

ANNEXURE-A, & B, TO PRODUCT STANDARD SG12927

ANNEXURE-A TO PRODUCT STANDARD SG12927 R-04		REV.NO.- 00	Page 1 of 5
BHEL Bhopal	Project Specific Data		
SWE	PI No.: 24099----	Enq. No.:	PO No.:
W.O. Nos. : 95013A47602 YADADRI			

1. Project Data

Work order No	Project	P.I NO.
95013 A 476 02	YADADRI	24099----

2. Site Condition

Ambient Temp (min/max/design) deg Celcius	Humidity (%)	Altitude (mtr)	Atmospheric condition	Installation
1.1/55/50	>90	<1000	Highly corrosive	Indoor

3. Miscellaneous inputs (tick (√) / Purchaser to indicate against the requirement)

a.	Auxiliary Supply for Relays	220V DC +10 & -15% Variation
b.	Auxiliary Supply for Data Concentrator	2 nos, 220V DC +10 & -15% Variation
c.	Prot. CT Secondary	1A (√) / 5A (√) / Not Applicable ()
d.	Diff./REF CT Secondary	1A (√) / 5A () / Not Applicable ()
e.	Earth Fault CT secondary	1A (√) / 5A () / Not Applicable ()
f.	Open Delta Voltage for Directional	110/3VAC (√) / Not Applicable ()
g.	PT Synchronization secondary voltage	63.5VAC (√) / 110VAC () / Not Applicable ()
h.	Relay shall have conformal coating	No (√) / Yes ()
i.	Motor diff Relay part of main motor Protection Relay	No (√) / Yes ()
j.	Trafo diff Relay part of main trafo Protection Relay	No (√) / Yes ()
k.	RTD/ BTD Inputs (Nos) (For Motor Protection)	No (√) / Yes () & Nos ()
l.	Protocol for Communication of relays	IEC open Protocol (IEC-61850) () / MODBUS-RTU ()
m.	Protocol for Communication of DC with Upper Level system	MODBUS-RTU () / OPC (ETHERNET BASED) / IEC-60870-104 () / Other (Shall be informed during detailed engg)
n.	No of rear communication port on numerical relay for Networking	1 (one) () / 2 (Two) (√)
o.	Redundancy Protocol	PRP (√) / HSRP () / Dual Ring w/o PRP () / Not Applicable ()
p.	Topology for Communication from Relay to DC/Ethernet switch	Serial () / Star (Non-Redundant)
q.	Topology for Communication of DC with HMI	Star (dual redundant link)
r.	System Communication Architecture	Enclosed (√) & DRG NO: (13A06-DWG-E-0149) / Not Enclosed () / Not applicable ()

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s.	Metering Network architecture (if applicable)	Enclosed () & DRG NO () / Not Enclosed () / Not applicable (√)
t.	Time Synchronization Required	No () / Yes (√)
u.	Distance between feeder for cable differential relay and size & type of cable	Not Applicable (√) / Applicable () & Distance , Type
v.	Switchgear Control thru relay from HMI Required	No (√) / Yes ()
w.	Switchboard wise Item break-up	Enclosed () & Annexure () / Not Enclosed (√) / Not applicable ()
x.	Location of different Swbd or Switchgear Room Layout drawing	Enclosed () & Drawing No () / Not Enclosed (shall be informed later) / Not applicable ()
y.	Integration of LT relays	Not Applicable (√) / Applicable (), Type () & Protocol of LT relays (IEC open Protocol (IEC-61850) () / MODBUS-RTU ()
z.	Data concentrator Panel paint shade	Powder coated, semi glossy, shade (shall be informed during detail engineering) / Not Applicable ()
	Data concentrator Panel Location	In BTG building control room approx. 500 mtrs from Unit and Station Swbd/ Not Applicable ()
aa.	HMI Console colour shade	Powder coated, semi glossy, shade (shall be informed during detail engineering) / Not Applicable ()
	HMI Console Desk Top colour shade	Powder coated, semi glossy, shade (shall be informed during detail engineering) / Not Applicable ()
	HMI Console location	Main control room 100 mtrs from Data Concentrator panel/ Not Applicable () (shall be informed during detail engineering)
bb.	Customer approved sub-vendor List for communication Network items	Enclosed () & Annexure (E) / Not Enclosed (√) (shall be finalized during detailed engg),

4.0 Following clauses of SG12927 Rev 04 not applicable for the project:

Clauses	
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5.0 Protection & metering features required in relay (In addition to specified in SG12927 rev 04)

KEY FEATURES ↓	Item- 001 (Tick the reqmnt √)	Item- 002 (Tick the reqmnt √)	Item-003 (Tick the reqmnt √)	Item- 004 (Tick the reqmnt √)	Item- 005(Tick the reqmnt √)	Item- 006 (Tick the reqmnt √)	Item- 007(Tick the reqmnt √)
SHORT DESCRIPTION →	O/C+ E/F	O/C+ E/F	MOTOR PROTN	MOTOR DIFF	TRAFO DIFF	UNDER VOLTAGE	RESTRICTE D E/F/ STAND BY E/F
3-Ph Directional Over current (67) with low set, high set and high set instantaneous	√	√					
Directional Earth Fault (67N) with low set, high set and high set instantaneous	√	√					
Stand By Earth Fault (64S)							
3-Ph inrush current detector							
Neutral Displacement (64NDR)						√	
Under Frequency with time delay(81U)	√	√				√	
Over Freq with time delay (81O)						√	
df/dt element(4 Stages)							
Max. start time			√				
Motor Over Load pre-alarm			√				
Motor Re-acceleration							
Loss of load (37)			√				
Single Phasing (46)			√				
Under current			√				
Phase Reversal Protection (46R)				√			
Motor Stall protection			√				
Earth Fault thru CBCT (50N)	√	√	√				
Transformer Diff (87T) 3-winding							

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KEY FEATURES	Item- 001 (Tick the reqmnt √)	Item- 001 (Tick the reqmnt √)	Item-002 (Tick the reqmnt √)	Item- 003 (Tick the reqmnt √)	Item- 004 (Tick the reqmnt √)	Item- 005 (Tick the reqmnt √)	Item- 007 (Tick the reqmnt √)
SHORT DESCRIPTION → ↓	O/C+ E/F	O/C+ E/F	MOTOR PROTN	MOTOR DIFF	TRAFO DIFF	UNDER VOLTAGE	RESTRICTED E/F
High Impedance Motor Diff. (87M)				√			
Low impedance Motor diff. (87M)							
Bus Differential (87B)							
Check bus differential							
Cable Diff. prot. scheme (87F)							
Converter/Modem/Isolation Trf for cable differential (if reqd)							
Restricted Earth fault (REF1)							√
Restricted Earth fault (REF2)							
Breaker monitoring							
Synch-check (25)							
Metrosil				√			√
Stabilizing resistance				√			√
<u>Metering /Event Recording</u>							
3-Ph MVA	√	√	√				
3-Ph MVAR	√	√	√				
3-Ph MVAH	√	√	√				
BINARY INPUT/BINARY OUTPUT BESIDES RELAY FAIL W/D CONTACT (min. 6/6 if not specified)	22/16	22/16	10/10	3/5	3/5	5/8	3/5
<u>No of CT/PT and their purpose</u>	4/4	4/3	4/3	4/0	7/0	0/3	4/0
<u>OFFERED RELAY MODEL</u>							

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6.0 Data concentrator/HMI and other Accessories

ITEM-008	Metrosil suitable for 1 A rating
ITEM-009	Stabilizing Resistor (0-4000ohms)
ITEM-010	Data Concentrator Panel as per clause B2.03.00 of SG12927
ITEM-011	Human Machine Interface (HMI)/Work station as per clause B2.05.00 of SG12927 5.0
ITEM-012	Relay parameterization equipment as per clause B2.12.00 of SG12927
ITEM-013	Global Positioning System (GPS Clock) as per clause B2.09.00 of SG12927
ITEM-014	Report Printing device as per clause B2.07.00 of SG12927
ITEM-015	Un-interrupted Power Supply as per clause B2.08.00 of SG12927
ITEM-016	Ethernet Switch (16 Channel) as per clause B2.04.00 of SG12927
ITEM-017	Ethernet Switch (8 Channel) as per clause B2.04.00 of SG12927
ITEM-018	CAT6 or better LAN cable as per clause B2.10.00 of SG12927
ITEM-019	Fibre Optic Cable as per clause B2.11.00 of SG12927

7.0 Set of Documents Required (For each project)

ITEMS	Sets (along with the offer)	Sets (along with the supplies)	Sets (within 2 weeks of P.O placement)
Technical Leaflet/ literature, panel cutout, overall dimension drawing, complete model no, wiring diagram of Each item.	1	-	-
User manual/Guide of Each item.	-	1	8
Routine test certificate	-	1	-
Scheme, datasheet, FDS, System architecture, bill of material, OGA of data concentrator panel, OGA of furniture & HMI etc for approval	-	1	8
QAP (Quality Approval Plan)	-	-	8
SAT (Site Acceptance test procedure)	-	-	8
FAT (Factory acceptance test procedure)	-	-	8

ANNEXURE-B: VENDOR TO CONFIRM PROJECT SPECIFIC OTHER TECHNICAL REQUIREMENT

CLAUSE NO	SPECIFIC TECHNICAL REQUIREMENT	COMPLIED YES/NO	REMARKS
	NIL		