



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%	

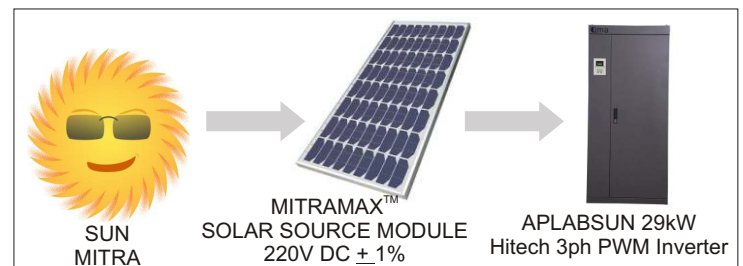
SOLAR PV POWER MERITS: Solar power plants are the cheapest option available

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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