

DIRECTORATE OF SORGHUM RESEARCH
(Formerly NATIONAL RESEARCH CENTRE FOR SORGHUM)
(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)
Rajendranagar, Hyderabad-500030
Phone: 040-20025599, 24015349, 24018651, Fax: 091-040-24016378

ADDENDUM

File No: NAIP/57/08-09/

DATE: 04-09-2013

ADDENDUM TO HIGH POWER SOLAR UPS FOR POWER BACKUP

In continuation of the Tender Notice dt.23.08.2013 for **HIGH POWER SOLAR UPS FOR POWER BACKUP**. The detailed specifications is as follows:-

(SAROJ KUMAR SINGH)
Admn Officer

HIGH POWER UPS SPECIFICATIONS (15 KW)

Solar Module Specification:

Solar Online Hybrid Inverter With MPPT – Off grid type

Photovoltaic module is to be packaged interconnected assembly of photovoltaic cells, which converts sunlight into energy.

PV Module Capacity: 250 Wp

PV Module type: Poly / Crystalline

Mounting arrangement for solar module: On Module mounting structure

Max. Temperature rise of cells under severe working conditions over Max, Ambient temp: 50 Deg C

Peak power voltage: above 29 V

Peak Power current: above 7 A

Open circuit voltage: above 35 V

Short circuit current (Isc): 8 or more

Mechanical Features: Structure should be toughened, contain low iron, high transmissivity from glass

Frame should be of anodized aluminum frame

Type – FRP / ABS / Polycarbonate

Construction: Dust, Water & Vermin proof

It should be provided with earthing, mounted on structure and IP 65 protected

Specifications of Solar Inverter & Charge Controller

Array Input: 240 V

Charge controller type: MPPT based

Battery voltage: 240 V DC

Inverter type: Stand Alones

Power Capacity: 15 kw Off grid type

Load Power factor: 0.8 lag to unity

Nominal voltage: 415 VAC Three phase

Regulation: $\pm 5\%$

Frequency: 50 Hz (± 0.5 Hz) in standalone mode

Waveform: True Sine wave

Duty: Continuous

Efficiency (at full load & nominal input voltage): $> 85\%$

Operating Modes: Stand Alone & Grid Charging (First preference to Solar, second to Grid and third to Battery)

Working temperature & humidity: 0 to 40 Deg C temp. and up to 95% non-condensing RH

Enclosure Protection Grade: IP 20

Cooling: Forced Air

Rating	15 KW
Array Input	360V DC
Charger Controller Type	MPPT
Battery Voltage	96V DC
Battery Type	Tall Tubular
Max DC Charging current	52A

Inverter Type	Bi-Directional
Output Power Capacity	15 KW
Load Power Factor	0.8 lag to Unity
Nominal Output Voltage	240 V AC, 1 Phase
Regulation	+ / - 2%
Frequency	50 Hz (+/- 0.5 Hz) in Standalone mode
Waveform	True Sine Wave
Total Harmonic Distortion	< 3% max. for Linear load
Overload Capacity	125% for 4 min., 150% for 1 min.
Inverter	MOSFET based PWM with INSTANTANEOUS SINE WAVE CONTROL
Duty	Continuous
Inverter Efficiency	up to 90% at full load & nominal input voltage
Operating Modes	Stand alone / Grid Interactive / Offline
Acoustic Noise Level	< 55 dBA @ 1 meter
Service Temperature	0 to 40 C
Storage Temperature	-25 to 55 C
Relative Humidity	up to 95% (Non condensing)
Altitude	<1000 meter, above sea level (without derating)
Enclosure Protection	IP 20
Cooling	Forced Air
Colour	Gray
Cable Entry	Bottom (Rear side)
Appx. Weight in kg	250
LED indications	Array ON, Inverter UV / OV Battery Low.
	Inverter ON, Inverter Over Load.
	Grid ON, Inverter Over Temperature.
Protections	Input Surge Voltage, MCB at Input, Load Surge Current.
	Input Under Voltage, MCB at Output, Output Under Voltage.
	Input Over Voltage, MCB at Battery, Output Over Voltage.
	Low / High frequency, Battery Low Trip, Output Overload.
	Over temperature, Output Short Circuit. *Alarms are provided for all important protections.
Optional Features	Inverter ON / OFF switch, Array blocking diode, Auto restart in case of overload shut down.
	Manual bypass switch, Sleep mode with auto restart.
	RS 232 port for monitoring, PFC for Battery low pre alarm.
LCD DISPLAY & FAULT DISPLAY (OPTIONAL)	
LCD Display	Array Current, Charger Temperature, Battery Voltage, Battery Current.
	Output Voltage, Output Current, (%) Output, frequency, Inverter Temperature.

	Grid Voltage, Array Voltage.
Faults Displayed on LCD	Output under voltage, Output over voltage, Inverter Overload, Over Temperature.
	Battery Low Pre Alarm, Battery Low trip, Battery over voltage.

Mounting Hardware (fixable on roof or ground) including minor civil works for installation

- i. Protection: Galvanized minimum 70 microns
- ii. Longevity: Rust proof
- iii. Material: Mild steel Hot dip minimum 70 microns
- iv. Warranty: 30 years

b) Battery

Battery Type Tall Tubular
 Battery rating : Total 300 AH at C/10 to 1.8 ECV at 27 degree C
 Battery Quantity:
 Battery Bank Voltage 120V
 Battery size: 80 AH
 Battery Make Standard make
 Warranty: 60 Months
 Design cycle: 1500 cycles at 80% depth of discharge at 27 degree C 3000 cycles at 20% depth of discharge at 27 degree
 Charge controller settings: On / off type
 Over voltage disconnect: 2.60 V/cell at 27 Deg C
 Array Reconnection voltage: 2.75 V/cell at 27 Deg C
 Low voltage disconnect: 1.85 V/cell at 27 Deg C
 Load reconnect voltage: 2.0 V/cell at 27 Deg C
 Regulation voltage: $\pm 1\%$ V/cell at 27 Deg C
 Low voltage disconnect: 1.85 V/cell at 27 Deg C
 Load reconnection voltage: 2.0 V/cell at 27 Deg C
 Operating temperature range: Continuously 48 Deg C (max.) and for short period 55 Deg C;
 Minimum – 10 Deg C to – 15 Deg C
 Grid Alloy: Low Antimonial Selenium Lead
 Container & Lid Material: Hard Rubber & T.P.

Installation Cables specification

Type: PVC insulated and Sheathed
 Make: Polycab / Varsha / Havells / Finolex / Universal / Equivalent
 Material: Copper
 Test Voltage: 650 V / 1.1 kV
 Working Temperature: - 15 Deg C to + 70 Deg C

ISO Certification: Minimum ISO 9001 certified company with recognizable presence in the market