

Website: [www.keralapsc.gov.in](http://www.keralapsc.gov.in)  
e-mail: [jsrna.psc@kerala.gov.in](mailto:jsrna.psc@kerala.gov.in)



Phone : 0471 - 2546202  
F A X : 0471 - 2553485

## KERALA PUBLIC SERVICE COMMISSION

File No. R&A I (2)45879/2008/GW

Thiruvananthapuram,  
Dated : 28.12.2015

### TENDER NOTICE

Inviting E-Tender for the supply and installation of 40 KVA Modular UPS for the use of Kerala Public Service Commission.

E-Tender in one cover system is invited from competent dealers and manufacturers for the supply of 40 KVA Modular UPS in accordance with respective specifications for supply as shown in Annexure I of the Tender document.

Sl.No.	Item	Qty (Nos)	Cost of Tender (Forms)	EMD Fixed
1	40 KVA Modular UPS	1 (one)	₹ 2,000/-	₹ 12,000/-

The tender is to be submitted as e-tender through <https://e-tenders.kerala.gov.in>. Since this is an e-tender, only those bidders who have enrolled in the above portal with their own digital signature certificate (DSC) can participate in the tender. E-Tender document and other details can be obtained from the above e-portal.

Tender No. - 6/2015  
Document download/ sale start date - 04.01.2016  
Bid submission start date - 04.01.2016  
Document closing date - 30.01.2016 5.00 PM  
Date & time of opening of e-tender - 03.02.2016 2.30 PM

Cost of e-Tender & EMD (Online Payment) as shown above table all payments including EMD should be made as single payment through online.

Dates up to which the rates are to remain firm for acceptance - 90 days from the date of opening  
Performance Security deposit - 5% of total amount of the contract value  
Period of supply - within 10 days of receipt of supply order.

The bidder desiring to take part in the bid shall log into <https://etenders.kerala.gov.in> and then select tender and initiate payment. Bidders will be directed to the payment gateway page of the State Bank of Travancore. There are two options-

1. State Bank of Travancore (SBT Net banking payment) and
2. Payment through NEFT/RTGS from other banks to the payment gateway of SBT.

For obtaining digital signature certificate (DSC) and necessary portal enrollment bidders can visit the website <https://etenders.kerala.gov.in/>

The e-tenders submitted by the competent dealer should definitely contain a scanned and signed copy of the declaration of product offered to supply and dealership certificate from the manufacturer.

Tenders will be opened in the online presence of each bidders or their authorised representatives who have logged in at the prescribed time of opening. If the date fixed for opening happens to be a holiday or due to net failure the tenders will be opened in the next working day at the same time.

The price of the e-tender form shall be received only through online payment – SBT/Online NEFT/RTGS from other banks.

Scanned copy of the agreement (Annexure II) in the prescribed format in Kerala Stamp paper worth Rs.500/- should be submitted online and original to the Secretary, Kerala Public Service Commission before the opening of e-tender.

The rates should be quoted in Indian Currency only.

Details with respect to the e-tender and the details of specifications (Annexure-I) of the item to be supplied can be obtained from the e-tender website <https://etenders.kerala.gov.in>.

The Secretary, KPSC, Pattom, Thiruvananthapuram will scrutinize the tenders received and will take necessary action for the award of contract.

The right of acceptance or rejection of any e-tender in full or in part without assigning any reasons there is reserved with the Secretary, KPSC.

The rules and regulations prescribed for e-tenders by the Government of Kerala, shall be applicable to this e-tender also.

## **Terms and conditions**

1. The make, model, year of manufacture etc of the 40 KVA Modular UPS quoted should be clearly mentioned.
2. Three years comprehensive onsite warranty should be assured.
3. All charges, taxes, duties and levies should be clearly indicated.
4. The items should be supplied to the office of Kerala Public Service Commission, Pattom, Thiruvananthapuram-4 at the expense of the Tenderor.
5. The Installation, commissioning and initial operation to the satisfaction of the KPSC will be the responsibility of the supplier.
6. The payment will be made after completion of supply, installation and commissioning subject to the certification by our Technical Experts as to the quality and efficiency of the item supplied.
7. In case of under performance during the warranty period, the item should be replaced and the period of warranty will recommence from the date of replacement.

Any legal disputes that may arise in relation to the e-tender formalities will be restricted to the Jurisdiction of Thiruvananthapuram. The communications to be addressed to

***The Secretary,  
Kerala Public Service Commission,  
Pattom P.O., Thiruvananthapuram -4,  
Kerala.***

Sd/-  
**Secretary**  
**Kerala Public Service Commission.**

**Note:-** More details can be obtained from the officer of Joint Secretary, R&A Wing, Kerala Public Service Commission. Visit [www.keralapsc.gov.in](http://www.keralapsc.gov.in)

Annexure I

# Tender Technical Specification for three phase UPS, on line double conversion (VFI)

## 40 kVA Modular UPS

### 1.1 Subject and agreement type

With this tender it is asking the best offer to supply No of. 1no 40kVA single phase output power cabinet with modular architecture with following technical specifications:

- Nominal Power: 40kVA – Power Factor ( $\cos\phi$ ): 0,9;
- Topology: On Line Double Conversion VFI
- Technology: Hi frequency PWM
- Passing through Neutral
- Decentralised Parallel Architecture based on 5kVA Power Modules or greater with minimum 5 modules in parallel
- Static bypass switch in each power modules
- Possibility to configure the system in N+X internal redundancy in the inverter cabinet
- Possibility to remove and replace power and battery modules without switch the load on bypass
- Equipped with batteries type: lead acid, sealed, free maintenance, VRLA, installed into the system or in a dedicated external battery cabinets. Batteries must guarantee a minimum back up time of **90 minutes at 100% of the applied load of 30kVA** with specific characteristics described in [Technical Specs Table](#).
- UPS suitable to configure for 3 phase input 1 phase output / 3 phase input 3 phase output at site.
- Independent Phase Control & Management (Optional)

### 1.2 POWER MODULE & CONTROLLER

Each power modules shall be of 5kVA or greater  
Minimum 5 modules to be connected in parallel for the capacity of 40kVA

Each Power Module will be composed by following functional blocs:

- *Inverter*
- *Booster*
- *Battery Charger*
- *Rectifier/PFC*
- *Static Bypass*

Modular UPS to be installed with minimum 2 controllers for redundancy

### 1.3 Batteries

The maintenance-free stationary lead acid batteries are housed in one of more cabinets. The positive and negative battery connections are protected by an adequate fuse-holder isolating switch.

The complete 2 set of batteries for redundancy consists of at least of 20 to 30nos per bank as to obtain an overall 240-300 V nominal voltage (direct voltage).

### 1.4 Measurements

The UPS can manage the following measurements and show the relevant values on the display:

<b>INPUT</b>	<b>OUTPUT</b>	<b>BATTERIES</b>	<b>MISCELLANEOUS</b>	<b>HISTORIC DATA</b>
Current: <ul style="list-style-type: none"> <li>▪ Root-mean-square value</li> <li>▪ Peak value</li> <li>▪ Peak factor</li> </ul>	Current: <ul style="list-style-type: none"> <li>▪ Root-mean-square value</li> <li>▪ Peak value</li> <li>▪ Peak factor</li> </ul>	<ul style="list-style-type: none"> <li>▪ Charging current</li> <li>▪ Discharging current</li> <li>▪ Battery operation time</li> <li>▪ Residue capacity</li> <li>▪ Battery voltage</li> <li>▪ Date/time of last battery calibration</li> </ul>	<ul style="list-style-type: none"> <li>▪ Internal temperature of individual power modules</li> <li>▪ Ambient temperature</li> </ul>	<ul style="list-style-type: none"> <li>▪ N° of bypass interventions</li> <li>▪ N° thermal protection interventions with date and time</li> <li>▪ Number of battery commutations</li> <li>▪ Number of total discharges</li> </ul>
Voltage: <ul style="list-style-type: none"> <li>▪ Root-mean-square value</li> </ul>	Voltage: <ul style="list-style-type: none"> <li>▪ Root-mean-square value</li> </ul>			Overall time of: <ul style="list-style-type: none"> <li>▪ Battery operation</li> <li>▪ Mains operation</li> </ul>
Power: <ul style="list-style-type: none"> <li>▪ Apparent</li> <li>▪ Active</li> </ul>	Power: <ul style="list-style-type: none"> <li>▪ Apparent</li> <li>▪ Active</li> </ul>			
Power factor Frequency	Power factor Frequency			

## 2 Technical specifications

<i>Description</i>	<i>Specification</i>
<b>2.1 General Specifications</b>	
UPS Topology	On line double conversion VFI SS 111
Architecture of the UPS	Modular, Scalable, redundant based 5kVA OR Greater Power Modules.
Controller	Minimum 2 controller in parallel for redundancy
In/Out phase Configuration	Three phase / single phase
Neutral	Neutral Passing through
Output wave form on mains run	Sinusoidal
Output wave form on battery run	Sinusoidal
Bypass type	Static and electro mechanic
Transfer time	Zero
<b>2.2 Input</b>	
Nominal Voltage	400 V three phase / 230V single phase
Voltage range	-20% +15%
Frequency	50 Hz o 60Hz (autosensing)
THD <sub>I<sub>in</sub></sub>	< 3% al 100% of nominal load
Power Factor	> 0.99 from 50% to 100% of nominal load
<b>2.3 Output with mains (AC-AC)</b>	
Nominal voltage	230 V three phase
Nominal power	40kVA
Active power	36kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THD <sub>v</sub> on nominal power (linear load)	< 0,5 %
THD <sub>v</sub> on nominal power (not linear load P.F.=0,7)	< 1 %
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	Synchronized with input frequency or ± 1% free run
Current Crest Factor	3:1 accordingly with IEC EN62040-3
Overload capability: 10 min 60 sec	125% load rate with no bypass intervention 150% load rate with no bypass intervention
<b>2.4 Output in battery Run (DC-AC)</b>	
Nominal voltage	230 V three phase
Nominal power	40kVA

Active power	36kW
Voltage variation (static)	± 1%
Voltage variation (dynamic 0-100%; 100-0%)	± 1%
THDv on nominal power (linear load)	< 0,5 %
THDv on nominal power (not linear load P.F.=0,7)	< 1 %
Frequency	50 Hz o 60 Hz (autosensing or selectable)
Frequency tolerance	± 1% free run
Current Crest Factor	3:1 accordingly with IEC EN62 040-3

<b>2.5 Battery</b>	
Type	Lead Acid, sealed, free maintenance VRLA
Nominal UPS Battery Voltage	240 - 300 Volt DC
Battery minimum VAH required	2 x 30000VAH
Battery charger type	PWM hi efficiency, one in each power module
Charging Cycle	Intelligent with boost charge and advanced management
Max Charging Current	2,5 A each power module

<b>2.6 Environmental specs</b>	
Noise level @ 1m	50 ÷ 65 dBA
Working temperature range	from 0°C to +40°C
Stock temperature range	from -20°C to +50°C (excluded batteries)
Humidity range	20-90% not condensing
Protection degree	IP20

<b>2.7 Mechanical an Miscellaneous</b>	
Net Weight with out batteries <sup>1</sup>	To be filled by vendor
Dimensions (WxHxD) <sup>2</sup>	To be filled by vendor (mm)
Colour	RAL 7016
Technology rectifier/booster/inverter	MOSFET/IGBT
Communication Interface	2 serial port RS232, 1 logic level port, 5 Dry contacts port SNMP card with necessary software
Input / Output connections	3P + N + PE Connectors on omega bar
Installed Power Modules	5kVA or greater minimum 5 or maximum 8 modules in parallel for 40kVA
Standards	EN/IEC 62040-1, EN/IEC 62040-2, EN/IEC 62040-3

The UPS Manufacturer Company must have ISO 9001 certification for development, production, and services.

### **3 REFERENCE STANDARDS**

The static uninterruptible power system must be designed and produced in compliance with the following international standards:

- EN/IEC 62040-1 "General and safety requirements for UPS used in operator access areas"
- EN/IEC 62040-2 "Electromagnetic compatibility requirements (EMC)"
- EN/IEC 62040-3 "Performance requirements and test methods"

The UPS must have CE marking in accordance with European Directives 73/23, 93/68, 89/336, 92/31, 93/68.

### **4 APPROVED BRANDS**

UPS : APC / Numeric / Delta / Emerson  
Batteries : Panasonic / Quanta / Numeric / Exide

<sup>1</sup> The weight depends by the number of the installed batteries accordingly with the required autonomy.

<sup>2</sup> The battery cabinet dimension can change depending battery set accordingly with the required autonomy.