Attachment 1

Analog_Signals

Devtyp	Analog
	MW
	MVAR
	MVA
lls)	KV_RY
gna	KV_YB
Sić	KV_BR
15	KV (AVG)
) >	I_R
3Å,	I_Y
~	I_B
Ш	PF
	HZ
ШЦ	MWHE
	MWHI
	MXHE
	MXHI
Devtyp	Analog
	MW
_	MVAR
(sla	MVA
<u>io</u>	

Devtyp	Analog	
۲	MW	
	MVAR	
\sim	MVA	
(A)	KV_RY	
	KV_YB	
als als	KV_BR	
PL	KV (AVG)	
DC S	I_R	
BUS CO	I_Y	
	I_B	
	PF	
	HZ	

Devtyp	Analog
BUS_BAY (2 Signals)	KV_RY
	KV_YB
	KV_BR
	KV (AVG)
	HZ

Devtyp	Analog
	MW
	MVAR
ls)	MVA
Ina	KV_RY
Sig	KV_YB
16	KV_BR
) Y	KV (AVG)
3A'	I_R
~	I_Y
Щ	I_B
٨	PF
ō	HZ
S	TPI
A	MWHE
TR	MWHI
	MXHE
	МХНІ

Analog
MW
MVAR
MVA
KV_RY
KV_YB
KV_BR
KV (AVG)
I_R
I_Y
I_B
PF
HZ

Devtyp	Analog
	MVAR
s) SR	KV_RY
al Dal	KV_YB
Sign	KV_BR
Ш 00 П 00	KV (AVG)
SHUNT BAY (0	I_R
	I_Y
	I_B
	PF

NOTE:

1. These are the required typical Analog signal list. The list sh

2. First starting address should be from $\mathbf{35840}$

3. Signal addressing should be done as per your Bay arrangment

Single Point Status

	IOCR	INSTANTANEOUS OVER CURRENT RELAY OPERATED INSTANTANEOUS EARTH FAULT RELAY OPERATED Distance Protection Relay Optd			
	IEFR				
	DPRO				
	M1Z1	MAIN1 ZONE 1 OPERATED			
	M1Z2	MAIN1 ZONE 2 OPERATED			
	M1Z3	MAIN1 ZONE 3 OPERATED			
	M1Z4	MAIN1 ZONE 4 OPERATED			
	M175	MAIN1 ZONE 5 OPERATED			
	M271	MAIN2 ZONE 1 OPERATED			
	M272	MAIN2 ZONE 2 OPERATED			
	M2Z2 M2Z3	MAIN3 ZONE 3 OPERATED			
	M2Z3	MAIN4 ZONE 5 OPERATED MAIN5 ZONE 5 OPERATED			
	M2Z5				
	SOTE	MAINS ZONE 5 OPERATED SWITCH ON TO FAULT OPERATED DOWER SWING DETECTED			
	JOIF				
	POD				
	BCD	BROKEN CONDUCTOR DETECTED		Nee Directional Farth Fault Oated	
	DEFN	Directional Earth Fault Opto-N	NEFN	Non Directional Earth Fault Opto-	
	DOCR	Directional Over Current Optd-R-Ph	NOCR	Non Directional Over Current	
FDR (37Signals)	DOCY	Directional Over Current Optd-Y-Ph	NOCY	Non Directional Over Current	
	DOCB	Directional Over Current Optd-B-Ph	NOCB	Non Directional Over Current	
	ov	OVER VOLTAGE OPERATED			
	UV	Under Voltage Optd			
	CBL	CB SF6/Air Pressure Lockout			
	CBD1	CB Pole Discrepancy-1 (47T) OPERA	TED		
	CBD2	CB Pole Discrepancy-2 (47T) OPERA	TED		
	TRO1	TRIP RELAY-1 OPERATED			
	TRO2	TRIP RELAY-2 OPERATED			
	TCF1	Trip Circuit Faulty-1			
	TCF2	Trip Circuit Faulty-2			
	TRF1	86-1 TRIP RELAY FAULTY			
	TRF2	86-2 TRIP RELAY FAULTY			
	TRR1	TRIP RELAY RESET-1			
	TRR2	TRIP RELAY RESET-2			
	CBAT				
	LRCB				
	APO	AUTO RECLOSE OPERATED			
		Auto Reclose Lockout			
	IOCR	INSTANTANEOUS OVER CURRENT	RELAY	perated	
	IEED	INSTANTANEOUS EARTH FALLET R		rated	
				lated	
		CB SE6/Air Pressure Lockout			
		CB SI 0/All Plessure Lockout			
	CBD1	CB Pole Discrepancy 2 (47T) OPERA			
		CB FOIE DISCIEDATICY-2 (471) OFERA	IED		
	REF	REF Opto			
	OET	Over Exclation Trip			
	101	I nermai over load Trip	11.7		
	WITH	Winding Temperature Indicator Trip_F	10		
	WIIM	winding remperature indicator rip_i	//V		
	WIIL	winding Temperature Indicator Trip_L	_V		
	011				
	BT	Bucholz I rip			
	TRT	Transformer Trouble Trip (PRV)			
Transformer (32	ARO	Auto Reclose Optd			
Signals)	ARL	Auto Reclose Lockout			
	TRO1	Trip Relay 1 Optd			
	TRO2	Trip Relay 2 Optd			
	TCF1	Trip Circuit Faulty-1			
	TCF2	Trip Circuit Faulty-2			
	TRF1	86-1_TRIP RELAY FAULTY			
	TRF2	86-2_TRIP RELAY FAULTY			
	TRR1	TRIP RELAY RESET-1			
	TRR2	TRIP RELAY RESET-2			
	CBAT	CB AUTO TRIP			
	LRCB	Local / remote switch for CB			
	TAP	Tap changer Auto/Manual XFMR			
	ТСА	A Tap changer alarm Tap changer trip			
	тст				
	TCP	TAP CHANGER POSITION			
	LRTC	I OCAL/REMOTE SWITCH FOR Tap changer			

	IOCR	INSTANTANEOUS OVER CURRENT RELAY operated		
	IEFR	INSTANTANEOUS EARTH FAULT RELAY operated		
	DFO	Differential PROTECTION Optd		
	CBL	CB SF6/Air Pressure Lockout		
	CBD1	CB Pole Discrepancy-1 (47T) OPERATED		
	CBD2	CB Pole Discrepancy-2 (47T) OPERATED		
	ARO	Auto Reclose Optd		
	ARL	Auto Reclose Lockout		
Bus_Coupler (18	TRO1	Trip Relay 1 Optd		
Signals) TRO2 Trip Relay 2 Optd		Trip Relay 2 Optd		
	TCF1	Trip Circuit Faulty-1		
	TCF2	Trip Circuit Faulty-2		
	TRF1	86-1_TRIP RELAY FAULTY		
	TRF2	86-2_TRIP RELAY FAULTY		
	TRR1	TRIP RELAY RESET-1		
	TRR2	TRIP RELAY RESET-2		
	CBAT	CB AUTO TRIP		
	LRCB	Local / remote switch for CB		

	IOCR	INSTANTANEOUS OVER CURRENT RELAY operated
	IEFR	INSTANTANEOUS EARTH FAULT RELAY operated
	DFO	Differential PROTECTION Optd
	CBL	CB SF6/Air Pressure Lockout
	CBD1	CB Pole Discrepancy-1 (47T) OPERATED
	CBD2	CB Pole Discrepancy-2 (47T) OPERATED
	ARO	Auto Reclose Optd
	ARL	Auto Reclose Lockout
Bus_Section	TRO1	Trip Relay 1 Optd
(CB)(18 Signals)	TRO2	Trip Relay 2 Optd
	TCF1	Trip Circuit Faulty-1
	TCF2	Trip Circuit Faulty-2
	TRF1	86-1_TRIP RELAY FAULTY
	TRF2	86-2_TRIP RELAY FAULTY
	TRR1	TRIP RELAY RESET-1
	TRR2	TRIP RELAY RESET-2
	CBAT	CB AUTO TRIP
	LRCB	Local / remote switch for CB

	BPO	Bus Bar Protection Optd		
LBB LOCAL BREAKER BACKUP OPTD				
BUS (6 Siganls)	VTF1	BUS 1 VT FAIL	CVT1	BUS 1 CVT FAIL
	VTF2	BUS 2 VT FAIL	CVT2	BUS 2 CVT FAIL
	VTF3	BUS 3 VT FAIL	CVT3	BUS 3 CVT FAIL

COMMON DCFL DC FAIL

NOTE:

1. The given signals are example of typical single status signals. Please submit the single status signals available separately for all the bays depending on the protection system used at site.

2. Mention the protection system used for each bay

3. First starting address should be from $\mathbf{512}$

4. Signal addressing should be done as per your Bay arrangment

Double Point Status

CB (Circuit Breaker)	STTS
BIS (Bus Isolator)	STTS
LIS (Line Isolator)	STTS
EIS (Earth Isolator)	STTS
IS (By_Pass Isolator or Isolator)	STTS
Transformer Isolator	STTS

NOTE:

1. These are the required typical Double Point Status signal list. The list should be submitted separately for all the 66kV & above bays.

- 2. First starting address should be from 30720
- 3. Signal addressing should be done as per your Bay arrangment

Command Signals

CB (Circuit Breaker)	OPEN
	CLOSE
BIS (Bus Isolator)	OPEN
	CLOSE
LIS (Line Isolator)	OPEN
	CLOSE
EIS (Earth Isolator)	OPEN
	CLOSE
IS (By_Pass Isolator or Isolator)	OPEN
	CLOSE
Transformer Isolator	OPEN
	CLOSE
Trip Relay	RESET
Transformer Tap	RAISE
	LOWER

NOTE:

1. These are the required typical Command Signal list. The list should be submitted separately for all the 66kV & above bays.

- 2. First starting address should be from 46080
- 3. Signal addressing should be done as per your Bay arrangment

Other data

SI.No	Bay type	Parameters required
1	Transmission line	Line length
		conductor type
		connected CT ratio
2	Transformer	Tap Type (TAP limits)
		Nominal Tap position
		Nominal MVA rating
		R%, X%
		% Z own base
		connected CT ratio
3	Generator (Unit)	Capability curve
		Nominal MVA rating
		short circuit Data
4	Bus Coupler	connected CT ratio
5	Shunt Reactor	Nominal MVAR rating
		connected CT ratio

NOTE: Single Line Diagram needs to be provided to BPSO