

Terms of Reference (TOR)

for Supply, Installation, Testing and Commissioning of Uninterruptible Power Supply (UPS) Systems

This document outlines a Terms of Reference (TOR) for supply, installation, commissioning , and Testing of Uninterruptible Power Supply (UPS) systems.

Scope of Work

The selected vendor shall be responsible for the following:

Supply

- Delivery of UPS units with capacities ranging specified in the Technical specification.
- Inclusion of external batteries, and other complete accessories required for the successful project implementation.

Testing and Installation

- Site survey and assessment of electrical infrastructure **(Compulsory)**
- Testing of UPS
- Mounting and wiring of UPS systems in designated locations.
- Cabling, grounding, and safety measures to prevent hazards.

Commissioning

- Testing of UPS functionality under simulated load conditions.
- Calibration and configuration for optimal performance.

Additional Services

- Warranty period: Minimum 3 years for UPS and batteries.
- Post-installation support: On-site maintenance till validity of warranty.

Items to be Procured

Sl.No	Particulars	QTY	Unit	Remarks
1	UPS	1	Each	15KVA
2	External Battery	36	Each	12V, 65AH SMF Warranty: 3 years
3	Battery Rack	1	Each	Should Accomodate the required batteries
4	Battery Breaker	1	Each	Should be compatible with the proposed UPS
5	TPN 100 AMPS	2	Each	Should be compatible with the proposed UPS
6	Accessories	Lumpsum	Lumpsum	Complete accessories must be supplied required for the successful installation of the UPS system.



Technical Specification

1. UPS

UPS	
Rated Power (kVA/kW)	3:3
3:3	15/15
Normal AC supply input	
Input voltage (V)	380/400/415 V (3-phase + Neutral)
Frequency (Hz)	45 – 65 Hz
Input power factor	>0.99
THDI	<3% for 10 kVA UPS, <4% for 15-40 kVA UPS
Input voltage range	304 to 477 V at full load
Dual mains input	Yes (default: single mains input)
Output	
Nominal output voltage (V)	3:1 – 220/230/240 V
	3:3 – 380/400/415 V
Efficiency: Double conversion mode	Up to 96%
Efficiency: ECO mode	Up to 99%
Overload capacity in normal operation	130% for 10 minutes and 130-150% for one minute
Output voltage tolerance	+/-1%
Communication and Management	
Communication interface	RS485, dry contacts, Ethernet (SNMP, Modbus, TCP/IP, BACnet)
Control panel	Multi-function LCD, status and display console
Weights and Dimensions	
UPS for external batteries, unpackaged/ shipping dimensions (H × W × D, mm)	530 × 250 × 700 mm/ 772 × 400 × 857 mm
UPS for internal batteries, without batteries, unpackaged, shipping dimensions (H x W x D, mm)	1400 × 380 × 928 mm/ 1640 × 563 × 1014 mm
UPS for external batteries, unpackaged/ shipping weight (kg)	36/50
UPS for internal batteries, without batteries, unpackaged/ shipping weight (kg)	112/145
Battery string (1 string/4 modules), unpackaged/ shipping weight (kg)	27 kg per module/28 kg per module
Regulatory	



Safety	Performance
EMC/EMI/RFI	Environmental
Markings	CE.RCM, EAC, WEEE, UKCA
Battery type	
Battery type	VRLA
Nominal DC bus (100% load)	+/-192 to +/-240
Charging power in % of output power (selectable)	1-20%
Environmental	
Operating temperature	0°C to 40°C
Relative humidity	0 to 95% non-condensing
Operating elevation	0 to 1,000 m at 100% load
Audible noise at 1 m from unit	10-20 kVA: 60 dBA at 100% load; 30-40 kVA: 63 dBA at 100% load
Protection class	IP20
Warranty	3 Years
MAF	Required/Mandatory

2. Battery

Battery	
Battery Type	SMF
Voltage	12 V
Battery Technology	Valve Regulated Lead Acid (VRLA)
Battery Amperage	65 AH
Application	UPS
Safety Features	Spill-proof, Leak-proof, Flame Retardant Case
Warranty	3 years
Mounting	Rack Mounted

5. Deliverables

- Supplied UPS system and complete accessories.

