Specification For Transformer Base Sinusoidal parallel True On Line Double Conversion UPS			
General Data			
Vendor's Name:		Average Ambient Temperature (Min/Max)	0 °c / 52 °c
Tag No.(s):		Max.Design Temperature:	+40 °c
App. Document.(s):		Max. Sun Temperature:	+ 75 °c
UPS & Battery Spec. Doc. No.:		Max.Relative Humidity:	90%
UPS sizing Doc. No.:		Mean Sea Level:	1500 meter
Technical Data			
	General	**Required**	**Vendor Data**
1	Applicable Code & Standard	IEC 62040,IPS-M-EL-176(2)	
2	Electromagnetic Compatibility	As per IEC 62040-2	
3	Service	Control rooms requirement	
4	Rated input	3phase,400 v ± 10%,50Hz ± 5%	
5	Rated out put	110 V AC ± 1%	
6	Rated Power	10 KVA	
7	Country of Origin	By Vendor	
8	Cold Start Facility	Required	
9	No. of UPS	☐Single ☑Double	
Mechanical Characteristic			
10	Noise Level (in accordance with ISO 7779)The sound pressure level measured at 1 m (39 in) distance from the UPS	☐ < 55 dBA ☑<60dBA ☐<65dBA <70dBA	
11	Permissive Max. Temp.Rise	By Vendor	
12	Enclosure Construction	Sheet steel with min.thickness 1.5 mm	
13	degree of protection in accordance with IEC 60529	☐IP21 ☑IP31 ☐IP42	
14	Type of Cooling	☐Natural ☑forced (n+1 Fan)	
15	Dimension	MINIMUM SIZE	
16	Weight	MINIMUM WEIGHT	
17	Panel mounting	☑ Floor mounted ☐ Wall mounted	
18	Access	☑ Front access ☐ Rear access	
19	MTBF (at 20 °C (68 °F))	☐≥90,000 Hr ☑≥140,000 Hr ☐≥280,000 Hr	
20	MTTR	☑≤1 Hr ☐≤2 Hr ☐≤4 Hr	
21	Finish Color	RAL 7032	
Load Characteristics			
22	Load consumption	10 KVA 8 KW	
23	Load description	Instrument,PLC,DCS,Work Stations, Printers	
24	Rated Current	By Vendor	
25	Power Factor Range	0.7-1 Lag & Lead	
26	Grounding System	Solidly	
AC INPUT			
27	Voltage & Variation	☐380V ☑400V ☐440V ±15% 3 phase, 4 wire	
28	Frequency & Variation	☑50 Hz ± 5 % ☐60 Hz ± 5 %	
29	Grounding System	Solidly	
30	Short Circuit Current on System	50 KA, 1 Sec	
31	Short Circuit Capability	> 200 %	
32	Rated Input Current	By Vendor	
33	THDi for Input Current	☐< 5% ☑<10% ☐<15%	
34	Input Power Factor (Lag)	☐>0.7 ☐>0.8 ☑>0.85 ☐>0.9	
Charger			
35	Rated Current (A)	By Vendor	
36	Rated Input Voltage	☐380V ☑400V ☐440V ± 15% 3 phase 4 wire	
37	Rated output Voltage	110 VDC(shall be finalized by vendor)	
38	No. Of Charger	☐1 Set(100%) ☑2 Set(100%)	

39	Type of Rectifier	Constant voltage current limiting static type thyristor controlled Rectifier(6 Pulses)	
40	Voltage Ripple (rms)	± 1% of nominal voltage	
41	Voltage Regulation	± 1%	
44	Allowable Voltage Range	By Vendor	
45	Normal Float Charge Voltage	By Vendor	
46	Max Boost Charge Voltage	By Vendor	
47	Efficiency	By Vendor	
48	Maximum Heat Dissipation	By Vendor	
	Battery		
49	Type of Batteries (IEC60623)	Sealed Lead Acid Long Life	
50	Capacity of battery bank (AH)	By Vendor	
51	Backup Time	☑30min ☐1hr ☐2hr	
52	Country of Origin/Company	Europe, Japan, Korea	
53	Date of Manufacture	By Vendor	
54	Battery internal resistance	By Vendor	
55	No's Of Battery Cells For Each Bank	By Vendor	
56	Battery house	☑ Cabinet ☐ Rack	
57	Type of Battery rack/cabinet	Wooden or plastic /epoxy coated steel	
58	No's. Of Battery Bank (100%)	☐1 Set ☑2 Set half rated	
59	Re-charging time to 90% Rated Capacity	8 Hours	
60	Battery nominal Voltage per cell	2v	
61	Battery final voltage per cell	☐1V/Cell ☐1.05V/Cell ☐1.1V/Cell ☐1.14V/cell	
	Inverter		
62	Power Rating	10 KVA	
63	Output Voltage	☑110Vac ☐230Vac ☑Single Phase ☐3 Phase	
64	Output Voltage Regulation	± 1% in steady state	
65	Output Voltage Unbalance(At 100% Unbalanced Load)	< 2%	
66	Output Frequency & Variation	☑ 50 Hz ± 1% ☐60 Hz ± 1%	
67	Output Frequency Regulation	± 1% in steady state	
68	Maximum V. Harmonic Distortions (THD%)	Max. 5%(for linear & nonlinear loads)	
69	Rated Output Current (Amp)	By Vendor	
70	No. of Inverter (100%)	☐1 Set ☑2 Set (parallel) ☐3 Set ☐4 Set	
71	Type Of Inverter (True Online Double Conversion Technology and pure Sine Wave)	IGBT Technology	
72	Galvanic Isolation (Input / Output)	Required	
73	Fast Fuse Protection For IGBT Bridge	Required	
74	Max. Allowable Current	By Vendor	
75	Efficiency (Min)	> 90 %	
76	Maximum Heat Dissipation	By Vendor	
77	Type of Frequency Synchronizer	By Vendor	
78	Crest Factor	Min 3:1	
	Bypass Isolating Transformer		
79	Type	Double wound dry type air cooled	
80	Input / output voltage	Input: ☐380Vac ☑400Vac ☐440Vac Output: ☑110Vac ☐230Vac f=50Hz	
81	Bypass transformer KVA rating	10 KVA	
82	Short Circuit Impedance	Less than 4%	
83	Stabilizer (Servo Control With Galvanic Isolation)	☑Not Required ☐Required	
84	Stabilizer Short Circuit Capacity		
85	Stabilizer Static output voltage tolerance		
86	Stabilizer Short Circuit Impedance		

87	Stabilizer Phase shift from input to output		
Inverter/ Mains Static Switch			
88	Inverter Switch Type	☑Thyristor (S.C.R) ☐Other	
89	Inverter Rated Current (Continuous)	☑≥105% Of Rated Output Current of UPS ≥200% Of Rated Output Current of UPS	
90	Inverter Over Load Capability on Static Switch	>200 % For 100ms >150 % For 1Min >125 % For 10Min	
91	Transfer the inverter output voltage	below 90% of the nominal output voltage exceeds 110% of the nominal output voltage	
92	Re-transfer of the load from the static bypass to the inverter	The inverter output voltage is within ± 5% of the nominal output voltage for more than 3 seconds.	
93	Inverter/Mains Switching Transfer Time(ms)	1/5 Period Of a Cycle	
94	Mains Switch Type	☑Thyristor (S.C.R) ☐Other	
95	Mains Rated Current (Continuous)	200% Of Rated Output Current of UPS	
96	Mains Over Load Capability on Static Switch	>1000 % For 100ms >150 % For 1Min >125 % For 10Min	
97	Fast Fuse Protection For Mains Static Switch	Required	
98	Electronic Change Over Between Manls and Inverter	Manual /Automatic	
99	All UPS units shall comply with the requirements for EMC as defined in IEC 62040-2		
100	An earth bar, with a suitable number of earthing bolts or screws, shall be provided.		
Manual Bypass Switch			
101	Rated Current	110% Rated output current of UPS	
102	Maintenance Bypass (Make Before Beak)	Required	
103	Over Load Capability	> 1000 % For 100ms	
104	Allowable Over Current (1 Sec)	By Vendor	
AC Distribution Board			
105	Protection Degree	IP31	
106	Feeder quantity	4 * 16 A MCB	
107	Incoming type (IEC 60947)	MCCB,(Shall be finalized by vendor)	
Accessories And Protection			
108			
109	Incoming Cable	NOT Required	
110	Cable Type	NOT Required	
111	Earth Bar	NOT Required	
112	Cable Entry and Accessories	NOT Required	
113	Current Limiting Device Setting	NOT Required	
Alarms			
114		☑ AC input supply failure	
115		☑ Rectifier failure	
116		☑ DC voltage low/high	
117		☑ DC earth fault	
118		☑ Battery discharging	
119		☑ Battery disconnected	
120		☑ Inverter failure	
121		☑ Inverter over loaded	
122		☑ Inverter over temperature	
123		☑ AC output voltage low/high	
124		☑ Output frequency low/high	
125		☑ Ventilation failure &high temp	

Metering Device			
126		☑ DC/AC Ammeter	
127		☑ DC/AC Voltmeter	
128		☑ Bypass/Inverter/Load Frequency Meter	
129	Remote Signals	Required	
130	Serial Communication Capability	☑ RS 232 ☐ RS 485	
131	Fixing Bolt & nuts	Required	
132	Lifting lug	Required	
133	On load break switch-fuse For Batteries	Required	
Tests (FAT and SAT shall be performed By the Vendor)			
134	Visual Inspection & Dimensional Check	Required	
135	Performance and Function Test	Required	
136	Sequence , Operation and Logic Test	Required	
137	Dielectric Strength Test	Required	
138	Output Voltage Wave Form and THD% Check	Required	
139	Charger Voltage Adjustment Test	Required	
140	Transfer Time Test	Required	
141	Output Regulation / Adjustments Test	Required	
142	Alarms Check	Required	
143	Autonomy Test	Required	
144	Overload /Short Circuit Test	Required	
145	Short Circuit test	Required	
Note1:	Other Tests shall be performed in Accordance with IEC60146 & IEC62040-3		
Note2:	The Accuracy of all meters shall be better than 1.5%		
Accessories And Special Tools			
146	MIMIC Diagram With LED To Show Operation Condition	Required	
147	Hardware and Software for Communication Programming or Setting the CPU or MPU Boards,	Required	
148	Automatic battery test and failure alarm	Required	
149	Hot and Cold standby unlimited systems	Required	
150	IGBT technology	Required	
151	Low noise and heat rejection	Required	
152	The UPS shall be provided with a standard RS232 or RS485 connection facility.Where specified by the Principal, it shall be also possible to connect the UPS,via either a RS485 or fiber optic link to a DCS or SCADA system for selected analogue and digital data to be made available to a higher level controller. The communication shall function utilizing standard MODBUS protocol (master/slave).	Required	
SNMP	Interface for remote monitoring and control via PC	Required	
PBM	Progress Battery Management(PBM) with temperature compensation	Not Required	
APM	Advanced Power Management(APM) - automated auto start of systems connected as a single system(APM) with an increase in load. Any combination of parallel, hot or cold standby	Required	
EPO	Emergency power off	Required	