	SIGN.
PREPARED	KM	12-01-2024	
CHECKED	DG	12-01-2024	
APPROVED	PJ	12-01-2024	

DOCUMENT TITLE:

GUARANTEED TECHNICAL PARTICULARS

DRAWING REFERENCE	REV	SHEET	QTYSH
I1-226017525-4-004	B	1	9

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S.NO	CONTENTS	PAGE NO.
1	TECHNICAL SPECIFICATION OF BCU	3
2	TECHNICAL SPECIFICATION OF ETHERNET FIBER SWITCH	5
3	TECHNICAL SPECIFICATION OF FIBER OPTIC CABLE	6
4	TECHNICAL SPECIFICATION OF LIU	8

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TECHNICAL SPECIFICATION OF BCU

PARAMETERS	TECHNICAL DATA
Make	Schneider Electric
Model	C264
Case	80TE
Communication protocols supported	IEC61850 and all other IEC Protocol like IEC-60870-101, IEC-60870-103, IEC-60870-104, Modbus, DNP3
Hardware version	V6
IO Configuration per BCU	IO cards per BCU: Combination of DIU, DOU, AIU and TMU
Mimic on BCU	LCD display, 16 LED's (5 are system LED's and 11 are user configurable), Keypad for local control.
POWER SUPPLY BOARD	
Model	BIU241-A04
Input Supply	110V DC
Input Power (Max.)	40W
Watchdog	One watchdog relay (closed if the product is healthy)
COMMUNICATION (IN POWER SUPPLY BOARD)	
Ports & Data transmission rates	2 No RS485 ports (Insulated), Full-duplex serial protocol with transmission rate of 50 to 38400 bps
PROCESSOR	
Model	CPU275
Microprocessor	32-bits microprocessor (266 MHz)
RAM/ROM	128Mb Flash Memory, 256Mb SDRAM
Internal Battery	C264 have internal battery for hold SOE buffer memory.
COMMUNICATION (IN PROCESSOR UNIT)	
Serial	2 (non-insulated) legacy interfaces RS232 with transmission rate of 50 to 56000 bps
IRIG-B	One IRIG-B input (BNC plug)
Ethernet	2 Nos 10/100 Base-T (copper) port – RJ45 connector Port 1: SBUS(IEC61850) for communication IEDs + SCADA + MAINTENANCE Port 2: Communication of IEC104 SCADA protocol.

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DIGITAL INPUT BOARD	
Model	DIU211
No. Of Channels	16 Optically Isolated DI with 1 negative common contact for 2 inputs
Scanning Period	1 ms
Input Voltage	110V DC
DIGITAL OUTPUT BOARD	
Model	DOU201
Burden	On internal 5V bus is 250mW plus 200mW per activated relay
No. Of Channels	8 single pole relays with one normally open (NO) contact 2 single pole relays with one common for 2 outputs (NO/NC) Contacts current carrying capacity are 5A continuous, 30 A for 500ms and 100 A for 30ms
TRANSDUCER LESS MEASUREMENT UNIT	
Model	TMU220
Frequency Range	50 or 60 Hz +/- 10%
No. of Channels	4 measurement Current Transformers (4 CT) inputs, range 1 or 5 amperes, selectable by jumper 4 measurement Voltage Transformers (4 VT) inputs, range (VN): 57.73 Vrms to 130 Vrms
ETHERNET SWITCH UNIT	
Model	REU V2
Ports	2 Eth. SFP based Ports (HSR/PRP/RSTP) + 10/100BaseT RJ45 Eth. Port.
Software	PACIS
Configuration & Diagnostic Software	SCE & CAT Tool
WEB Access	C264 can be access through Web access with Http
C264 can support min 1000 data Points for both soft & hardwired signals	Compliance, C264 can support max. 5000 data points (hardwire & soft signals).
Serial Ports	2 Nos RS485 ports on BIU modules & 2 Nos Ports on CPU modules which can be configured up to 115200 BPS

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TECHNICAL SPECIFICATION OF ETHERNET FIBER SWITCH

PARAMETERS	TECHNICAL DATA
Make	Hirschmann
Port	16Fx MM
Configuration	100Mbps FX (Multimode Mode)
Installation	Rack mount
Connector Type	ST for Fiber
Operating Voltage	110 VDC
Redundancy Functions	Link Aggregation with LACP, Link Backup, Media Redundancy Protocol (MRP) (IEC62439-2), Sub Ring Manager, RSTP 802.1D-2004 (IEC62439-1), RSTP Guards
Switching Method	Store and forward
Protocol	Complies with IEC 61850 protocol
Operating Temp. Range	0 to 60° C
Ingress Protection	IP30

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TECHNICAL DATASHEET OF FIBER OPTIC CABLE

PARAMETERS	TECHNICAL DATA
Make	AKSH / Preston / Reputed
Cable Type	6 Core Multi mode Cable
Fiber Type	62.5/125 mm
Armoured /Unarmoured	Armoured
Attenuation	< 3.5 dB/km @850nm, <1.0 dB/km @1300nm
Band Width	>= 200 MHz.km @850nm, >=500 MHz.km @1300nm
No. of Fibres	6 Core
Colour of Fiber	BLUE, WHITE, ORANGE, GREEN, BROWN & SLATE
Cladding Diameter	125um ± 2
Core Diameter	62.5 um ± 3
Numeric ApeC264re	0.275 ±0.015
Outer Cable Diameter	>=8.0 mm ± 0.5
Max. Installation Tension	1500 Newton
Min. Bending Radius	80mm (temporary) 160mm (permanent)
Crush Resistance	2000 Newton
Operating/ Installation Temperature	-30 to +70°C

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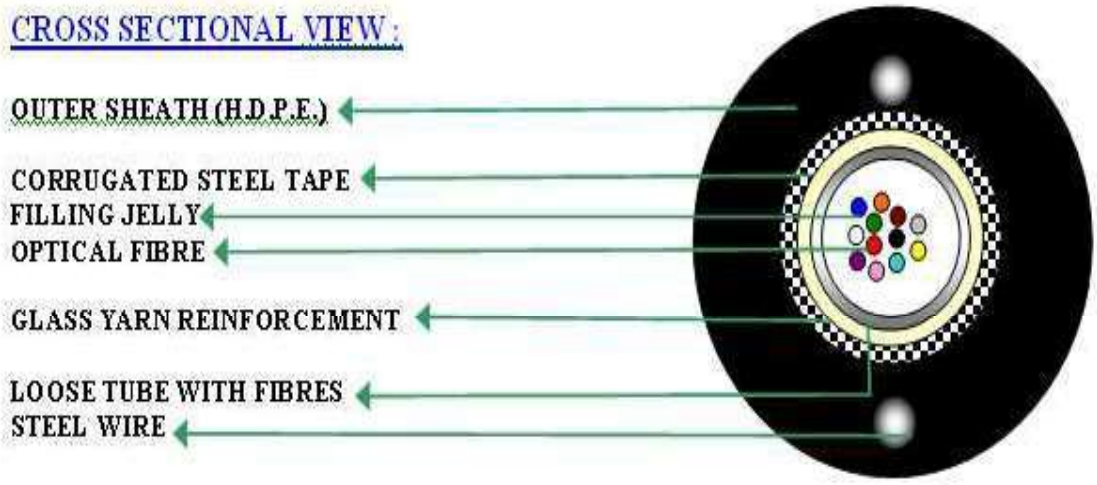
CROSS SECTIONAL VIEW :



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TECHNICAL DATASHEET OF LINE INTERFACE UNIT (LIU)

PARAMETERS	TECHNICAL DATA
Make	AFT/PRESTON/EQUIVALENT
Insertion Loss	< 0.1 dB (for adapters)
No. of Ports	12
Height	19" rack mountable
Connector Type	Fiber optic connector – ST Type

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DF001

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		Name			Name			Name				FA
		Date			Date			Date				
		Name			Name			Name				FA
		Date			Date			Date				
A	FIRST ISSUE	Name	KM		Name	DG		Name	PJ			FA
		Date	17-10-2023		Date	17-10-2023		Date	17-10-2023			
REV.	DESCRIPTION	DRAWN		SIGN	CHECKED		SIGN	APPROVED		SIGN		STATUS

CUSTOMER:

POWERGRID CORPORATION OF INDIA LIMITED

CONTRACTOR:

TRANSRAIL LIGHTING LIMITED, INDIA

PROJECT :

EXTN. OF 132kV AIS & UPGRADATION TO 220kV GIS AT NAMSAI (POWERGRID) S/S

ORDER NO.: **2120004146/17.08.2023**

DOCUMENT:

BOQ

SUPPLIER

Schneider Electric

Schneider-Electric Infrastructure Limited

DOCUMENT No.	TOTAL SH.	SH. No.	REV.
I1-226017525-4-007	2	001	A

BILL OF QUANTITY

S.No	ITEM DESCRIPTION	QTY	UNIT	MAKE / MODEL	REMARKS
1	FO armoured 6 core cable	700	Mtrs	REPUTED	As per Approved GTP
2	LIU- 12 Port	1	Nos.	REPUTED	As per Approved GTP
3	Patch Cord			REPUTED	As per Approved GTP
3a	LC-LC MM 3m	30	Nos.		
3b	LC-LC MM 5m	10	Nos.		
3c	LC-LC MM 10m	10	Nos.		
4	Spare-BCU	1	Nos.	SCHNEIDER ELECTRIC	
5	Spare-EFS	1	Nos.	REPUTED	As per Approved GTP

DF001

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REV.	DESCRIPTION	DRAWN	SI	GN	CHECKED	SI	GN	APPROVED	SI	GN	STATUS
		Name			Name			Name			FA
		Date			Date			Date			
		Name			Name			Name			FA
		Date			Date			Date			
A	FIRST ISSUE	Name	KM		Name	DG		Name	PJ		FA
		Date	06-09-2023		Date	06-09-2023		Date	06-09-2023		

CUSTOMER: **POWERGRID CORPORATION OF INDIA LIMITED**

CONTRACTOR: **TRANSRAIL LIGHTING LIMITED, INDIA**

PROJECT :

EXTN. OF 132kV AIS & UPGRADATION TO 220kV GIS AT NAMSAI (POWERGRID) S/S

ORDER NO.: **2120004146/17.08.2023**

DOCUMENT:

IP LIST

SUPPLIER

Schneider Electric

Schneider-Electric Infrastructure Limited

DOCUMENT No.	TOTAL SH.	SH. No.	REV.
I1-226017525-4-010	2	001	A

220KV/132KV/33KV NAMSAI								
S.NO.	VOLTAGE LEVEL	BAY REF	PANEL REF	IED	NETWORK NAME	IP ADDRESS	SUBNET MASK	SCOPE
1	220kV	TRAFO-1 HV BAY	T1A	C264	T1HVBCU	172.20.34.30	255.255.255.0	New
2			T1A	P643	T164R	172.20.34.31	255.255.255.0	New
3			T1B	P643	T187T	172.20.34.32	255.255.255.0	New
4			T1B	P141	T167N	172.20.34.33	255.255.255.0	New
5		LINE-1 BAY	L1A	C264	L1BCU	172.20.34.36	255.255.255.0	New
6			L1A	P546	L121M1	172.20.34.37	255.255.255.0	New
7			L1B	REL760	L121M2	172.20.34.38	255.255.255.0	New
8		TRAFO-2 HV BAY	T2A	C264	T2HVBCU	172.20.34.40	255.255.255.0	New
9			T2A	P643	T264R	172.20.34.41	255.255.255.0	New
10			T2B	P643	T287T	172.20.34.42	255.255.255.0	New
11			T2B	P141	T267N	172.20.34.43	255.255.255.0	New
12		BUSCOUPLER	BC	C264	BCBCU	172.20.34.46	255.255.255.0	New
13			BC	P141	B5051	172.20.34.47	255.255.255.0	New
14			BC	P741	B87BB	172.20.34.48	255.255.255.0	New
15		REACTOR	RA	C264	RCBCU	172.20.34.50	255.255.255.0	New
16			RA	P546	R21	172.20.34.51	255.255.255.0	New
17			RB	P141	R67	172.20.34.52	255.255.255.0	New
18			RB	P643	R64R	172.20.34.53	255.255.255.0	New
19			RB	P643	R87	172.20.34.54	255.255.255.0	New
20		LINE-2 BAY	L2A	C264	L2BCU	172.20.34.56	255.255.255.0	New
21			L2A	P546	L221M1	172.20.34.57	255.255.255.0	New
22			L2B	REL760	L221M2	172.20.34.58	255.255.255.0	New
23		AUX	AUX	C264	AUXBCU	172.20.34.59	255.255.255.0	New
24	132kV	TRAFO-1 LV BAY	T1	C264	T1LVBCU	172.20.34.95	255.255.255.0	New
25			T1	P643	T1871	172.20.34.96	255.255.255.0	New
26			T1	P643	T1872	172.20.34.97	255.255.255.0	New
27		TRAFO-2 LV BAY	T2	C264	T2LVBCU	172.20.34.98	255.255.255.0	New
28			T2	P643	T2871	172.20.34.99	255.255.255.0	New
29			T2	P643	T2872	172.20.34.100	255.255.255.0	New
30		TEZU	P7	C264	L1	172.20.34.11	255.255.255.0	Existing
31			P7	P442	P442L1	172.20.34.86	255.255.255.0	Existing
32			P8	P141	P141LBBL1	172.20.34.63	255.255.255.0	Existing
33			P8	P141	P14167L1	172.20.34.65	255.255.255.0	Existing
34		ICT1	P2	C264	ICT1	172.20.34.14	255.255.255.0	Existing
35			P2	P141	ICT167	172.20.34.62	255.255.255.0	Existing
36			P2	P141	P64HVT1	172.20.34.74	255.255.255.0	Existing
37			P2	P632	P632T1	172.20.34.78	255.255.255.0	Existing
38			P2	P141	LBBICT1	172.20.34.162	255.255.255.0	Existing
39			P2	P141	P64LVT1	172.20.34.76	255.255.255.0	Existing
40		TBC	P4	C264	TBC	172.20.34.13	255.255.255.0	Existing
41			P4	P141	LBBTBC	172.20.34.64	255.255.255.0	Existing
42		BR	P1	C264	BR	172.20.34.12	255.255.255.0	Existing
43			P1	P141	BR64R	172.20.34.111	255.255.255.0	Existing
44			P1	P442	BRP442	172.20.34.69	255.255.255.0	Existing
45			P1	P632	BR632	172.20.34.71	255.255.255.0	Existing
46			P1	P141	BR67R	172.20.34.93	255.255.255.0	Existing
47		ICT2	P6	C264	ICT2	172.20.34.18	255.255.255.0	Existing
48			P6	P141	ICT267R	172.20.34.143	255.255.255.0	Existing
49			P6	P141	P64HVT2	172.20.34.75	255.255.255.0	Existing
50			P6	P632	P632T2	172.20.34.79	255.255.255.0	Existing
51			P6	P141	LBBICT2	172.20.34.123	255.255.255.0	Existing
52			P6	P141	P64LVT2	172.20.34.77	255.255.255.0	Existing
53	33kV	ICT-1	P2	C264	INCOMER1	172.20.34.21	255.255.255.0	Existing
54		ICT-2	P2	C264	INCOMER2	172.20.34.26	255.255.255.0	Existing
55		OG LINE-1	P6	C264	OGLINE1	172.20.34.16	255.255.255.0	Existing
56		OG LINE-2	P6	C264	OGLINE2	172.20.34.27	255.255.255.0	Existing
57		LT TRAFO	P6	C264	TRAFO	172.20.34.28	255.255.255.0	Existing
58		LINE-2	P9	REC670	E1Q05KF1	172.20.34.171	255.255.255.0	Existing
59			P9	REL670	E1Q05FN1	172.20.34.173	255.255.255.0	Existing
60			P10	REF615	E1Q05FN2	172.20.34.172	255.255.255.0	Existing
61			P10	7VK61	E1Q05FN3	172.20.34.174	255.255.255.0	Existing
62	Control Room	Control Room	AUX PANEL	C264	AUXBCU1	172.20.34.15	255.255.255.0	Existing
63			AUX PANEL	C264	AUXBCU2	172.20.34.252	255.255.255.0	Existing
64			AUX PANEL	ADVANTECH	OISERVM	172.20.34.1	255.255.255.0	Existing
65			AUX PANEL	ADVANTECH	OISERVR	172.20.34.2	255.255.255.0	Existing
66			CONSOLE	ADVANTECH	OWS1	172.20.34.3	255.255.255.0	Existing
67			CONSOLE	ADVANTECH	OWS2	172.20.34.4	255.255.255.0	Existing
68			CONSOLE	ADVANTECH	SMT	172.20.34.150	255.255.255.0	Existing
69			AUX PANEL	ADVANTECH	GTWLDC	172.20.34.5	255.255.255.0	Existing
70			AUX PANEL	ADVANTECH	GTWRLDC	172.20.34.6	255.255.255.0	Existing
71			AUX PANEL	GPS	GPS	172.20.34.10	255.255.255.0	Existing

DF001

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REV.	DESCRIPTION	DRAWN	SI GN	CHECKED	SI GN	APPROVED	SI GN	STATUS
		Name / Date		Name / Date		Name / Date		FA
		Name / Date		Name / Date		Name / Date		FA
A	FIRST ISSUE	Name: KM / Date: 12-09-2023		Name: DG / Date: 12-09-2023		Name: PJ / Date: 12-09-2023		FA

CUSTOMER: PGCIL

POWERGRID CORPORATION OF INDIA LIMITED

CONTRACTOR: TRANSRAIL

TRANSRAIL LIGHTING LIMITED, INDIA

PROJECT :

EXTN. OF 132kV AIS & UPGRADATION TO 220kV GIS AT NAMSAI (POWERGRID) S/S

ORDER NO.: **2120004146/17.08.2023**

DOCUMENT:

IO LIST

SUPPLIER

Schneider Electric

Schneider-Electric Infrastructure Limited

DOCUMENT No.	TOTAL SH.	SH. No.	REV.
I1-226017525-4-006	3	001	A

220kV KATHALGURI LINE-1							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
1	CB-R-PHASE OPEN	BCU	X	-	-	-	DPS
2	CB-R-PHASE CLOSED	BCU	X	-	-	-	
3	CB-Y-PHASE OPEN	BCU	X	-	-	-	DPS
4	CB-Y-PHASE CLOSED	BCU	X	-	-	-	
5	CB-B-PHASE OPEN	BCU	X	-	-	-	DPS
6	CB-B-PHASE CLOSED	BCU	X	-	-	-	
7	CB POSITION	BCU	-	X	-	-	DPS
8	DISCONNECTOR 89A OPEN	BCU	X	-	-	-	DPS
9	DISCONNECTOR 89A CLOSE	BCU	X	-	-	-	
10	DISCONNECTOR 89B OPEN	BCU	X	-	-	-	DPS
11	DISCONNECTOR 89B CLOSE	BCU	X	-	-	-	
12	DISCONNECTOR 89L OPEN	BCU	X	-	-	-	DPS
13	DISCONNECTOR 89L CLOSE	BCU	X	-	-	-	
14	EARTH SWITCH ESA OPEN	BCU	X	-	-	-	DPS
15	EARTH SWITCH ESA CLOSE	BCU	X	-	-	-	
16	EARTH SWITCH ESB OPEN	BCU	X	-	-	-	DPS
17	EARTH SWITCH ESB CLOSE	BCU	X	-	-	-	
18	EARTH SWITCH 89LE OPEN	BCU	X	-	-	-	DPS
19	EARTH SWITCH 89LE CLOSE	BCU	X	-	-	-	
20	CB SPRING EXCESSIVE RUNTIME(R-PH)	BCU	X	-	-	-	SPS
21	CB SPRING EXCESSIVE RUNTIME(Y-PH)	BCU	X	-	-	-	SPS
22	CB SPRING EXCESSIVE RUNTIME(B-PH)	BCU	X	-	-	-	SPS
23	CB MOTOR FAIL(R-PH)	BCU	X	-	-	-	SPS
24	CB MOTOR FAIL(Y-PH)	BCU	X	-	-	-	SPS
25	CB MOTOR FAIL(B-PH)	BCU	X	-	-	-	SPS
26	CB SPRING CHARGED(R-PH)	BCU	X	-	-	-	SPS
27	CB SPRING CHARGED(Y-PH)	BCU	X	-	-	-	SPS
28	CB SPRING CHARGED(B-PH)	BCU	X	-	-	-	SPS
29	POLE DISCREPANCY OPTD-1	BCU	X	-	-	-	SPS
30	POLE DISCREPANCY OPTD-2	BCU	X	-	-	-	SPS
31	CB COMP. GD1 GAS PRESSURE LOW 1ST STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
32	CB COMP. GD1 GAS PRESSURE LOW 1ST STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
33	CB COMP. GD1 GAS PRESSURE LOW 1ST STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
34	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
35	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
36	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
37	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
38	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
39	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
40	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
41	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
42	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
43	89A DISCONNECTOR COMP.GD2 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
44	89A DISCONNECTOR COMP.GD2 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
45	89A DISCONNECTOR COMP.GD2 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
46	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
47	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
48	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
49	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
50	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
51	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
52	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
53	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
54	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
55	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
56	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
57	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
58	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
59	BUFFER COMP. GD5 GAS PRESSURE LOW1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
60	BUFFER COMP. GD5 GAS PRESSURE LOW1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
61	BUFFER COMP. GD5 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
62	BUFFER COMP. GD5 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
63	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
64	CTA/89L/ESB/89LE SWITCHCOMP. GD6 GAS PRESSURELOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
65	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
66	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
67	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
68	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
69	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS

220kV KATHALGURI LINE-1							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
70	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(BPH)	BCU	X	-	-	-	SPS
71	GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
72	GIB COMP. GD7 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
73	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
74	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
75	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
76	GAB COMP. GD8 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
77	GAB COMP. GD8 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
78	MAIN BUS-I GD13 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
79	MAIN BUS-I GD13 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
80	MAIN BUS-I GD13 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
81	MAIN BUS-I GD13 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
82	MAIN BUS-I GD13 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
83	MAIN BUS-II GD14 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
84	MAIN BUS-II GD14 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
85	MAIN BUS-II GD14 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
86	MAIN BUS-II GD14 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
87	MAIN BUS-II GD14 GASPRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
88	L/R SWITCH IN LOCAL MODE	BCU	X	-	-	-	SPS
89	N/M SWITCH IN MAINTENACE MODE	BCU	X	-	-	-	SPS
90	N/M SWITCH IN NORMAL MODE	BCU	X	-	-	-	SPS
91	DC-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
92	DC-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
93	DCDB-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
94	DCDB-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
95	DS/ES ABNORMAL CIRCUIT SUPERVISION STATUS	BCU	X	-	-	-	SPS
96	AUTORECLOSE L/ORELAY OPTD.	BCU	X	-	-	-	SPS
97	AUTORECLOSE BLOCK	BCU	X	-	-	-	SPS
98	A/R INITIATIONR-PH	BCU	X	-	-	-	SPS
99	A/R INITIATIONY-PH	BCU	X	-	-	-	SPS
100	A/R INITIATIONB-PH	BCU	X	-	-	-	SPS
101	CB TC-1 FAULTY	BCU	X	-	-	-	SPS
102	DC SOURCE-2 FAIL	BCU	X	-	-	-	SPS
103	CARRIER SPEECH CHANNELFAIL	BCU	X	-	-	-	SPS
104	CB TC-2 FAULTY	BCU	X	-	-	-	SPS
105	DIRECT TRIP SEND CH-1 ALARM	BCU	X	-	-	-	SPS
106	DIRECT TRIP SEND CH-2 ALARM	BCU	X	-	-	-	SPS
107	MANUAL CB OPENALARM	BCU	X	-	-	-	SPS
108	MANUAL CB CLOSEALARM	BCU	X	-	-	-	SPS
109	CB CLOSE COMMAND TO B/B MAIN-1 PU	BCU	-	-	X	-	SPC
110	CB CLOSE COMMAND TO CLOSING CKT	BCU	-	-	X	-	SPC
111	AUTO RECLOSE	BCU	-	-	X	-	SPC
112	CB TRIP COMMANDTC TC-1	BCU	-	-	X	-	SPC
113	CB TRIP COMMANDTC TC-2	BCU	-	-	X	-	SPC
114	TRIP RELAY 86A RESET	BCU	-	-	X	-	SPC
115	TRIP RELAY 86B RESET	BCU	-	-	X	-	SPC
116	TO 21M2 MAIN A/R OPTD	BCU	-	-	X	-	SPC
117	BCU FAULTY TO A/R LOCKOUT RELAY	BCU	-	-	X	-	SPC
118	DISCONNECTOR 89A CLOSE COMMAND	BCU	-	-	X	-	DPC
119	DISCONNECTOR 89A OPEN COMMAND	BCU	-	-	X	-	
120	DISCONNECTOR 89B CLOSE COMMAND	BCU	-	-	X	-	DPC
121	DISCONNECTOR 89B OPEN COMMAND	BCU	-	-	X	-	
122	DISCONNECTOR 89L CLOSE COMMAND	BCU	-	-	X	-	DPC
123	DISCONNECTOR 89L OPEN COMMAND	BCU	-	-	X	-	
124	EARTH SWITCH ESA OPEN COMMAND	BCU	-	-	X	-	DPC
125	EARTH SWITCH ESA CLOSE COMMAND	BCU	-	-	X	-	
126	EARTH SWITCH ESB OPEN COMMAND	BCU	-	-	X	-	DPC
127	EARTH SWITCH ESB CLOSE COMMAND	BCU	-	-	X	-	
128	EARTH SWITCH 89ESL OPEN COMMAND	BCU	-	-	X	-	DPC
129	EARTH SWITCH 89ESL CLOSE COMMAND	BCU	-	-	X	-	
130	A/R LOCKOUT TRIP	BCU	-	-	X	-	SPC
131	MANUAL TRIP TO DT SEND CH-1 CKT	BCU	-	-	X	-	SPC
132	MANUAL TRIP TO DT SEND CH-2 CKT	BCU	-	-	X	-	SPC
133	CB CLOSE COMMAND TO 21M1 FOR SOTF INI	BCU	-	-	X	-	SPC
134	CB CLOSE COMMAND TO 21M2 FOR SOTF INI	BCU	-	-	X	-	SPC
135	POLE DISCREPANCY -1 RESET	BCU	-	-	X	-	SPC
136	POLE DISCREPANCY -2 RESET	BCU	-	-	X	-	SPC
137	A/R LOCKOUT RELAY RESET	BCU	-	-	X	-	SPC
138	A/R OFF	BCU	-	-	X	-	SPC

220kV KATHALGURI LINE-1							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
139	R PHASE VOLTAGE	BCU	-	-	-	X	MV
140	B PHASE VOLTAGE	BCU	-	-	-	X	MV
141	Y PHASE VOLTAGE	BCU	-	-	-	X	MV
142	R PHASE CURRENT	BCU	-	-	-	X	MV
143	B PHASE CURRENT	BCU	-	-	-	X	MV
144	Y PHASE CURRENT	BCU	-	-	-	X	MV
145	RB LINE VOLTAGE	BCU	-	-	-	X	MV
146	BY LINE VOLTAGE	BCU	-	-	-	X	MV
147	YR LINE VOLTAGE	BCU	-	-	-	X	MV
148	FREQUENCY	BCU	-	-	-	X	MV
149	ACTIVE POWER	BCU	-	-	-	X	MV
150	REACTIVE POWER	BCU	-	-	-	X	MV
151	APPARENT POWER	BCU	-	-	-	X	MV
152	POWER FACTOR	BCU	-	-	-	X	MV
153	GROUP-A TRIP RELAY OPTD.	21M1	-	X	-	-	SPS
154	CARRIER HEALTHY CHANNEL-1	21M1	-	X	-	-	SPS
155	CARRIER RECEIVED CHANNEL-1	21M1	-	X	-	-	SPS
156	CARRIER RECEIVED CHANNEL-2	21M1	-	X	-	-	SPS
157	CARRIER CHANNEL-1 OUT OF SERVICE	21M1	-	X	-	-	SPS
158	CARRIER CHANNEL-2 OUT OF SERVICE	21M1	-	X	-	-	SPS
159	DIRECT TRIP RECEIVED CHANNEL-1	21M1	-	X	-	-	SPS
160	CARRIER HEALTHY CHANNEL-2	21M1	-	X	-	-	SPS
161	DIRECT TRIP RECEIVED CHANNEL-2	21M1	-	X	-	-	SPS
162	CB CLOSE COMMAND	21M1	-	X	-	-	SPS
163	GROUP-A TRIP RELAY 86A SUPERVISION	21M1	-	X	-	-	SPS
164	BUSBAR PROTN. OPTD	21M1	-	X	-	-	SPS
165	LBB PROTN. OPTD	21M1	-	X	-	-	SPS
166	DISTANCE PROTECTION OPERATED	21M1	-	X	-	-	SPS
167	ZONE-1 R-PH TRIP	21M1	-	X	-	-	SPS
168	ZONE-2 R-PH TRIP	21M1	-	X	-	-	SPS
169	ZONE-3 R-PH TRIP	21M1	-	X	-	-	SPS
170	ZONE-4 R-PH TRIP	21M1	-	X	-	-	SPS
171	DIRECTIONAL EARTHFAULT	21M1	-	X	-	-	SPS
172	OVERVOLTAGE OPERATED	21M1	-	X	-	-	SPS
173	SOTF OPERATED	21M1	-	X	-	-	SPS
174	AR OPERATED	21M1	-	X	-	-	SPS
175	CARRIER HEALTHY CHANNEL-2	21M2	-	X	-	-	SPS
176	GROUP-B TRIP RELAY OPTD.	21M2	-	X	-	-	SPS
177	B/B PU RELAY FAULTY	21M2	-	X	-	-	SPS
178	MAIN-I RELAY FAULTY	21M2	-	X	-	-	SPS
179	A/R OPTD. FROM BCU	21M2	-	X	-	-	SPS
180	TRIP RELAY 86B SUPERVISION	21M2	-	X	-	-	SPS
181	DC-1 FAIL	21M2	-	X	-	-	SPS
182	ZONE-1 R-PH TRIP	21M2	-	X	-	-	SPS
183	ZONE-2 R-PH TRIP	21M2	-	X	-	-	SPS
184	ZONE-3 R-PH TRIP	21M2	-	X	-	-	SPS
185	ZONE-4 R-PH TRIP	21M2	-	X	-	-	SPS
186	DIRECTIONAL EARTHFAULT	21M2	-	X	-	-	SPS
187	OVERVOLTAGE OPERATED	21M2	-	X	-	-	SPS
188	SOTF OPERATED	21M2	-	X	-	-	SPS
189	UNDERVOLTAGE OPERATED	21M2	-	X	-	-	SPS

220kV KATHALGURI LINE-2							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
1	CB-R-PHASE OPEN	BCU	X	-	-	-	DPS
2	CB-R-PHASE CLOSED	BCU	X	-	-	-	
3	CB-Y-PHASE OPEN	BCU	X	-	-	-	DPS
4	CB-Y-PHASE CLOSED	BCU	X	-	-	-	
5	CB-B-PHASE OPEN	BCU	X	-	-	-	DPS
6	CB-B-PHASE CLOSED	BCU	X	-	-	-	
7	CB POSITION	BCU	-	X	-	-	DPS
8	DISCONNECTOR 89A OPEN	BCU	X	-	-	-	DPS
9	DISCONNECTOR 89A CLOSE	BCU	X	-	-	-	
10	DISCONNECTOR 89B OPEN	BCU	X	-	-	-	DPS
11	DISCONNECTOR 89B CLOSE	BCU	X	-	-	-	
12	DISCONNECTOR 89L OPEN	BCU	X	-	-	-	DPS
13	DISCONNECTOR 89L CLOSE	BCU	X	-	-	-	
14	EARTH SWITCH ESA OPEN	BCU	X	-	-	-	DPS
15	EARTH SWITCH ESA CLOSE	BCU	X	-	-	-	
16	EARTH SWITCH ESB OPEN	BCU	X	-	-	-	DPS
17	EARTH SWITCH ESB CLOSE	BCU	X	-	-	-	
18	EARTH SWITCH 89LE OPEN	BCU	X	-	-	-	DPS
19	EARTH SWITCH 89LE CLOSE	BCU	X	-	-	-	
20	CB SPRING EXCESSIVE RUNTIME(R-PH)	BCU	X	-	-	-	SPS
21	CB SPRING EXCESSIVE RUNTIME(Y-PH)	BCU	X	-	-	-	SPS
22	CB SPRING EXCESSIVE RUNTIME(B-PH)	BCU	X	-	-	-	SPS
23	CB MOTOR FAIL(R-PH)	BCU	X	-	-	-	SPS
24	CB MOTOR FAIL(Y-PH)	BCU	X	-	-	-	SPS
25	CB MOTOR FAIL(B-PH)	BCU	X	-	-	-	SPS
26	CB SPRING CHARGED(R-PH)	BCU	X	-	-	-	SPS
27	CB SPRING CHARGED(Y-PH)	BCU	X	-	-	-	SPS
28	CB SPRING CHARGED(B-PH)	BCU	X	-	-	-	SPS
29	POLE DISCREPANCY OPTD-1	BCU	X	-	-	-	SPS
30	POLE DISCREPANCY OPTD-2	BCU	X	-	-	-	SPS
31	CB COMP. GD1 GAS PRESSURE LOW 1ST STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
32	CB COMP. GD1 GAS PRESSURE LOW 1ST STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
33	CB COMP. GD1 GAS PRESSURE LOW 1ST STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
34	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
35	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
36	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
37	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
38	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
39	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
40	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
41	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
42	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
43	89A DISCONNECTOR COMP.GD2 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
44	89A DISCONNECTOR COMP.GD2 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
45	89A DISCONNECTOR COMP.GD2 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
46	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
47	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
48	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
49	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
50	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
51	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
52	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
53	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
54	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
55	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
56	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
57	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
58	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
59	BUFFER COMP. GD5 GAS PRESSURE LOW1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
60	BUFFER COMP. GD5 GAS PRESSURE LOW1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
61	BUFFER COMP. GD5 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
62	BUFFER COMP. GD5 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
63	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
64	CTA/89L/ESB/89LE SWITCHCOMP. GD6 GAS PRESSURELOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
65	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
66	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
67	CTA/89L/ESB/89LE SWITCH COMP. GD6 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
68	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
69	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS

220kV KATHALGURI LINE-2							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
70	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(BPH)	BCU	X	-	-	-	SPS
71	GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
72	GIB COMP. GD7 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
73	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
74	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
75	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
76	GAB COMP. GD8 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
77	GAB COMP. GD8 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
78	MAIN BUS-I GD13 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
79	MAIN BUS-I GD13 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
80	MAIN BUS-I GD13 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
81	MAIN BUS-I GD13 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
82	MAIN BUS-I GD13 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
83	MAIN BUS-II GD14 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
84	MAIN BUS-II GD14 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
85	MAIN BUS-II GD14 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
86	MAIN BUS-II GD14 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
87	MAIN BUS-II GD14 GASPRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
88	L/R SWITCH IN LOCAL MODE	BCU	X	-	-	-	SPS
89	N/M SWITCH IN MAINTENACE MODE	BCU	X	-	-	-	SPS
90	N/M SWITCH IN NORMAL MODE	BCU	X	-	-	-	SPS
91	DC-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
92	DC-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
93	DCDB-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
94	DCDB-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
95	DS/ES ABNORMAL CIRCUIT SUPERVISION STATUS	BCU	X	-	-	-	SPS
96	AUTORECLOSE L/ORELAY OPTD.	BCU	X	-	-	-	SPS
97	AUTORECLOSE BLOCK	BCU	X	-	-	-	SPS
98	A/R INITIATIONR-PH	BCU	X	-	-	-	SPS
99	A/R INITIATIONY-PH	BCU	X	-	-	-	SPS
100	A/R INITIATIONB-PH	BCU	X	-	-	-	SPS
101	CB TC-1 FAULTY	BCU	X	-	-	-	SPS
102	DC SOURCE-2 FAIL	BCU	X	-	-	-	SPS
103	CARRIER SPEECH CHANNELFAIL	BCU	X	-	-	-	SPS
104	CB TC-2 FAULTY	BCU	X	-	-	-	SPS
105	DIRECT TRIP SEND CH-1 ALARM	BCU	X	-	-	-	SPS
106	DIRECT TRIP SEND CH-2 ALARM	BCU	X	-	-	-	SPS
107	MANUAL CB OPENALARM	BCU	X	-	-	-	SPS
108	MANUAL CB CLOSEALARM	BCU	X	-	-	-	SPS
109	CB CLOSE COMMAND TO B/B MAIN-1 PU	BCU	-	-	X	-	SPC
110	CB CLOSE COMMAND TO CLOSING CKT	BCU	-	-	X	-	SPC
111	AUTO RECLOSE	BCU	-	-	X	-	SPC
112	CB TRIP COMMANDTC TC-1	BCU	-	-	X	-	SPC
113	CB TRIP COMMANDTC TC-2	BCU	-	-	X	-	SPC
114	TRIP RELAY 86A RESET	BCU	-	-	X	-	SPC
115	TRIP RELAY 86B RESET	BCU	-	-	X	-	SPC
116	TO 21M2 MAIN A/R OPTD	BCU	-	-	X	-	SPC
117	BCU FAULTY TO A/R LOCKOUT RELAY	BCU	-	-	X	-	SPC
118	DISCONNECTOR 89A CLOSE COMMAND	BCU	-	-	X	-	DPC
119	DISCONNECTOR 89A OPEN COMMAND	BCU	-	-	X	-	
120	DISCONNECTOR 89B CLOSE COMMAND	BCU	-	-	X	-	DPC
121	DISCONNECTOR 89B OPEN COMMAND	BCU	-	-	X	-	
122	DISCONNECTOR 89L CLOSE COMMAND	BCU	-	-	X	-	DPC
123	DISCONNECTOR 89L OPEN COMMAND	BCU	-	-	X	-	
124	EARTH SWITCH ESA OPEN COMMAND	BCU	-	-	X	-	DPC
125	EARTH SWITCH ESA CLOSE COMMAND	BCU	-	-	X	-	
126	EARTH SWITCH ESB OPEN COMMAND	BCU	-	-	X	-	DPC
127	EARTH SWITCH ESB CLOSE COMMAND	BCU	-	-	X	-	
128	EARTH SWITCH 89ESL OPEN COMMAND	BCU	-	-	X	-	DPC
129	EARTH SWITCH 89ESL CLOSE COMMAND	BCU	-	-	X	-	
130	A/R LOCKOUT TRIP	BCU	-	-	X	-	SPC
131	MANUAL TRIP TO DT SEND CH-1 CKT	BCU	-	-	X	-	SPC
132	MANUAL TRIP TO DT SEND CH-2 CKT	BCU	-	-	X	-	SPC
133	CB CLOSE COMMAND TO 21M1 FOR SOTF INI	BCU	-	-	X	-	SPC
134	CB CLOSE COMMAND TO 21M2 FOR SOTF INI	BCU	-	-	X	-	SPC
135	POLE DISCREPANCY -1 RESET	BCU	-	-	X	-	SPC
136	POLE DISCREPANCY -2 RESET	BCU	-	-	X	-	SPC
137	A/R LOCKOUT RELAY RESET	BCU	-	-	X	-	SPC
138	A/R OFF	BCU	-	-	X	-	SPC

220kV KATHALGURI LINE-2							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
139	R PHASE VOLTAGE	BCU	-	-	-	X	MV
140	B PHASE VOLTAGE	BCU	-	-	-	X	MV
141	Y PHASE VOLTAGE	BCU	-	-	-	X	MV
142	R PHASE CURRENT	BCU	-	-	-	X	MV
143	B PHASE CURRENT	BCU	-	-	-	X	MV
144	Y PHASE CURRENT	BCU	-	-	-	X	MV
145	RB LINE VOLTAGE	BCU	-	-	-	X	MV
146	BY LINE VOLTAGE	BCU	-	-	-	X	MV
147	YR LINE VOLTAGE	BCU	-	-	-	X	MV
148	FREQUENCY	BCU	-	-	-	X	MV
149	ACTIVE POWER	BCU	-	-	-	X	MV
150	REACTIVE POWER	BCU	-	-	-	X	MV
151	APPARENT POWER	BCU	-	-	-	X	MV
152	POWER FACTOR	BCU	-	-	-	X	MV
153	GROUP-A TRIP RELAY OPTD.	21M1	-	X	-	-	SPS
154	CARRIER HEALTHY CHANNEL-1	21M1	-	X	-	-	SPS
155	CARRIER RECEIVED CHANNEL-1	21M1	-	X	-	-	SPS
156	CARRIER RECEIVED CHANNEL-2	21M1	-	X	-	-	SPS
157	CARRIER CHANNEL-1 OUT OF SERVICE	21M1	-	X	-	-	SPS
158	CARRIER CHANNEL-2 OUT OF SERVICE	21M1	-	X	-	-	SPS
159	DIRECT TRIP RECEIVED CHANNEL-1	21M1	-	X	-	-	SPS
160	CARRIER HEALTHY CHANNEL-2	21M1	-	X	-	-	SPS
161	DIRECT TRIP RECEIVED CHANNEL-2	21M1	-	X	-	-	SPS
162	CB CLOSE COMMAND	21M1	-	X	-	-	SPS
163	GROUP-A TRIP RELAY 86A SUPERVISION	21M1	-	X	-	-	SPS
164	BUSBAR PROTN. OPTD	21M1	-	X	-	-	SPS
165	LBB PROTN. OPTD	21M1	-	X	-	-	SPS
166	DISTANCE PROTECTION OPERATED	21M1	-	X	-	-	SPS
167	ZONE-1 R-PH TRIP	21M1	-	X	-	-	SPS
168	ZONE-2 R-PH TRIP	21M1	-	X	-	-	SPS
169	ZONE-3 R-PH TRIP	21M1	-	X	-	-	SPS
170	ZONE-4 R-PH TRIP	21M1	-	X	-	-	SPS
171	DIRECTIONAL EARTHFAULT	21M1	-	X	-	-	SPS
172	OVERVOLTAGE OPERATED	21M1	-	X	-	-	SPS
173	SOTF OPERATED	21M1	-	X	-	-	SPS
174	AR OPERATED	21M1	-	X	-	-	SPS
175	CARRIER HEALTHY CHANNEL-2	21M2	-	X	-	-	SPS
176	GROUP-B TRIP RELAY OPTD.	21M2	-	X	-	-	SPS
177	B/B PU RELAY FAULTY	21M2	-	X	-	-	SPS
178	MAIN-I RELAY FAULTY	21M2	-	X	-	-	SPS
179	A/R OPTD. FROM BCU	21M2	-	X	-	-	SPS
180	TRIP RELAY 86B SUPERVISION	21M2	-	X	-	-	SPS
181	DC-1 FAIL	21M2	-	X	-	-	SPS
182	ZONE-1 R-PH TRIP	21M2	-	X	-	-	SPS
183	ZONE-2 R-PH TRIP	21M2	-	X	-	-	SPS
184	ZONE-3 R-PH TRIP	21M2	-	X	-	-	SPS
185	ZONE-4 R-PH TRIP	21M2	-	X	-	-	SPS
186	DIRECTIONAL EARTHFAULT	21M2	-	X	-	-	SPS
187	OVERVOLTAGE OPERATED	21M2	-	X	-	-	SPS
188	SOTF OPERATED	21M2	-	X	-	-	SPS
189	UNDERVOLTAGE OPERATED	21M2	-	X	-	-	SPS

220kV TRANSFORMER-3 HV							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
1	CB-R-PHASE OPEN	BCU	X	-	-	-	DPS
2	CB-R-PHASE CLOSED	BCU	X	-	-	-	
3	CB-Y-PHASE OPEN	BCU	X	-	-	-	DPS
4	CB-Y-PHASE CLOSED	BCU	X	-	-	-	
5	CB-B-PHASE OPEN	BCU	X	-	-	-	DPS
6	CB-B-PHASE CLOSED	BCU	X	-	-	-	
7	CB POSITION	BCU	-	X	-	-	DPS
8	DISCONNECTOR 89A OPEN	BCU	X	-	-	-	DPS
9	DISCONNECTOR 89A CLOSE	BCU	X	-	-	-	
10	DISCONNECTOR 89B OPEN	BCU	X	-	-	-	DPS
11	DISCONNECTOR 89B CLOSE	BCU	X	-	-	-	
12	DISCONNECTOR 89T OPEN	BCU	X	-	-	-	DPS
13	DISCONNECTOR 89T CLOSE	BCU	X	-	-	-	
14	EARTH SWITCH ESA OPEN	BCU	X	-	-	-	DPS
15	EARTH SWITCH ESA CLOSE	BCU	X	-	-	-	
16	EARTH SWITCH ESB OPEN	BCU	X	-	-	-	DPS
17	EARTH SWITCH ESB CLOSE	BCU	X	-	-	-	
18	EARTH SWITCH 89TE OPEN	BCU	X	-	-	-	DPS
19	EARTH SWITCH 89TE CLOSE	BCU	X	-	-	-	
20	CB SPRING EXCESSIVE RUNTIME(R-PH)	BCU	X	-	-	-	SPS
21	CB SPRING EXCESSIVERUNTIME(Y-PH)	BCU	X	-	-	-	SPS
22	CB SPRING EXCESSIVERUNTIME(B-PH)	BCU	X	-	-	-	SPS
23	CB MOTOR FAIL(R-PH)	BCU	X	-	-	-	SPS
24	CB MOTOR FAIL(Y-PH)	BCU	X	-	-	-	SPS
25	CB MOTOR FAIL(B-PH)	BCU	X	-	-	-	SPS
26	CB SPRING CHARGED(R-PH)	BCU	X	-	-	-	SPS
27	CB SPRING CHARGED(Y-PH)	BCU	X	-	-	-	SPS
28	CB SPRING CHARGED(B-PH)	BCU	X	-	-	-	SPS
29	POLE DISCREPANCY OPTD.-1	BCU	X	-	-	-	SPS
30	POLE DISCREPANCY OPTD.-2	BCU	X	-	-	-	SPS
31	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
32	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
33	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
34	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
35	B COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
36	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
37	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
38	CB COMP. GD1 GAS PRESSURELOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
39	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
40	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
41	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
42	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
43	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
44	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
45	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
46	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
47	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
48	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW1ST STAGE-(R PH)	BCU	X	-	-	-	SPS
49	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
50	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
51	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
52	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
53	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
54	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
55	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
56	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
57	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
58	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
59	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
60	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
61	BUFFER COMP. GD5 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
62	BUFFER COMP. GD5 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
63	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
64	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE-(Y PH)	BCU	X	-	-	-	SPS
65	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
66	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
67	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
68	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
69	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS

220kV TRANSFORMER-3 HV							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
70	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
71	GIB COMP. GD7 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
72	GIB COMP. GD7 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
73	GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
74	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
75	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
76	GAB COMP. GD8 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
77	GAB COMP. GD8 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
78	MAIN BUS-I GD15 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
79	MAIN BUS-I GD15 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
80	MAIN BUS-I GD15 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
81	MAIN BUS-I GD15 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
82	MAIN BUS-I GD15 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
83	MAIN BUS-II GD16 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
84	MAIN BUS-II GD16 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
85	MAIN BUS-II GD16 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
86	MAIN BUS-II GD16 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
87	MAIN BUS-II GD16 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
88	L/R SWITCH IN LOCAL MODE	BCU	X	-	-	-	SPS
89	N/M SWITCH IN MAINTENACE MODE	BCU	X	-	-	-	SPS
90	N/M SWITCH IN NORMAL MODE	BCU	X	-	-	-	SPS
91	DC-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
92	DC-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
93	DCDB-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
94	DCDB-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
95	DS/ES ABNORMAL CIRCUIT SUPERVISION STATUS	BCU	X	-	-	-	SPS
96	DC-1 FAIL	BCU	X	-	-	-	SPS
97	DC SOURCE-2 FAIL	BCU	X	-	-	-	SPS
98	IV BAY IN TRANSFER MODE	BCU	X	-	-	-	SPS
99	CB TC-1 FAULTY	BCU	X	-	-	-	SPS
100	CB TC-2 FAULTY	BCU	X	-	-	-	SPS
101	MANUAL CB OPENALARM	BCU	X	-	-	-	SPS
102	MANUAL CB CLOSEALARM	BCU	X	-	-	-	SPS
103	IRF-67	BCU	X	-	-	-	SPS
104	IRF-PU	BCU	X	-	-	-	SPS
105	CB CLOSE COMMAND TO B/B MAIN-1 PU	BCU	-	-	X	-	SPC
106	CB CLOSE COMMAND TO CLOSING CKT	BCU	-	-	X	-	SPC
107	CB TRIP COMMANDTC TC-1	BCU	-	-	X	-	SPC
108	CB TRIP COMMANDTC TC-2	BCU	-	-	X	-	SPC
109	TRIP RELAY 86A RESET	BCU	-	-	X	-	SPC
110	TRIP RELAY 86B RESET	BCU	-	-	X	-	SPC
111	DISCONNECTOR 89A CLOSE COMMAND	BCU	-	-	X	-	DPC
112	DISCONNECTOR 89A OPEN COMMAND	BCU	-	-	X	-	
113	DISCONNECTOR 89B CLOSE COMMAND	BCU	-	-	X	-	DPC
114	DISCONNECTOR 89B OPEN COMMAND	BCU	-	-	X	-	
115	DISCONNECTOR 89L CLOSE COMMAND	BCU	-	-	X	-	DPC
116	DISCONNECTOR 89L OPEN COMMAND	BCU	-	-	X	-	
117	EARTH SWITCH ESA OPEN COMMAND	BCU	-	-	X	-	DPC
118	EARTH SWITCH ESA CLOSE COMMAND	BCU	-	-	X	-	
119	EARTH SWITCH ESB OPEN COMMAND	BCU	-	-	X	-	DPC
120	EARTH SWITCH ESB CLOSE COMMAND	BCU	-	-	X	-	
121	EARTH SWITCH 89ESL OPEN COMMAND	BCU	-	-	X	-	DPC
122	EARTH SWITCH 89ESL CLOSE COMMAND	BCU	-	-	X	-	
123	POLE DISCREPANCY -1 RESET	BCU	-	-	X	-	SPC
124	POLE DISCREPANCY -2 RESET	BCU	-	-	X	-	SPC
125	OLTC RAISE	BCU	-	-	X	-	SPC
126	OLTC LOWER	BCU	-	-	X	-	SPC
127	75A SELECT	BCU	-	-	X	-	SPC
128	75A DESELECT	BCU	-	-	X	-	SPC
129	75B SELECT	BCU	-	-	X	-	SPC
130	75B DESELECT	BCU	-	-	X	-	SPC
131	R PHASE VOLTAGE	BCU	-	-	-	X	MV
132	B PHASE VOLTAGE	BCU	-	-	-	X	MV
133	Y PHASE VOLTAGE	BCU	-	-	-	X	MV
134	R PHASE CURRENT	BCU	-	-	-	X	MV
135	B PHASE CURRENT	BCU	-	-	-	X	MV
136	Y PHASE CURRENT	BCU	-	-	-	X	MV
137	RB LINE VOLTAGE	BCU	-	-	-	X	MV
138	BY LINE VOLTAGE	BCU	-	-	-	X	MV

220kV TRANSFORMER-3 HV							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
139	YR LINE VOLTAGE	BCU	-	-	-	X	MV
140	FREQUENCY	BCU	-	-	-	X	MV
141	ACTIVE POWER	BCU	-	-	-	X	MV
142	REACTIVE POWER	BCU	-	-	-	X	MV
143	APPARENT POWER	BCU	-	-	-	X	MV
144	POWER FACTOR	BCU	-	-	-	X	MV
145	64R FAULTY	87T	-	X	-	-	SPS
146	64 OPTD	87T	-	X	-	-	SPS
147	86A OPTD	87T	-	X	-	-	SPS
148	86B OPTD	87T	-	X	-	-	SPS
149	86A SUPVN	87T	-	X	-	-	SPS
150	MAIN CB CLOSED	87T	-	X	-	-	SPS
151	MAIN CB OPEN	87T	-	X	-	-	SPS
152	LV MAIN CB OPEN	87T	-	X	-	-	SPS
153	LV LBB OPTD	87T	-	X	-	-	SPS
154	LV TBC OPEN	87T	-	X	-	-	SPS
155	LV TBC LBB OPTD	87T	-	X	-	-	SPS
156	87T FAULTY	64R	-	X	-	-	SPS
157	87T OPTD	64R	-	X	-	-	SPS
158	86B OPTD	64R	-	X	-	-	SPS
159	86B SUPVN	64R	-	X	-	-	SPS
160	MOG LOW ALARM	P141	-	X	-	-	SPS
161	MOG HIGH ALARM	P141	-	X	-	-	SPS
162	OLTC MOG LOW ALARM	P141	-	X	-	-	SPS
163	AIR CELL RAPTURE RELAY ALARM	P141	-	X	-	-	SPS
164	BUCHHOLZ ALARM	P141	-	X	-	-	SPS

220kV TRANSFORMER-4 HV							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
1	CB-R-PHASE OPEN	BCU	X	-	-	-	DPS
2	CB-R-PHASE CLOSED	BCU	X	-	-	-	
3	CB-Y-PHASE OPEN	BCU	X	-	-	-	DPS
4	CB-Y-PHASE CLOSED	BCU	X	-	-	-	
5	CB-B-PHASE OPEN	BCU	X	-	-	-	DPS
6	CB-B-PHASE CLOSED	BCU	X	-	-	-	
7	CB POSITION	BCU	-	X	-	-	DPS
8	DISCONNECTOR 89A OPEN	BCU	X	-	-	-	DPS
9	DISCONNECTOR 89A CLOSE	BCU	X	-	-	-	
10	DISCONNECTOR 89B OPEN	BCU	X	-	-	-	DPS
11	DISCONNECTOR 89B CLOSE	BCU	X	-	-	-	
12	DISCONNECTOR 89T OPEN	BCU	X	-	-	-	DPS
13	DISCONNECTOR 89T CLOSE	BCU	X	-	-	-	
14	EARTH SWITCH ESA OPEN	BCU	X	-	-	-	DPS
15	EARTH SWITCH ESA CLOSE	BCU	X	-	-	-	
16	EARTH SWITCH ESB OPEN	BCU	X	-	-	-	DPS
17	EARTH SWITCH ESB CLOSE	BCU	X	-	-	-	
18	EARTH SWITCH 89TE OPEN	BCU	X	-	-	-	DPS
19	EARTH SWITCH 89TE CLOSE	BCU	X	-	-	-	
20	CB SPRING EXCESSIVE RUNTIME(R-PH)	BCU	X	-	-	-	SPS
21	CB SPRING EXCESSIVERUNTIME(Y-PH)	BCU	X	-	-	-	SPS
22	CB SPRING EXCESSIVERUNTIME(B-PH)	BCU	X	-	-	-	SPS
23	CB MOTOR FAIL(R-PH)	BCU	X	-	-	-	SPS
24	CB MOTOR FAIL(Y-PH)	BCU	X	-	-	-	SPS
25	CB MOTOR FAIL(B-PH)	BCU	X	-	-	-	SPS
26	CB SPRING CHARGED(R-PH)	BCU	X	-	-	-	SPS
27	CB SPRING CHARGED(Y-PH)	BCU	X	-	-	-	SPS
28	CB SPRING CHARGED(B-PH)	BCU	X	-	-	-	SPS
29	POLE DISCREPANCY OPTD.-1	BCU	X	-	-	-	SPS
30	POLE DISCREPANCY OPTD.-2	BCU	X	-	-	-	SPS
31	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
32	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
33	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
34	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
35	B COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
36	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
37	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
38	CB COMP. GD1 GAS PRESSURELOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
39	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
40	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
41	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
42	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
43	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
44	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
45	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
46	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
47	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
48	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW1ST STAGE-(R PH)	BCU	X	-	-	-	SPS
49	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
50	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
51	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
52	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
53	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
54	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
55	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
56	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
57	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
58	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
59	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
60	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
61	BUFFER COMP. GD5 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
62	BUFFER COMP. GD5 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
63	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
64	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE-(Y PH)	BCU	X	-	-	-	SPS
65	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
66	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
67	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
68	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
69	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS

220kV TRANSFORMER-4 HV							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
70	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
71	GIB COMP. GD7 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
72	GIB COMP. GD7 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
73	GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
74	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
75	GAB COMP. GD8 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
76	GAB COMP. GD8 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
77	GAB COMP. GD8 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
78	MAIN BUS-I GD15 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
79	MAIN BUS-I GD15 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
80	MAIN BUS-I GD15 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
81	MAIN BUS-I GD15 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
82	MAIN BUS-I GD15 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
83	MAIN BUS-II GD16 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
84	MAIN BUS-II GD16 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
85	MAIN BUS-II GD16 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
86	MAIN BUS-II GD16 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
87	MAIN BUS-II GD16 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
88	L/R SWITCH IN LOCAL MODE	BCU	X	-	-	-	SPS
89	N/M SWITCH IN MAINTENACE MODE	BCU	X	-	-	-	SPS
90	N/M SWITCH IN NORMAL MODE	BCU	X	-	-	-	SPS
91	DC-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
92	DC-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
93	DCDB-2 SUPPLY FAIL	BCU	X	-	-	-	SPS
94	DCDB-1 SUPPLY FAIL	BCU	X	-	-	-	SPS
95	DS/ES ABNORMAL CIRCUIT SUPERVISION STATUS	BCU	X	-	-	-	SPS
96	DC-1 FAIL	BCU	X	-	-	-	SPS
97	DC SOURCE-2 FAIL	BCU	X	-	-	-	SPS
98	IV BAY IN TRANSFER MODE	BCU	X	-	-	-	SPS
99	CB TC-1 FAULTY	BCU	X	-	-	-	SPS
100	CB TC-2 FAULTY	BCU	X	-	-	-	SPS
101	MANUAL CB OPENALARM	BCU	X	-	-	-	SPS
102	MANUAL CB CLOSEALARM	BCU	X	-	-	-	SPS
103	IRF-67	BCU	X	-	-	-	SPS
104	IRF-PU	BCU	X	-	-	-	SPS
105	CB CLOSE COMMAND TO B/B MAIN-1 PU	BCU	-	-	X	-	SPC
106	CB CLOSE COMMAND TO CLOSING CKT	BCU	-	-	X	-	SPC
107	CB TRIP COMMANDTC TC-1	BCU	-	-	X	-	SPC
108	CB TRIP COMMANDTC TC-2	BCU	-	-	X	-	SPC
109	TRIP RELAY 86A RESET	BCU	-	-	X	-	SPC
110	TRIP RELAY 86B RESET	BCU	-	-	X	-	SPC
111	DISCONNECTOR 89A CLOSE COMMAND	BCU	-	-	X	-	DPC
112	DISCONNECTOR 89A OPEN COMMAND	BCU	-	-	X	-	
113	DISCONNECTOR 89B CLOSE COMMAND	BCU	-	-	X	-	DPC
114	DISCONNECTOR 89B OPEN COMMAND	BCU	-	-	X	-	
115	DISCONNECTOR 89L CLOSE COMMAND	BCU	-	-	X	-	DPC
116	DISCONNECTOR 89L OPEN COMMAND	BCU	-	-	X	-	
117	EARTH SWITCH ESA OPEN COMMAND	BCU	-	-	X	-	DPC
118	EARTH SWITCH ESA CLOSE COMMAND	BCU	-	-	X	-	
119	EARTH SWITCH ESB OPEN COMMAND	BCU	-	-	X	-	DPC
120	EARTH SWITCH ESB CLOSE COMMAND	BCU	-	-	X	-	
121	EARTH SWITCH 89ESL OPEN COMMAND	BCU	-	-	X	-	DPC
122	EARTH SWITCH 89ESL CLOSE COMMAND	BCU	-	-	X	-	
123	POLE DISCREPANCY -1 RESET	BCU	-	-	X	-	SPC
124	POLE DISCREPANCY -2 RESET	BCU	-	-	X	-	SPC
125	OLTC RAISE	BCU	-	-	X	-	SPC
126	OLTC LOWER	BCU	-	-	X	-	SPC
127	75A SELECT	BCU	-	-	X	-	SPC
128	75A DESELECT	BCU	-	-	X	-	SPC
129	75B SELECT	BCU	-	-	X	-	SPC
130	75B DESELECT	BCU	-	-	X	-	SPC
131	R PHASE VOLTAGE	BCU	-	-	-	X	MV
132	B PHASE VOLTAGE	BCU	-	-	-	X	MV
133	Y PHASE VOLTAGE	BCU	-	-	-	X	MV
134	R PHASE CURRENT	BCU	-	-	-	X	MV
135	B PHASE CURRENT	BCU	-	-	-	X	MV
136	Y PHASE CURRENT	BCU	-	-	-	X	MV
137	RB LINE VOLTAGE	BCU	-	-	-	X	MV
138	BY LINE VOLTAGE	BCU	-	-	-	X	MV

220kV TRANSFORMER-4 HV							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
139	YR LINE VOLTAGE	BCU	-	-	-	X	MV
140	FREQUENCY	BCU	-	-	-	X	MV
141	ACTIVE POWER	BCU	-	-	-	X	MV
142	REACTIVE POWER	BCU	-	-	-	X	MV
143	APPARENT POWER	BCU	-	-	-	X	MV
144	POWER FACTOR	BCU	-	-	-	X	MV
145	64R FAULTY	87T	-	X	-	-	SPS
146	64 OPTD	87T	-	X	-	-	SPS
147	86A OPTD	87T	-	X	-	-	SPS
148	86B OPTD	87T	-	X	-	-	SPS
149	86A SUPVN	87T	-	X	-	-	SPS
150	MAIN CB CLOSED	87T	-	X	-	-	SPS
151	MAIN CB OPEN	87T	-	X	-	-	SPS
152	LV MAIN CB OPEN	87T	-	X	-	-	SPS
153	LV LBB OPTD	87T	-	X	-	-	SPS
154	LV TBC OPEN	87T	-	X	-	-	SPS
155	LV TBC LBB OPTD	87T	-	X	-	-	SPS
156	87T FAULTY	64R	-	X	-	-	SPS
157	87T OPTD	64R	-	X	-	-	SPS
158	86B OPTD	64R	-	X	-	-	SPS
159	86B SUPVN	64R	-	X	-	-	SPS
160	MOG LOW ALARM	P141	-	X	-	-	SPS
161	MOG HIGH ALARM	P141	-	X	-	-	SPS
162	OLTC MOG LOW ALARM	P141	-	X	-	-	SPS
163	AIR CELL RAPTURE RELAY ALARM	P141	-	X	-	-	SPS
164	BUCHHOLZ ALARM	P141	-	X	-	-	SPS

220kV REACTOR							
S.NO.	SIGNAL DESCRIPTION	IED	INTERFACE				DATATYPE
			DI(Hard)	DI(Soft)	DO	AI	
1	CB-R-PHASE OPEN	BCU	X	-	-	-	DPS
2	CB-R-PHASE CLOSED	BCU	X	-	-	-	
3	CB-Y-PHASE OPEN	BCU	X	-	-	-	DPS
4	CB-Y-PHASE CLOSED	BCU	X	-	-	-	
5	CB-B-PHASE OPEN	BCU	X	-	-	-	DPS
6	CB-B-PHASE CLOSED	BCU	X	-	-	-	
7	CB POSITION	BCU	-	X	-	-	DPS
8	DISCONNECTOR 89A OPEN	BCU	X	-	-	-	DPS
9	DISCONNECTOR 89A CLOSE	BCU	X	-	-	-	
10	DISCONNECTOR 89B OPEN	BCU	X	-	-	-	DPS
11	DISCONNECTOR 89B CLOSE	BCU	X	-	-	-	
12	DISCONNECTOR 89T OPEN	BCU	X	-	-	-	DPS
13	DISCONNECTOR 89T CLOSE	BCU	X	-	-	-	
14	EARTH SWITCH ESA OPEN	BCU	X	-	-	-	DPS
15	EARTH SWITCH ESA CLOSE	BCU	X	-	-	-	
16	EARTH SWITCH ESB OPEN	BCU	X	-	-	-	DPS
17	EARTH SWITCH ESB CLOSE	BCU	X	-	-	-	
18	EARTH SWITCH 89TE OPEN	BCU	X	-	-	-	DPS
19	EARTH SWITCH 89TE CLOSE	BCU	X	-	-	-	
20	CB SPRING EXCESSIVE RUNTIME(R-PH)	BCU	X	-	-	-	SPS
21	CB SPRING EXCESSIVE RUNTIME(Y-PH)	BCU	X	-	-	-	SPS
22	CB SPRING EXCESSIVE RUNTIME(B-PH)	BCU	X	-	-	-	SPS
23	CB MOTOR FAIL(R-PH)	BCU	X	-	-	-	SPS
24	CB MOTOR FAIL(Y-PH)	BCU	X	-	-	-	SPS
25	CB MOTOR FAIL(B-PH)	BCU	X	-	-	-	SPS
26	CB SPRING CHARGED(R-PH)	BCU	X	-	-	-	SPS
27	CB SPRING CHARGED(Y-PH)	BCU	X	-	-	-	SPS
28	CB SPRING CHARGED(B-PH)	BCU	X	-	-	-	SPS
29	POLE DISCREPANCY OPTD.-1	BCU	X	-	-	-	SPS
30	POLE DISCREPANCY OPTD.-2	BCU	X	-	-	-	SPS
31	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
32	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
33	CB COMP. GD1 GAS PRESSURELOW 1ST STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
34	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(R PH)	BCU	X	-	-	-	SPS
35	B COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(Y PH)	BCU	X	-	-	-	SPS
36	CB COMP. GD1 GAS PRESSURE LOW 2ND STAGE ALARM -(B PH)	BCU	X	-	-	-	SPS
37	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
38	CB COMP. GD1 GAS PRESSURELOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
39	CB COMP. GD1 GAS PRESSURE LOW 3RD STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
40	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
41	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
42	CB COMP. GD1 GAS PRESSURE LOW 4TH STAGE ALARM -(R,Y,B, PH)	BCU	X	-	-	-	SPS
43	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
44	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
45	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
46	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
47	89A DISCONNECTOR COMP. GD2 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
48	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW1ST STAGE-(R PH)	BCU	X	-	-	-	SPS
49	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
50	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
51	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
52	89B DISCONNECTOR COMP. GD3 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
53	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
54	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
55	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
56	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
57	ESA DISCONNECTOR COMP. GD4 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
58	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
59	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(Y PH)	BCU	X	-	-	-	SPS
60	BUFFER COMP. GD5 GAS PRESSURE LOW 1ST STAGE -(B PH)	BCU	X	-	-	-	SPS
61	BUFFER COMP. GD5 GAS PRESSURE LOW 2ND STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
62	BUFFER COMP. GD5 GAS PRESSURE LOW 3RD STAGE -(R,Y,B PH)	BCU	X	-	-	-	SPS
63	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE -(R PH)	BCU	X	-	-	-	SPS
64	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE-(Y PH)	BCU	X	-	-	-	SPS
65	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 1ST STAGE-(B PH)	BCU	X	-	-	-	SPS
66	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 2ND STAGE-(R,Y,B PH)	BCU	X	-	-	-	SPS
67	CTA/89T/ESB/89TE SWITCH COMP. GD6 GAS PRESSURE LOW 3RD STAGE-(R,Y,B PH)	BCU	X	-	-	-	SPS
68	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE-(R PH)	BCU	X	-	-	-	SPS
69	GIB COMP. GD7 GAS PRESSURE LOW 1ST STAGE-(Y PH)	BCU	X	-	-	-	SPS