



MITRAMAX™ Solar PV Power Stations

MITRAMAX™ Solar PV Power Station from APLAB is your own God given Green Renewable Energy Source. It is a high-tech, rugged and dependable Solar Power Station consisting of multiples of MITRAMAX™ Panel Modules in parallel.

MITRAMAX™ Solar PV Panel Modules with a

regulated DC output of 220V are used in case of all SPS ratings. This power from Sun can be stored in batteries or directly fed into SPS Inverter to derive the required AC Power for your use. The Energy stored in the batteries can provide the required back up time during non-solar hours.

System Configuration

APLAB offers MITRAMAX™ Solar Power Stations in four different power rating. The A C Outputs are available in power rating of 5kVA and 10kVA with Single Phase 230V output and 15kVA and 27kVA with Three Phase Four wire Output of 400V Line to Line.

The typical System Configuration of MITRAMAX™ SPS will consist of

- APLAB Solar Power Station Inverter of appropriate rating

- MITRAMAX™ 200W Solar Source Modules with 220VDC Output of specified numbers.
- VRLA Batteries to suit the required back up period
- Mains Line Charger with PFC in Hybrid Option for supplementary charging
- Prefab mounts and accessories for its mounting and installations



System Features

- Pure Sine Wave regulated Clean AC power.
- Panel Embedded MPPT Charge Controller and DC/DC Boost Converter
- Cost of power from MITRAMAX™ SPS is less than half of Diesel Gen-set power in case full power is utilized throughout its life of 20 years
- Easy to install and maintain.
- Meets IEC 61215:2005, EN 61215:2005 & EN61000-6-1:2007
- Designed for Endurance in Indian Environment
- APLAB Reputed Quality and Field Service with a patented Technology
- Eligible for Govt of India Subsidy as Diesel Gen-set replacement

Use Pattern –PDU and PNU

Solar power utilization depends on the user communities. Commercial and Office users need the power mainly during the day time and domestic and rural communities need it predominantly during the post Sunset period. APLAB has therefore developed solutions for both these Use Patterns. PDA stands for Predominantly Day Use and PNU for Predominantly Night Use.

System Specifications

Solar Power Station Rating	5.5 KW		11 KW		17 KW		29 KW		
Output Configuration	Single Phase 230V AC Models				Three Phase 400V AC Models				
Max Available Daily Energy Units	25 - 35		50 - 65		75 - 100		160 - 190		
MITRAMAX™ 200Wp Solar Source (International Patent Pending) (with embedded MPPT Charge Controller with boost converter with Output Power of 200W at 220V DC)									
Output Voltage: 220V DC				Construction: meets IP68 for outdoor use					
Output Voltage Load Regulation: +/-1%				Reverse Energy Flow Protection: Built-in					
Peak Power Tracking: Embedded				Converter Power Efficiency: >95% peak					
High Efficiency DC/DC Boost Converter:				Size: 1500mm x 1000mm x 45mm					
Embedded				Weight : 18.0Kg approx					
MITRAMAX™ 200Wp Solar Source Modules	28		56		85		146		
Sine Wave Power PWM Inverter with DSP Control									
Input DC Voltage from Panels		220V DC \pm 1%(192V DC Battery on float)							
Input Current – Max		23 A	46 A	70 A	132 A				
Output Voltage	1Ø, 2 wire	230V AC \pm 1%							
	3Ø, 4 wire	400V AC Line to Line \pm 1%							
Output Frequency	50Hz \pm 0.25Hz Crystal Controlled.								
Output wave form	Pure sine wave								
Harmonic Distortion	Less than 3%								
DC to AC Conversion Efficiency	Better than 90%								
Load Power factor	0.8 lag to unity within kW rating								
Overload	150% for 10 seconds, 200% for 10 cycles								
Protections	DC Over/Under Voltage, Output Over/Under Voltage, Overload, Short circuit, over temperature.								
Data-logger with Metering & annunciation	Intelligent Data logger with 4x 20 LCD displaying V, A, W, VA, PF and the Energy delivered in kWh								
Data Storage	Programmable/One year data								
Enclosure	Programmable/One year data								
Protection Class	IP 21.								
Dimensions -mm (W x D X H)	400x650x700		500x800x1225			775x800x1800			
Weight in kg	98		210		265		350		
HYBRID SOURCE OPTION (from Power Line or Diesel Gen-set)									
Optional Line Powered Battery charger with power factor corrector									
Input Voltage	Nominal	230V 1Ø AC			400V AC, 3Ø				
	Range	150V AC to 265V AC 1Ø			260V AC to 460 V 3Ø				
Frequency	45 Hz to 65 Hz								
Output Voltage	220V DC								
Output Current	Dependent on Usage Pattern								
Battery Capacity for a Usage Pattern									
PDU Day Use - 5 Hr at Full Power Night Use - 2 Hr at Half Power	16batt x 42H/12V	16batt x 65AH/12V	16batt x 100AH/12V	32batt x 100AH/12V					
PNU Night Use - 4 Hr Full Power Day Use - 2 Hr Half Power	16batt x 100AH/12V	32batt x 100AH/12V	32batt x 150AH/12V	48batt x 200AH/12V					
Battery enclosure	To match the Solar Inverter Enclosure								

Note: This system consists of MITRAMAX mounting prefab frames, brackets, fasteners, inter-connect cables, junction boxes etc for quick field installation on terraces. APLAB believes in policy of continuous product improvement thru R&D and therefore, specifications mentioned here are subject to change without notice.

Comparison of 32kVA/26kW APLAB Solar Power Station versus 30kVA Diesel Generator

APLAB Solar Power Station 29kW, 3Ø		30kVA/3Ø D G Set	
Life of the system	20 Years	5 Years	
Air Pollution	Nil	Harmfully High	
Ambient Noise	Nil	Harmfully High	
Size (Foot Print)	20 sq ft max	> 200 sq ft	
Annual Depreciation/ write off 10% interest rate assumed	3L		Rs. 1L
Annual maintenance	1L		1L
Power generated/ yr 6Hr x 365 x 26kW	58250 units	Value of diesel for 58250 units at the rate of 3 units/ litre	Rs.6.8L
Cost/unit of Power	Rs.6.9/-		Rs.15.10
Carbon Emission/ Annum		52T/ annum Saved	
Annual Depreciation benefit	80%	15%	

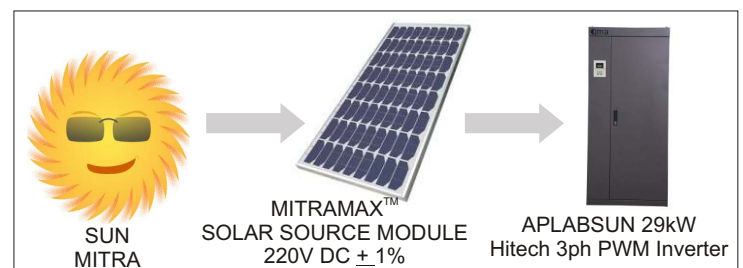
SOLAR PV POWER MERITS: Solar power plants are the cheapest option available

SUNLIGHT: ECO- FRIENDLY ALTERNATIVE

Energy Source	Coal –fired plants	Coal – fired plants with 75% geo-sequestration	Nuclear Plants	Solar tower	Combined solar tower & photovoltaic panels	Wind farm
Capital expenditure Rs. Crores/ MW	6.85	21	22	25	20	34
Annual costs in Rs crore / MW	6.5	10	1 0	1.75	1.5	4.5
Cost in Rs. Per kWh of power	7.5	12.5	12.5	2.5	2.0	6.5
Polluting	YES			NO		

Source: www.unenergy.org * 2009 estimates

APLAB SUN 29kW Three Phase Solar Power Station Model ASPS 30



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