



EPD - BANGALORE

**Purchase Specification for
10 kVA online UPS****SPECIFICATION NO.
EP-WEX-UPS-CCTV/2018-19****Technical specification of 10 KVA UPS system**

Sl.no	Description	
1	SUMMARY	This specification describes One 10 KVA 3 Phase input & single phase output, on-line, double conversion, continuous operation, solid-state, DSP controlled, Uninterruptible Power Supply (UPS) along with battery bank for One hour back up.
2	Scope of Installation & Commissioning	1. Supply of 10 kVA UPS Make : Dubas / Emerson / Power One / Numeric / Hitachi / Neopower 2. Supply of 3000 meters of 1.5 sq mm copper armoured cable. Make Finolex / Polycab 3. The UPS shall be installed, UPS supply wiring to be done to all the field cameras in the plant using the 1.5 sqmm copper armoured cable and commissioned at BHEL EPD Bangalore. The required power supply to inverter input shall be provided by BHEL. Laying of cables may be done in the existing cable tray.
3	Quantity	Set consisting of UPS 10 kVA ,1 No and 3000 meters of 1.5 sq mm copper armoured cable. Make Finolex / Polycab
4	Submittals along with offer	- a)Product catalogue sheets or equipment brochures. - b)Circuit diagram showing the UPS units, load sharing mode along with the input and output panel requirements.
5	Operation Modes	The UPS shall operate as an on-line system in the modes: a)Normal b)Battery c)Recharge d)Bypass:
6	WARRANTY	- a)UPS Module: The UPS manufacturer shall warrant the UPS module against poor workmanship and materials for 2 years from the date of supply. The warranty shall include coverage of all internal parts and the supporting equipment. - b)External Batteries: For batteries connected to the UPS, the warranty shall be at least ≥ 2 Years from the date of supply, installation and acceptance.
7	AMC after warranty Period	Vendors shall submit AMC for a period of 2 years, as optional. Any bid without AMC quote shall not be considered for evaluation
8	Service center	Fully functional service centre with spares stock for attending the breakdown calls. Address of the service centre must be provided.
9	SYSTEM RATINGS AND OPERATING CHARACTERISTICS	- a)The rating of UPS shall be 10 KVA - b)UPS shall be online-Double Conversion with Digital Signal Processor control.



		c)shall have IGBT based PFC Rectifier and IGBT based Inverter
		d)SMF Batteries shall be sized for back-up of one hour at full load
		e)Battery manufacturer's catalogue and stacking details to be provided.
		f)Battery bank mounting racks shall be provided.
10	SYSTEM INPUT	a)Input Voltage Rating: 3 Phase 440v Supply
		b)Input frequency Range: 40 -60 Hz. In this range UPS shall not switch to Battery backup mode.
		c)Input power factor : > 0.98 at 100% load
11	SYSTEM OUTPUT	a)Output Voltage Rating: 1 ph 230 V
		b)Output Frequency Regulation: 50 Hz +/-0.1 Hz
		d)Output Voltage THD: 2% at Nominal Voltage
		c)Overload capability:125-150% for 60 seconds in normal operation
		d)Acoustical noise: dB(A) of noise, typically, measured at 1 meter from the operator surface shall not be more than 64 dB(A)
		e)UPS should have built in isolation transformer
		f) Back up time one hour of 10kVA at 0.8 power factor.
		g) No of batteries
12	UPS DESIGN AND FABRICATION	b)Enclosure: The UPS shall be housed in a free standing enclosure.
		b)Battery housing : Battery housing cabinet to be supplied
		c) Battery : 120 Ah Amaron / Exide tubular batteries
		c)Ventilation: The UPS shall be cooled by forced air and shall be equipped with fan monitoring circuits. External battery systems shall be cooled by free-air ventilation and convection according to battery manufacturer requirements.
		d)Inverter/Battery charger: The inverters shall be a high-speed insulated gate-bi- polar transistor switch module type (IGBT) and shall be controlled to precisely regulate system output voltage and battery charge current. The inverters shall be temperature protected. In case of inverter over temperature, the unit shall activate an alarm and automatically transfer to static bypass operation.


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**DISPLAY AND
CONTROLS**

e) Static bypass switch: The static bypass switch shall be solid state, rated for continuous duty. The static bypass switch shall automatically transfer the critical load to mains supply without interruption after the logic senses one of the following conditions:

- i. Inverter overload beyond Rating
- ii. Battery runtime expired and bypass available
- iii. Inverter failure
- iv. Battery circuit breaker open
- v. Fatal error in control system

a) UPS status messages: The display unit shall display the following metered Parameters:

- i. Normal operation: Load in %
- ii. Battery operation: Battery running Time in minutes
- iii. Bypass operation
- iv. Standby
- v. System off

b) Metered parameters: The display unit shall display the following metered parameters:

- i. Year, Month, Day, Hour, Minute, Second
- ii. Output frequency
- iii. Battery voltage
- iv. Battery current (charge/discharge)]
- v. Battery temperature
- vi. Output peak current

e) Controls: The following control or programming functions shall be accomplished with the display unit:

- i. Silence an audible alarm
- ii. Display or program the time and date
- iii. Enable or disable the automatic restart feature
- iv. Transfer to or from static bypass operation
- vi. Program the battery charger
- vii. Calculate battery back-up time
- viii. Test battery condition on demand
- ix. Program the unit to periodically test battery condition

f) UPS ON and Off push buttons: Momentary UPS on and off push buttons shall be provided in a user-accessible compartment. Upon activation of the on push button, the UPS shall automatically connect the UPS output to the critical load. Upon activation of the off push button, the UPS shall remove power from the critical load.



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Sl.No	BHEL Standard Terms & Conditions	Documents to be submitted by vendor
1	The vendor shall be an Original Equipment Manufacturer (OEM). Dealers have to submit authorisation certificate from OEM.	NSIC/authorisation certificate
2	The vendor shall have qualified personnel, their own adequate manufacturing / integrating and testing facilities for the equipment offered.	Company profile and details of qualified personnel to be submitted
3	Vendors must quote for both UPS and Armoured cable. Quotes with offer for any one item will be rejected.	
4	The vendor should have supplied and installed minimum 5 nos of UPS system, in the last 2 years.	PO copies to be submitted


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