



Vitronics Controls



Voltage Fluctuation



Constant Clean & Green Power



IGNITING DREAMS

POWERING EVERY MOMENT WITH HOPE & HAPPINESS!

WELCOME TO VITRONICS CONTROLS, PUNE

Our company profile is meant to *give a view* of our organization, reflecting the high esteem we have in our persistent growth and present success. It expresses our sense of mission and vision to be the leading provider of power control and renewable energy solutions.

Who We Are

We specialise in Power Backup Solutions like All types of UPS, Domestic/Industrial Inverters, Domestic/Industrial Stabilizers, and Special Purpose Back up systems, as well as Renewable energy solutions such as solar IPS, Solar Hybrid Inverter(PCU) Solar PWM/MPPT Charge Controller, Solar Pump Controllers, Solar Grid Tie Systems, Solar Street lights, etc which provide electricity without depleting the earth's limited resources. We achieve this by offering both hybrid and stand-alone systems. We specialize in Design, Installation and Maintenance of Domestic/Industrial Systems and products and accessories.

Our corporate culture is characterized by our abilities to innovatively accustom ourselves to our customers' needs and requirements. Since the Company's incorporation in 1996 to the present day, our custom of a passionate approach to our clients' needs has driven continuous improvement in the way we operate. As a OEM Company our business meets the needs of customers of all business sectors. From Renewable Energy to Power Control, Vitronics Controls solutions are fundamental to improving customer's quality of life.

Through our profile, you will discover our commitment to the sectors in which we operate, our relentless innovative attitude to build a better future, the high quality products and solutions we offer to our customers.

Our focus then and now is to challenge the status quo, working proactively with our customers to find the best solutions and application to assure fruitful & long term relationships.

These are exciting times for Vitronics Controls think you will get a sense of our passion, expertise, reliability, and innovative nature as you browse through this profile.

**VITRONICS CONTROLS PROVIDES SOLUTION FOR
CONSTANT CLEAN AND GREEN ENERGY**



OUR VISION

To be the leading provider of power control and Renewable energy solutions.

OUR MISSION

To design, supply and install sustainable energy solutions through continuous innovation and to strive to make our products readily available to all.

OUR CORE VALUES

Our company culture is based on five core values, innovation, passion, integrity, teamwork, and quality. Together with our vision and mission statements, these five values define our organization's reason for existence.

INNOVATION

We are unrelenting in our pursuit of new and brighter ways of serving our customers and in constant pursuit of improvement and change. Every customer is a new opportunity to do things better.

PASSION

It is our energy, commitment and enthusiasm that inspire us to achieve excellence in our work. We value the creativity, imagination, dedication, courage, and spirit that drive us beyond the ordinary.

INTEGRITY

This is the foundation of our culture and our people and is the responsibility we require of ourselves both in words and actions.

TEAMWORK

This is the collective responsibility we require from our team to offer optimal solutions, with a focus on achieving common goals.

QUALITY

We believe that our clients are our best advertisement. We endeavour to only offer the best possible quality products and services with the aim to create memorable experiences





COMPANY PROFILE

OUR INFRASTRUCTURE

The company was setup in 1996. Our production unit and office is housed in 8000 sq. ft. area located at Sr. No. 58/7A/1, Gokulnagar, Kondhwa Budruk Pune 411 048. All necessary facilities are available for Checking and Repairing of PCB's, Testing of systems before installations, Major spares for immediate replacement and standby units to provide prompt and efficient service. Service Team consists of fully trained service engineers with good technical experience Power Electronics

field. The Service Team personnels are provided with Mobiles, to ensure that Service calls are attended to promptly. There is an efficient Backup setup to the Sales & Services facilities.

“EXCELLENCE IN SERVICE” to OUR CUSTOMERS and by being “PARTNERS IN PROGRESS” with our Partners is our goal.

MARKETING & CUSTOMER SUPPORT

Vitronics Controls has Technically sound strong dealer force. These dealers who believe in Vitronics Controls philosophy of Always Strive for excellence, also constantly monitor consumer's pulse. Each dealer undergoes specially laid-out, regular training programmes to provide pre-sales and advisory service to customers anywhere in India quickly and efficiently.

Vitronics Controls believes that customer-company interaction is a must for customers to air their aspirations and for company to translate the feedback into product improvement / upgradation. That's why exhibitions are a regular Vitronics Controls feature. Also to educate and inform, Vitronics Controls relies heavily on print medium-mass circulated and limited to existing customers.

COMPANY PROFILE

RESEARCH & DEVELOPMENT

Research & Development is a major activity at Vitronics Controls. All Vitronics products being manufactured and marketed have been developed by in-house R&D, managed by a team of dedicated engineers and designers. New product development and keeping the company abreast of the latest technology is just one part of Vitronics R&D. Product

upgradation, based on market feedback is another very important aspect of R&D wing. Since product development is a continuous process & especially those that suit the Indian conditions availability of components and Indian ground realities are taken into active consideration.

QUALITY ASSURANCE

An extremely comprehensive QA program right from selection of vendor, incoming raw material inspection, in-process checks to final post-production and pre-delivery inspection has been drawn out and strictly adhered to QA personnel have unquestioned and unlimited powers to stop and/or cancel any orders on the vendor or any process on the manufacturing lines due to deviations in written down specs. As the saying goes, for product quality no expense is enough at Vitronics Controls.

As a leading manufacturing and dealer of electronic industrial products and services, VITRONICS CONTROLS, is driven by a vision to highest standard of quality and customer satisfaction.

Manufacturing high quality UPS, Stabilisers, Inverters and Solar Inverters of various ranges takes care of all your power source and power generation problems giving you Constant Clean and Green Energy enabling to function efficiently and smoothly.

The company has large installation base of its wide range of products throughout the region in various customer segments. Having installation with prestigious clients like major nationalized banks, hospitals, software development organizations and labs.

With the latest technology and the range of services like, on time delivery and excellent after sales service VITRONICS CONTROLS gives a perfect platform to create new opportunities for business and organization.

Keeping eye on the future VITRONICS CONTROLS is developing new products such as advanced power management software, to give the maximum output and performance with minimum loss of energy. For, we believe energy saved is more power gained.

Our customer policy is to provide the correct solution for his need and not just sell him a product



CERTIFICATION

Our Quality Policy is to Design, manufacture, installation and servicing of UPS , EPS and other electronic power equipments of utmost quality and trouble-free that exceeds customer satisfaction by following business ethics including applicable Regulatory requirements. We determine to strive continuously to achieve more and more Customer satisfaction by motivating our work force & proper utilization of resources.

We are also committed to implement and maintain our Quality management system as per ISO 9001:2000 standard and continually improve the same in all areas of our operation.

**TUV RHEINLAND
CERTIFIED**



**ELECTRONICS AND QUALITY
DEVELOPMENT CENTRE**



**CERTIFIED
ISO 9001**



**MNRE CERTIFICATION
SERVICE**



FOREWORD

“ Excellence
In Service To
Our Customers
And By Being
“Partners In
Progress”

MESSAGE OF THE MANAGING DIRECTOR



Managing Director
Rajesh Mutha

Dear Partners,
**Welcome to the family of
VITRONICS CONTROLS**

Since our inception as a UPS manufacturer in 1996 Vitronics controls has become leading power/solar products manufacturer and supplier. By focusing on efficient operational management and continuous technological innovation we have been able to deliver sustainable high quality power products to customers across India. We not only manufacture standard

products but also manufacture products as per customer’s requirement.

Keeping eye on future Vitronics Controls are developing new methods and products to give you the maximum output and performance with minimum loss of energy. For we believe energy saved is more power gained. Our customer policy is to provide the correct solution for his need and not just sell him a product.

We intend to grow our market share, further diversify our customer base and expand geographically. Meanwhile we will continue to dedicate our efforts to provide customers with better power/solar products and service through constant improvement and innovation.

We look forward to fruit full business relationship with you,
Managing Director
Rajesh Mutha

POWER PRODUCTS

POWER GUARD



1 It protects electrical appliances such as TV, Fridge, Oven, Music System, Computer, Washing Machine, AC from **High Voltages of MSEB**

2 It protects Sensitive equipment from spikes and surges

3 It helps to reduce Electricity bill by making awareness of electricity consumption

4 Approved by Govt. Agencies

5 Buzzer on fault

6 Easy Installation

7 It saves Property and Life due to fire from Short circuit

8 No need to use different stabilizers for different equipment

9 Digital Display to view all parameters

10 Different models available

POWER PRODUCTS

SERVO STABILIZER

Stabilizers helps you to keep the o/p voltage with a tolerance of 1% & works with efficiency more than 98%



SALIENT FEATURES

- Fast corrections rate and very high efficiency.
- Works over wide input frequency range and no waveform distortion.
- Specially designed high performance microcontroller based control circuit for ultra high reliability.
- Auto/Manual operation facility.
- Over voltage and under voltage Indicators.
- Output voltage adjustability provided on panel.
- Unaffected by load Power Factor
- Plug –in type glass-epoxy control cards for easy on line service ability.
- All components used are of reputed makes confirming to relevant IS/BIS standards.
- Stabilizers are subject to routine and type tests in accordance with latest IS Standards (IS:9815-94)

KEY BUYING POINTS

- Induction motor operate at high efficiency when supplied with constant voltage. Protects costly equipment from mains of High / Low Voltage , thus cutting down the maintenance cost.
- Low Production Losses & better efficiency in plant. Increased Productivity. 100 % depreciation as per Income Tax Act. Reduces MDI and saves Power.
- Redution in electricity bills up to the level of approximately 15% (This depends on the input variation loading and the number of working hours)
- Saves on diesel cost, as generator not required to run at High / Low input voltage. The average pay back period of servo Controlled Voltage Stabilizer owing to it high energy saving capability is approx 18 months.

APPLICATIONS

- Information Technology and call centers.
- Computer and Micro-Processor Controlled Equipments.

- Sophisticated research instruments used in Scientific, Medical, Agriculture, Educational and other Research Institutions.
- Offset Printing Presses, Color Scanners, Processors, Phototypesetters, Photographic Equipments, Photo Copies and Packaging Industries.
- Medical Equipments, X-Ray Machines, E.C.G Machines / Monitors, MRI, CT Scans etc.
- Defence Installations, LPTs, HPTs, Broadcasting & Telecommunications. Lifts, Escalators and Elevators
- Central Air -Conditioning Plants Processing plants, Chemical Industrial, Textile Industries CNC Machines, Laser
- Laser Machines and Moulding Machines etc
- Commercial Building and Complexes. Complete Hospital and Nursing Homes.

PRODUCT RANGE

SPECIFICATIONS	1 PHASE	3 Phase Unbalanced Air Cooled	3 Phase Unbalanced Oil cooled
Ratings KVA	2-20	3-150	3-2000
Type of cooling	Air	Air	Oil
Input Voltage Range (VL-L)	130-280,170-270V	310-480 / 340-480 / 360-460	
Output Voltage(VI-L)	220 V	415 (380V / 400V-Optional)	
Output Voltage Regulation	1% of nominal voltage		
Input Frequency Range	47Hz-53Hz		
Efficiency	>97%		
Effect of Load Power Factor	Nil		
Waveform Distortion	Nil		
Types of Servo Control	Micro Controller based TrueRMS sensing and correction		
Servo Motor Drive	Triac based drive for AC Step Synchronous motor		
Under / Over Voltage cutoff	Electronic cutoff circuit with graded time delay, set @ +5% / -10% of nominal output voltage		
Overload Cutoff	CT based Electronic cutoff circuit with graded time set @ 110% of rated full load current		
Short Circuit Protection	MCB / MCCB provided upto 100KVA, Above 100KVA HRC fuse (MCCB OPTIONAL)		
Single Phasing Prevention	Provided		
Phase Reversal Trip	Provided		
Stabilizer bypass	Provided up to 50 KVA 3-phase: Optional > 50 KVA		
Transient Suppression	Spike Suppression through MOV is provided (Surge Arrestor is optional)		
Emergency Off Switch	Provided		
Frequency Cut-Off Protection	Optional		
Input High Voltage Trip	Optional		
Resetting Mode	Manual / Auto option provided with programmable time delay		
Display Type	LED Display		
Parameter Display	Input & Output Voltages (Line & Phase), Output Currents & Frequency,Fault Annunciation		
LED Indications	Non Latching LED Lamps for Output ON, MCB Trip, Stabiliser Bypass (If Bypass Switch is provided)		
Input / Output Terminations	Din Connectors upto 100 KVA, Busbar / Bolted terminals for ratings >100 KVA		

POWER PRODUCTS

HOME UPS TAMIS

In today's fast pace world, where time is money it is essential to arm yourself against all the shortcomings. With frequent shutdown & blackouts in power supply it is important to have reliable & uninterrupted power supply to operate efficiently.

Vitronics controls is a correct alternative that takes care of all your power needs during the power crises.



SALIENT FEATURES

- Intelligent, Microcontroller based design
- 110 to 300 V Mains I/P, compatible to generator
- Intelligent charging, Reduces electricity bill
- Automatic Battery Health checkup as well as battery bad detection
- Error code display
- Auto reset on overload
- Single card design, easy for servicing
- Charging from 110 V

FEATURES

- DSP based; less components, small size less electricity bill more efficiency.
- Soft Start features; protects appliances at start up.
- Last Fault Display and record : the system records the last fault and you can analyze it.
- Adaptive loss reduction process gives more efficient charging system.
- 5 stag battery charge control system for lower gassing and faster Charging
- In built SBM (Smart Battery Management) system to provide higher degree battery production & life
- Battery usage data is recorded for better evaluation of battery.
- Supply the highest quality pure sine wave power; protects your expensive household appliance & sensitive office equipments.
- Musical Alarm
- Highly cost effective design with special features to safeguard the mosfets to poor electrical quantity.
- Over load and D.C. low protection
- Software controlled Auto self testing
- Fully computer friendly UPS operation.
- Intelligent Auto sense; continuously monitors health of system.
- AC input low & high voltage cut off protections in both, inverter & U.P.S.modes.
- Silent operation of fans, tube light or appliances.
- Quick Change over from Mains to inverter mode.
- Software controlled Auto reset feature for over load, Short ckt & low battery.
- Very low no load current for prolonged battery operation under standby.
- Cooling fan improves reliability of system.

TECHNICAL SPECIFICATIONS

MODEL	400VA/800VA/1000VA/12V	1600VA/2500VA/24V	3500VA/5000VA/48V
Input Voltage (UPS)	180-260V	180-260V	180-260V
Input Voltage (INV)	130-280V	130-280V	130-280V
Output Voltage on mains mode	Same as input	Same as input	Same as input
Output Frequency on inverter mode	50Hz \pm 0.1Hz	50Hz \pm 0.1Hz	50Hz \pm 0.1Hz
Display			
A.C Output Voltage of inverter, Mains Voltage input of inverter, Mains Frequency of the inverter, Inverter Load %, Battery Current			
Battery Level in %, Battery Status, Inverter Status, Inverter Error (if any), Solar Voltage, Solar Current, Solar watts, Solar KWH			
Solar Voltage, Days in service, Solar Status & mode of operation			
Bill reducing protocol	Available	Available	Available
Output Waveform on mains mode	Same as input	Same as input	Same as input
Output Waveform on inverter mode	PURE SINE WAVE	PURE SINE WAVE	PURE SINE WAVE
Overload	110%		
Overload delay	0-20sec	Settable for handling motor loads	
Overload restart	5 times	Auto restart on over load	
Charging current	5amp till 20amps		
Charging process	5 stage charging process		
Data logged	Battery usage	Number of time battery discharged till warning and number times battery charged	
	Last Fault record.	Last Fault record.	
Mode control	Fast / slow	For computer applications select fast mode In fast mode transfer is within 4milli sec.	
Inverter Protection	Unique protection scheme have been incorporated to enhance reliability.		
Reverse Phase	In the event of phase voltage wrongly connected to the inverter output safe shut down will occur		
Overload	In the event of overload system will shut down and restart 5 times		
Short Circuit	A short circuit on the output will be detected separately and lead to lock down.		
Over temperature	Excessive temperature rise due to poor cooling or fan failure will		
Under charged battery	cause shut down		
Battery loose	Sparking or spikes on the dc bus will cause safe shut down and lock down.		
Battery deep discharge	Soft current build up in case of deep discharge battery		
Battery bad	In event a cell is dead or shorted a time out circuit will prevent prolonged charging.		
Auto reset features	Yes	Yes	Yes
Alarm	6 Separate audio tones		
DC high / battery loose			
Phase reverse or short			
Hot or fuse fail			
Overload / Output low			
Battery low or bad, Battery			
Water reminder			

POWER PRODUCTS

INDUSTRIAL INVERTER

NAKSH

As a leading manufacturer of electronic industrial products and services, VITRONICS CONTROLS, is driven by a vision to achieve highest standard of quality and customer satisfaction. Manufacturing high quality UPS, Stabilizers, Digital Inverters and Sine Wave Inverters of various ranges, VITRONICS CONTROLS takes care of all your power source problems giving you an uninterrupted and constant power supply enabling you to function efficiently and smoothly.



Vitronics Sine Wave Inverters helps you to keep the o/p voltage with a tolerance of 1% & work with efficiency more than 90%

SALIENT FEATURES

- Cutting Edge Technology
- Environment Friendly
- High Reliability
- Extremely Flexible
- Versatile Operations

APPLICATIONS

- Offices
- Hospitals
- Manufacturing units
- Elevators
- Hotels
- Mails
- Educational Institutions
- Residentials etc

FEATURES & BENEFITS

DSP BASED DESIGN

DSP design use less components have high efficiency, faster feedback and precise control action. This ensures high reliability of operations.

SOLID STATE DESIGN

Solid State Design using semiconductors devices. No electromechanical components adds to higher reliable performances.

PURE SINE WAVE

Pure Sine Wave ensures better life of devices, Suitable to modern age loads of linear type.

USER FRIENDLY DISPLAY

Combination of LCD-LED display makes it easy for user to understand and handle the device. It provides maximum necessary information to the user about the input supply voltage frequency, output voltage, frequency, battery charging discharging.

REDUNDANCY OPTIONS

Ensures high availability of power during breakdown conditions. Thus making Vitronics NAKSH1 and NAKSH3 series suitable even in critical applications.

REMOTE MONITORING

In view of variety of monitoring needs. Luminious offers options of communication through web or management systems through SNMP communication protocol.

UNBALANCE LOAD HANDLING CAPACITY

In today's variety of application it is a common scenario when load is unbalanced in such scenario the inverters support 100% unbalance load conditions thus making high availability of clean power to load.

POWER FACTOR CORRECTED IGBT BASED CHARGER

During battery charging high power factor ensures lower KVA demand therefore saving in electricity bills.

INPUT CURRENT HARMONICS

Latest technology IGBT bases charger design injects <3% current harmonics into the upstream distribution. This reduces harmful effect of heating due to current harmonics and keeps the input switch gears, cables and Transformer cool and avoid harms to other connected load as well.

WIDE INPUT VOLTAGE AND FREQUENCY RANGE

Ensures minimum use of batteries thus enhancing the battery life and hence delay in investment for battery replacement

TECHNICAL SPECIFICATIONS - NAKSH1

Parameters	5KVA	7.5KVA	10KVA	15KVA	20KVA
Topology	DSP controlled IGBT based, with transformer				
DC Voltage	96/120 V	120V	180VDC	240VDC	240/360VDC
Output					
PF	0.8				
Configuration	P+N+E (1 Phase)				
Output voltage setting	230 / 220V on Battery				
Output voltage regulation on battery	(±2%)				
Output frequency on battery	50Hz±0.5Hz				
Output voltage in mains mode	Same as input				
Output frequency in mains mode	Same as input				
THD (Resistive load)	<3% linear load		<7% non-linear load		
Overload	110% for 5min	50 for 15 sec	200% for 7 sec	300% for 3 sec	
Efficiency	>=88% inverter mode	>=98% (exclusive charging)		>=95% (including charging)	
Transfer time	1-2 Sec				
Transient response	±5%				
Recovery time	<60msec to +2% Of nominal voltage				
O/p vtg regulation on 100% unbalanced load	±5%				
Crest factor	3:1				
Input					
Nominal input voltage	230 V, 50Hz, 1 phase				
Voltage range	150-280V/180-270V/190-60V(Single phase) 280-485V/312-468V/329-450V(Three phase)				
Frequency range	50Hz±6Hz				
PF	0.85 to 0.92				
Current distortion	<15% charge mode				
Battery charger					
Type	Float-boost CVCC type				
Battery selection	SMF/Flat/Tubular				
No. of batteries	8/10	10/15	15	20	20/30

TECHNICAL SPECIFICATIONS - NAKSH1

Battery charger	5KVA	7.5KVA	10KVA	15KVA	20KVA
Charging current even at lowest range	10A/ 15A/ 20A (Selectable)				
Back up time	Battery dependant				
Ambient temperature	45 degree Celsius				
Environment					
Humidity	95% RH-humidity				
Noise level	55 db				
Dimension					
Dimension (W X H X D in mm)	320X625X530	320X625X530	320X625X530	400X755X680	400X755X680
Weight (in Kg)	77.5	77.5	89.6	125	130
IP protection					
Class	Ip20				
Ventilation					
Cooling	Forced air cooled				
Protection					
Transient response	Input Breaker Input phase reversal Mains Low/ High Cut	Battery Breaker DC Low/ Over Voltage Reverse Battery	Deadshort circuit High Temperature Short circuit		
Display					
LCD Disply + LED					
Indications					
LED indication	Battery charging, Inverter ON, Mains ON, Fault				
LCD display	DSP Sine Wave Input Voltage Input Frequency	Output Voltage Output Load in % Output Frequency	Battery Voltage Boost Voltage Float Voltage Charging Current Battery Type	Mains Low Cut Mains High Cut Inverter Switch ON	
Selection Switches					
User selection Switches	Inverter ON, OFF, LCD Display parameters setting				
Optional					
Automatic phase reversal correction	Yes				
Operation on two phases	In the event of any one phase failure the single phase load will keep running on two healthy phases in mains mode				
Redundancy options	100% hot standby				
Temprature compensated charging	Yes				
Monitoring	Web Remote monitoring event logging, remote indi9cation panel, sms-mail generation				
DC control	Dg control from inverter				
Due to continuous product improvement, the specifications are subject to change without prior notice					

TECHNICAL SPECIFICATIONS - NAKSH3

Parameters	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	70 KVA	80 KVA	100 KVA	120 KVA	150 KVA	200 KVA	
Topology	DSP controlled IGBT based, with transformer													
DC Voltage	240VDC				360VDC				480VDC					
Output														
PF	0.8													
Configuration	3P+N+E (3Phase, 4 Wires + Earth)													
Output voltage setting	400/380VPhase-Phase(230/220V P-N) on Battery													
Output voltage regulation on battery	(±1%)													
Output frequency on battery	50Hz±0.5Hz													
Output voltage in mains mode	Same as input													
Output frequency in mains mode	Same as input													
THD (Resistive load)	<1% linear load						<3% non-linear load							
Overload	125% for 10min						150% for 1 min							
Efficiency	Upto 90%				Upto 92%			Upto 93%			Upto 94%			
Transfer time	<7msec													
Transient response	±5%													
Recovery time	Within one cycle to 98% of nominal voltage													
O/p vtg regulation on 100% unbalanced load	±1%													
Short Circuit Protection	Yes													
Crest factor	3:1													
Input														
Nominal input voltage	415V, 50Hz, 3 phase +neutral													
Voltage range	±15%													
Frequency range	50Hz±6Hz													
PF	> 0.99													
Current distortion	THD <3%													
Battery charger														
Type	Float-boost CVCC type													
Battery selection	SMF/Flat/Tubular													
No. of batteries	20				30				40					
Charging current even at lowest range	10A	15A	20A	30A	40A	45A	55A	60A	70A	85A	105A	140A		
Back up time	Battery dependant													
Environment														
Humidity	95% RH-humidity													
Noise level	60 dBA													
Ambient temperature	0-40 degree celsius													
Dimension														
Dimension (W X H X D in mm)	500x800x1100				600x800x1200				800x800x1750					
Weight (in Kg)	225	275	315	380	405	445	475	550	625	775	810	885		
IP protection														
Class	Ip20													

TECHNICAL SPECIFICATIONS - NAKSH3

Battery charger	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	70 KVA	80 KVA	100 KVA	120 KVA	150 KVA	200 KVA
Ventilation													
Cooling	Forced air cooled												
Protection													
	Mains Low/ High Cut DC Low Voltage DC high voltage				Short circuit Mains Input Breaker Battery Switch				Deadshort circuit High Temperature Phase reversal input				
Display	LCD Display + LED												
Indications													
LED indication	Battery on float Battery on boost Battery low Battery charging/discharging								Mains switch ON Inverter switch ON Load ON Inverter ON				
LED display	Battery-voltage & current Mains-voltage, current, frequency Inverter-voltage, current, frequency Inverter heat sink temperature								Power (KVA /KW) Output load in % Battery Voltage System setting				
Selection Switches													
User selection Switches	Manual bypass LCD display parameters with push button Input window selection(Narrow/Medium/Wide)						Battery type selection (SMF/Flat/Tubular) Charging current selection(Low/Medium/High) Output voltage selection 220V/230V						
Optional													
Automatic phase reversal correction	Yes												
Temperature compensated charging	Yes												
Potential free contacts	2 Isolated digital inputs, 2PFC - NO and NC panel, sms - mail generation												
Monitoring	Web monitoring event logging, remote indication panel, sms-mail generation												
Dg control from inverter	Yes												

POWER PRODUCTS

ELOS (EMERGENCY LIFT OPERATING SYSTEM)

As a leading manufacturer of electronic industrial products and services, VITRONICS CONTROLS, is driven by a vision to achieve highest standard of quality and customer satisfaction.

Manufacturing high quality UPS, Stabilizers, Digital Inverters & Sine Wave Inverters of various ranges, VITRONICS CONTROLS takes care of all your power source problems giving you an uninterrupted and constant power supply enabling you to function efficiently and smoothly.

Vitronics controls Sine Wave Inverters helps you to keep the o/p voltage with a tolerance of 1% & works with efficiency more than 90%

ELOS is always alert & has an intelligence to sense sudden electricity failure & comes in action within fraction of second. These systems are essentially designed & manufactured to ensure the continuity of operation of elevators & lifts in the event of electricity failure. These inverters also recommended for other utility applications such as water pumps, stair case lights, parking light & emergency power points in the building along with elevators. These are available in various models with different configuration in different power ratings to suit every type of passenger lifts & inductive loads.



SALIENT FEATURES

- Cutting Edge Technology
- Environment Friendly
- High Reliability
- Extremely Flexible
- Versatile Operations

WHY ELOS ?

	ELOS	Generator
Type	Static electronics device	Electro mechanical device
Cost	More economical than generator	Is costlier than ELOS
Extra Cost	No additional circuitry, acoustic covering (canopy) & hidden cost	Requires AMF panels, acoustic covering etc. which increases basic cost.
No Load Condition	Utility of battery power is only during operation of the LOAD	Generation is required to be kept on in NO LOAD condition also, hence unnecessary usage of fuel.
Noise	Absolutely noiseless	Very noise

WHY ELOS ?

	ELOS	Generator
Changeover Time	Auto changeover within 500 ms	Has to start manually / for auto operation additional cost requirement.
Recurring Cost	Negligible, if maintained properly	Fuel cost (Diesel) & Maintenance cost is more because of wear & tear due to internal rotary parts.
Life	Life of equipment is more than Generator. Batteries can last for upto 5 years, if maintained periodically.	Lesser than ELOS. If extended the expense of alternator & other spares replacement is considerable.
Pollution	Absolutely pollution free & environmental friendly.	Emits smoke, fumes & noise.

TECHNICAL SPECIFICATIONS - RANGE 6 KVA to 30 KVA

Input	
Voltage	415 V AC (+10%, -15%), 3 Phase
Frequency	50 Hz , +2 Hz
Output	
Voltage	415 VAC (+2%) , 3 Phase
Frequency	50 Hz (+0.1 Hz)
Changeover Time	< 500 millisecond
Power Rating	As appropriate to the load requirement (from 1KVA to 100 KVA Continuous duty cycle)
Power Factor	0.8 Lag to Unity
Crest Factor	> 3.0
Wave Form	True Sine Wave
Harmonic Distortion	< 5%
Efficiency	> 90%
Housing	
Finish	Epoxy Powder coating
Classification	IP 20
Option	Caster Wheels
Batteries	
Type	Lead Acid (Automotive) / Tubular / Sealed Maintenance Free
Capacity	Depends on Load & Backup duration required
DC Voltage	72 to 360 V depending on capacity & customer requirements

POWER PRODUCTS

ACTIVE UPS

SAVES APPROXIMATELY 35% - 40%

of electricity bills using Intelligent Electronic Grid Compensation technique.

“PROTECTS DATA, EQUIPMENT & PRODUCTIVITY”

- Power fail
- Low voltage
- High voltage

APPLICATIONS

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Smart class • PCs • Server • Photo copiers • Printers • Lights | <ul style="list-style-type: none"> • OHP • Camera • Fans • TV • Inverter AC etc. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|

RANGE

- 5KVA - 4 batteries / 6KVA - 6 batteries
- 7KVA - 6 batteries / 10KVA - 10 batteries
- **Mains voltage conditioning**
Extends the life of connected gadget by 35% in comparison to off-line UPS/inverters.
- **Zero-change-over-time**



TECHNICAL SPECIFICATIONS - ACTIVE

CAPACITY		5KVA	6KVA	7KVA	10KVA
DC Bus		48 / 72 V	72 V	72 V	120 V
INPUT					
Input Voltage		230 V			
Input Voltage Window		160-270V			
Input Frequency		50Hz + 10%			
OUTPUT					
Transfer Type	Mains to Inverter	Zero msec.			
	Inverter to Mains	Zero msec.			
Voltage on Inverter		230V + 10%			
Power Factor		0.8 Lag			
Frequency on Inverter Mode		50Hz + 1Hz			
Waveform on Inverter Mode		Pure Sinewave			
Over Load Capacity		100% Continuous- 125% - 1 Minutes			
Transient Response		Remains within +/- 5% & recover to normal within 20 msec			
Nominal Output Current		17.4 A	20.84 A	24.34 A	34.8 A
Mode of Operation		Designed for Continuous operation			
EFFICIENCY					
Efficiency on Inverter Mode		> 85%			
Charge Type		CVCC			
Charging Current Standard		1A-20A			
Higher Charging Current		Provided on Request			
Acoustic Noise level		<60db @ 1.5 meter			
Humidity		Up to 95% RH Non condensing			
Altitude		<3000 Feet above sea level (without derating)			
Ambient Temperature		0 to 40°C			
PHYSICAL					
Enclosure Protection		IP-20			
Cooling		Forced Air			
Cable Entry		Back side bottom			
Dimensions (D x H x W)		510x540x200mm	510x540x200mm	510x540x200mm	660x670x240mm
Weight		45kg	45kg	50kg	62 kg
LED Indications		• Mains on • Charger on • Inverter on • Battery Low • Trip			
LCD Indications		• Input Voltage • Output Voltage • Battery Voltage • Load Current			
Protection		<ul style="list-style-type: none"> • Advanced Electronic Protection for device safety, backup with MCB's & fast acting fuses, high speed pulse by electronic device protection • Battery deep discharge • Over Voltage / Under Voltage Protection • Over Temperature Protection • Mains high & low cut • Short circuit Protection • High voltage transient protection & Electrostatic discharge protection 			
Features		Sinewave UPS with AVR for computer & Lighting Load			
Testing Standard		As per IEC 62040-3			

POWER PRODUCTS

SMART ON LINE UPS

FEATURES

- Double conversion online UPS
- Input power factor near unity
- Low Input current distortion
- Active power factor correction
- High efficiency
- Inbuilt galvanic isolation transformer
- Advanced network connectivity
- IGBT based design

OPTIONAL

- Mobile Connectivity
- Redundant UPS for 24X7 operation (hot standby and load sharing)
- Harmonic filter at the UPS input (Active / Passive)
- RS 232 / Remote Monitoring



TECHNICAL SPECIFICATION - SMART (ONLINE UPS 1ph-1ph)

TECHNOLOGY	DSP with IGBT			
CAPACITY	5 KVA	6 KVA	7.5 KVA	10 KVA
DC BUS	120V/192V	120V/192V	192V/240VDC	192V/240V
Input				
Input Voltage	230V AC Single Phase			
Input Power Factor @ 100% Load	0.99			
Input current harmonic distortion (THD)	<10%			
Input Voltage Window	170-270V			
Input Frequency	50Hz+10%			
Rectifier	IGBT based Full bridge			
Voltage Regulation	(+)-1%			
Charger Type	CVCC			
Output				
Inverter Type	MPWM with instantaneous sine wave control using MOSFET			
Power Factor	0.8 lag			
Nominal Voltage	230V Single Ø			

TECHNICAL SPECIFICATION - SMART (ONLINE UPS 1ph-1ph)

Output				
Regulation	(±) 1%			
Frequency	50Hz ± 1Hz			
Total Harmonic Distortion	<2% for linear load, <6% for non linear load			
Over Load Capacity	125% -1 Minute : 150% 5 Seconds			
Transient Response	Remains within +/- 5% & recover to normal within 20 msec			
Nominal output current	16 A	19.2 A	24 A	32 A
Crest Factor	3:1			
Mode of Operation	Designed for Continuous operation			
EFFICIENCY				
Efficiency - 100% load	87%			
Converter Protection	Advanced Electronic Protection for device safety backed up with MCB's & fast acting fuses			
Isolation	True Online with complete galvanic isolation for comprehensive power protection			
Inverter Protection	Advanced Electronic Protection for device safety, backed up with MCB's & fast acting fuses, high speed pulse by pulse electronic device protection, over voltage or under voltage protection, Electronic over current trip with rest.			
ENVIRONMENTAL				
Acoustic Noise level	<60db @ 1.5 meter			
Ambient Temperature	0 to 40°C			
Humidity	Up to 95% RH Non condensing			
Altitude	<3000 Feet above sea level (without derating)			
PHYSICAL				
Enclosure Protection	IP-20			
Cooling	Forced Air			
Cable Entry	Back side bottom			
Dimensions (D x H x W)	530x550x210mm	530x550x210mm	530x550x210mm	640x660x240mm
Weight	45kg	50kg	55kg	75kg
LED Indications	• Mains on • Charger on • Inverter on • Battery Low • Overload • Inverter Trip			
LCD Indications	• Input Voltage • Output Voltage • Battery Voltage • Load Current			
Protection	<ul style="list-style-type: none"> • Input Fuse • Input Under Voltage / Over Voltage • Over Temperature Protection • Rectifier Over Voltage • Battery Low protection • Over Load protection • Short circuit protection • High voltage transient protection & Electrostatic discharge protection 			
Compatibility	Remote power monitoring using SNMP Software & Solar Power			
Testing Standard	As per IEC 62040-3			

POWER PRODUCTS

POWER ON LINE UPS



FEATURES

- Double conversion online UPS
- Input power factor near unity
- Low Input current distortion
- Active power factor correction
- High efficiency
- Inbuilt galvanic isolation transformer
- Advanced network connectivity
- IGBT based design

OPTIONAL

- Mobile Connectivity
- Redundant UPS for 24X7 operation (hot standby and load sharing)
- Harmonic filter at the UPS input (Active / Passive)
- RS 232 / Remote Monitoring

TECHNICAL SPECIFICATION - POWER (ONLINE UPS 3ph-1ph)

TECHNOLOGY	DSP with IGBT					
CAPACITY	10KVA	15KVA	20KVA	25KVA	30KVA	40KVA
DC BUS	360 V					
Input						
Input Voltage	415 V 3Ph and N					
Input Power Factor @ 100% Load	0.99					
Input current harmonic distortion (THD)	<10%					
Input Voltage Window	330 - 470V					
Input Frequency	45-55Hz					
Input PFC	> 0.95					
Power	Soft start for 0 20 seconds power					
Rectifier	IGBT based Full bridge					
Voltage Regulation	(+)1%					
Ripple Voltage	< 2%					
Converter Protection	Advanced Electronic Protection for device safety backed up with MCB's/ MCCBs & fast acting fuses					

TECHNICAL SPECIFICATION - POWER (ONLINE UPS 3ph-1ph)

INVERTER						
Inverter Type	IGBT based MPWM with instantaneous Sinewave Control					
Power Factor	0.8 lag					
Nominal Voltage	220VAC / 230VAC					
Regulation	(±) 1%					
Frequency	50Hz ± 1Hz					
Total Harmonic Distortion	<2% for linear load, <6% for non linear load					
Over Load Capacity	100%-Continuous : 125% -1 Minute : 150% 5 Seconds					
Transient Response	Remains within +/- 5% & recover to normal within 20 msec					
Nominal output current	34A	48A	64A	80A	96A	128A
Crest Factor	3:1					
Waveform	True Sinewave					
Inverter Protection	Advanced Electronic Protection for device safety backed up with MCB's/ MCCBs & fast acting fuses,high speed pulse by pulse electronic device protection over voltage / under voltage protection, Electronic over current trip.					
BYPASS						
Manual Bypass	Provided					
Static bypass(Optional)	Optional Feature					
EFFICIENCY						
Efficiency - 100% load	>86% to > 88 %					
BATTERY						
Battery Type	SMF/ TUBULAR					
No. of Batteries	30					
Voltage	360 V					
Battery Low advance warning at	11 v / battery					
Battery Low cut off at	10.5 V / Battery					
CHARGER						
	CCVA					
ALARMS						
	Input / Low / Fail Output Overload Over Temperature Battery low					
User Friendly LCD Display shows the following parameters						
	Input Voltage Output Voltage Load current Output Overload Output Frequency					
LED INDICATIONS (Single LED with multi function)	Mains on UPS on Battery Low Overload					
PROTECTIONS						
PROTECTING THE LOAD						
Output Under Voltage Output Over Voltage	Protects the load and its components from premature Failure					
Output Single Phase prevention	Protects the connected three phase loads & its components from premature failure					
Output short circuit with pulse	Protects against false tripping & complete shutdown in case of surge					

TECHNICAL SPECIFICATION - POWER (ONLINE UPS 3ph-1ph)

PROTECTIONS	
by pulse current limit up to 200µsecs.Protects 300% for 15 msecs,500% for 5msec &1000% for 1.5 msec of the rated current	Power drawn by the load (non linear loads)
Neutral drift Neutral failure Lightning EMI & Harmonics in the input Neutral High voltage transient protection & Electrostatic discharge protection as per IEC 62040-2	Galvanic isolation provides complete isolation between output neutral and Input & the the output is fully protected against neutral drifts,voltage avalanches like lighting & input harmonics commonly found in the input side.
PROTECTING THE UPS	
Input MCCB / MCB	Protects th input from very large current caused by short circuit or due to a damaged internal component and avoids further damage to the equipment.
Input Under Voltage / Over Voltage	Prevents damage of components in the input sensing & the converter devices
Over Temperature Protection	Protects the Inverter & Converter magnetics and switching devices against premature failure.
Ove Load protection	Protects the Inverter components against premature failure.
Input Under Voltage / Over Voltage 'High voltage transient protection & Electrostatic discharge protection as per IEC 62040-2	Prevents damage of components in the input sensing & the converter devices
External Magnetic field Protection	Protects against external power frequency magnetic field
ENVIRONMENTAL	
Acoustic Noise level	<60db @ 1.5 meter
Ambient Temperature	0 to 40 Deg C
Storage Temperature	-10 to 70 Deg C
Humidity	Up to 95% RH Non condensing
Altitude	< 3000 Feet above sea level (without derating)
Extreme climatic conditions	AC Environment is required if the temperature goes beyond the normal operating temperature (0-40 deg C)
PHYSICAL	
Enclosure Protection Grade	IP - 20
Cooling	Forced Air
Cable Entry	Front side bottom
Testing Standard	As per IEC 62040 - 3

POWER PRODUCTS

SHAKTI ON LINE UPS

FEATURES

- Double conversion online UPS
- Input power factor near unity
- Low Input current distortion
- Active power factor correction
- High efficiency
- Inbuilt galvanic isolation transformer
- Advanced network connectivity
- IGBT based design

OPTIONAL

- Mobile Connectivity
- Redundant UPS for 24X7 operation (hot standby and load sharing)
- Harmonic filter at the UPS input (Active / Passive)
- RS 232 / Remote Monitoring



TECHNICAL SPECIFICATION - SHAKTI (ONLINE UPS 3ph-3ph)

TECHNOLOGY	Double conversion Online with the latest MPWM technology using IGBT					
CAPACITY	10 KVA	20 KVA	30 KVA	50 KVA	80 KVA	100 KVA
DC BUS	360V					
Input						
Input Voltage	415 V 3Ph and N					
Input Voltage Window	330 - 470V					
Input Frequency	45-55Hz					
Input PFC	> 0.95					
Power	Soft start for 0 20 seconds power					
Rectifier	IGBT based Full bridge					
Voltage Regulation	(+1)%					
Ripple Voltage	< 2%					
Converter Protection	Advanced Electronic Protection for device safety backed up with MCB's/ MCCBs & fast acting fuses					
INVERTER						
Inverter Type	IGBT based MPWM with instantaneous Sinewave Control					
Power Factor	0.8 lag					

TECHNICAL SPECIFICATION - SHAKTI (ONLINE UPS 3ph-3ph)

INVERTER						
Nominal Voltage	415 Ph to Ph					
Regulation	(±) 1%					
Frequency	50Hz ± 1Hz					
Total Harmonic Distortion	<2% for linear load, <6% for non linear load					
Over Load Capacity	100%-Continuous : 125% -1 Minute : 150% 5 Seconds					
Transient Response	Remains within +/- 5% & recover to normal within 20 msec					
Nominal output current	10A	20A	30A	50A	80A	100A
Crest Factor	3:1					
Mode of Operation	Designed for Continuous operation					
Waveform	True Sinewave					
Unbalanced Load Phase Shift	120°± 0.5°					
ISOLATION						
Inverter Protection	True Online with complete galvanic isolation Advanced Electronic Protection for device safety backed up with MCB's/ MCCBs & fast acting fuses,high speed pulse by pulse electronic device protection over voltage / under voltage protection, Electronic over current trip.					
BYPASS						
Manual Bypass	Provided					
Static bypass(Optional)	Optional Feature					
EFFICIENCY						
Efficiency - 100% load	>86% to > 88 %					
BATTERY						
Battery Type	SMF/ TUBULAR					
No. of Batteries	30					
Voltage	360 V					
Battery Low advance warning at	11 v / battery					
Battery Low cut off at	10.5 V / Battery					
Charger	CCVA					
Charging Current Standard	0-10 A					
ALARMS						
	Input / Low / Fail Output Overload Over Temperature Battery low					
User Friendly LCD Display shows the following parameters						
	Input Voltage Output Voltage Load current Output Frequency Battery Voltage					
LED INDICATIONS (Single LED with multi function)	Mains on UPS on Battery Low Overload					
PROTECTIONS						
	PROTECTING THE LOAD					
Output Under Voltage Output Over Voltage	Protects the load and its components from premature Failure					

TECHNICAL SPECIFICATION - SHAKTI (ONLINE UPS 3ph-3ph)

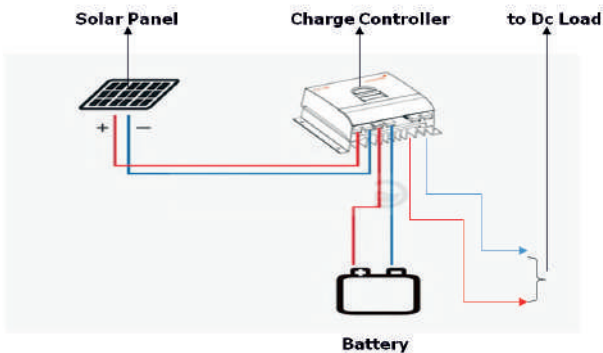
PROTECTIONS	
Output Single Phase prevention	Protects the connected three phase loads & its components from premature failure
Output short circuit with pulse	Protects against false tripping & complete shutdown in case of surge
by pulse current limit up to 200µsecs. Protects 300% for 15 msecs, 500% for 5msec & 1000% for 1.5 msec of the rated current	Power drawn by the load (non linear loads)
Neutral drift Neutral failure Lightning EMI & Harmonics in the input Neutral High voltage transient protection & Electrostatic discharge protection as per IEC 62040-2	Galvanic isolation provides complete isolation between output neutral and Input & the the output is fully protected against neutral drifts, voltage avalanches like lightning & input harmonics commonly found in the input side.
PROTECTING THE UPS	
Input MCCB / MCB	Protects th input from very large current caused by short circuit or due to a damaged internal component and avoids further damage to the equipment.
Input Under Voltage / Over Voltage	Prevents damage of components in the input sensing & the converter devices
Rectifier Over Voltage	Prevents damage to the invert & the charge
Over Temperature Protection Battery Low protection	Protects the Inverter & Converter magnetics and switching devices against premature failure.
Over Load protection Short circuit protection	Protects the Inverter components against premature failure.
Input Under Voltage / Over Voltage 'High voltage transient protection & Electrostatic discharge protection as per IEC 62040-2	Prevents damage of components in the input sensing & the converter devices
External Magnetic field Protection	Protects against external power frequency magnetic field
ENVIRONMENTAL	
Acoustic Noise level	<60db @ 1.5 meter
Ambient Temperature	0 to 40 Deg C
Storage Temperature	-10 to 70 Deg C
Humidity	Up to 95% RH Non condensing
Altitude	< 3000 Feet above sea level (without derating)
Extreme climatic conditions	AC Environment is required if the temperature goes beyond the normal operating temperature (0-40 deg C)
PHYSICAL	
Enclosure Protection Grade	IP - 20
Cooling	Forced Air
Cable Entry	Front side bottom
Testing Standard	As per IEC 62040 - 3

SOLAR PRODUCTS

SOLAR CHARGER

A charge controller, or charge regulator is similar to the voltage regulator in your car. It regulates the voltage and current coming from the solar panels going to the battery. Most "12 volt" panels put out about 16 to 20 volts, so if there is no regulation the batteries will be damaged from overcharging. Most batteries need around 14 to 14.5 volts to get fully charged.

The final function of modern solar charger controllers is preventing reverse-current flow. At night, when solar panels aren't generating electricity, electricity can actually flow backwards from the batteries through the solar panels, draining the batteries. You've worked hard all day using solar power to charge the batteries; you don't want to waste all that power! The charge controller can detect when no energy is coming from the solar panels and open the circuit, disconnecting the solar panels from the batteries and stopping reverse current flow.



PWM (SOLAR CHARGER CONTROLLER)

MODEL	PWM1224/10A		PWM1224/20A		PWM12V 40A	PWM24V 40A
DC Voltage	12V	24V	12V	24V	12V	24V
Precise	Micro controller					
Operating Temperature	0-50 °C					
Storage Temperature	-20* to 70* C					
Battery Type	Tubular					
Battery Capacity	200 AH Max.					
Battery Charging Regulation Mode	PWM					
Operating Solar Input Voltage (Voc) Max	22.5V	45V	22.5V	45V		
Solar Module Size(Max)	150W	300W	300W	600W	600W	1200W
ELECTRICAL						
Nominal Battery voltage	12/24V DC (Auto Sensing)					
SPV Chg. Voltage Boost	14.5V	29V	15.5V	31V		
Charging Current (max)	10A		20A		40A	

PWM (SOLAR CHARGE CONTROLLER)

MODEL	PWM1224/10A		PWM1224/20A		PWM12V 40A	PWM24V 40A
Load Current Max.	>95%					
Charge Controller Efficiency Idle Consumption	<30mA					
Min. Solar Input Voltage(Voc) @ Startup	17-25 V	30-45 V	17-25 V	30-45 V		
LED / LCD	LED	LED	LED / LCD	LED / LCD	LCD	LCD
LOAD CONDITION						
USB Port						
Battery Low Voltage Load Disconnect						
Battery Low Voltage Load Recovery						
Battery High Voltage Load Disconnect						
Battery High Voltage Load Recovery						
LED INDICATION						
Solar ON	Green					
Fault	Green					
Batt. Low	Red					
Load ON	Green					
DISPLAY PARAMETER						
Batt. Voltage, Batt. Current						
Solar Status: Overload						
Load Current						
Solar Wattage						
Solar PWH						
PROTECTION						
Battery High / Low	Available					
Battery Reverse	Available					
SPV Reverse	Available					
SPV High / Low	Available					
Reverse Current Flow from Battery to Solar	Available					
Panel Array	Available					
Load short Circuit through DC Fuse	Available					
PHYSICAL						
Weight	130GM 300GM					
Dimension (LXWXH) MM	75x132x36 mm 100x161x50 mm					

SOLAR PRODUCTS

HOME LIGHTING SYSTEM

HLS 10P 17

PRODUCT INTRODUCTION

- The power box which has a inbuilt 12v battery and a advanced in build solar charge controller also can be charged via solar or even by AC power using the included DC adapter through electricity.
- There is a small green color LED indicator to show charging indication and also Low battery cutoff red indicator to protect the battery from deep discharge.
Backup time : 2 Bulb - 5 -6 HRS | 3 Bulb - 3 -4 HRS



PACKAGE CONTENTS

- Solar Home Lighting With 3 DC Port and 2 USB for Mobile Charger
- 10/20 W Panel
- 12V 7 AH Battery
- AC Charger (Optional)
- DC Bulb / zTube 7 W-2 No (Optional)

INDICATIONS

- Mains Charging
- Battery Charging
- Reverse Battery
- Reverse PV

PROTECTIONS

- Short circuit
- Battery over-charging
- Battery deep-discharging
- Battery / PV reverse protection

FEATURES

- Fuse provided to protect short circuit condition
- In-built blocking diode provided to prevent reverse flow of current through PV module

ELECTRICAL SPECIFICATIONS

Parameter	Value
Panel Voltage	18 V-25V
Solar Charging Current	3 AMP
Grid Charging Current (Optional)	2 AMP
Charge Controller Technology	PWM
Battery Charging Voltage	13.8V
Battery Low Disconnect	10.2V
Over Charge Cut-off Voltage	13.9V
Fuse Rating	5A
Panel	10 / 20 W
Battery	12 V 7 AH

OTHER SPECIFICATIONS

Operating Temperature	0°C to 55°C
DC Output	3 DC Output 7 W 2 USB Port

SOLAR PRODUCTS

HOME LIGHTING SYSTEM

HS 10 PI 14

PRODUCT INTRODUCTION

- The power box which has a inbuilt 12v battery and a advanced solar charge controller also inbuilt can be charged via solar or even by AC power using the included DC adapter through electricity.
- There is a small green color LED indicator to show charging indication and also Low battery cutoff red indicator to protect the battery from deep discharge.
- This product has many variations by way of battery capacity (stored power) and solar panels (battery charging) that can be used all offering different back up times otherwise the functions remaining the same.
- Backup time : 2 Bulb/Tube 1 Fan - 6 HRS | 3 Bulb/Tube - 10HRS



PACKAGE CONTENTS

- Solar Home Lighting With 3 DC Port and 2 USB for Mobile Charger
- 20/40 W Panel
- 12V 14 AH Battery
- AC Charger (Optional)
- DC Bulb / Tube 7 W-2 No (Optional)

INDICATIONS

- Mains Charging
- Battery Charging
- Reverse Battery
- Reverse PV

PROTECTIONS

- Short circuit
- Battery over-charging
- Battery deep-discharging
- Battery / PV reverse protection

FEATURES

- Fuse provided to protect short circuit condition
- In-built blocking diode provided to prevent reverse flow of current through PV module

ELECTRICAL SPECIFICATIONS

Parameter	Value
Panel Voltage	18 V-25V
Solar Charging Current	3 AMP
Grid Charging Current (Optional)	2 AMP
Charge Controller Technology	PWM
Battery Charging Voltage	13.8V
Battery Low Disconnect	10.2V
Over Charge Cut-off Voltage	13.9V
Fuse Rating	5A
Panel	20 W
Battery	12 V 14 AH

OTHER SPECIFICATIONS

Operating Temperature	0°C to 55°C
DC Output	3 DC Output For Tube/Fan 2 USB Port

SOLAR PRODUCTS

HOME LIGHTING SYSTEM

HL 25MI 18

PRODUCT INTRODUCTION

- The power box which has a inbuilt 12v LifePO4 battery and a advanced MPPT based solar charge controller. It charges battery via solar or even by AC power using DC adapter runs DC load.
- There is LCD display showing all parameters.
- Backup time : 2 Bulb / Tube 1 Fan - 6 HRS | 3 Bulb / Tube - 10 HRS

PACKAGE CONTENTS

- Solar Home Lighting With 3 DC Port and 2 USB for Mobile Charger
- 12V 18 AH Battery
- 40/380 W Panel (Optional)
- AC Charger (Optional)
- DC Bulb /Tube 7 W-2 No (Optional)
- DC Fan (Optional)

ELECTRICAL SPECIFICATIONS

Parameter	Value
Panel Voltage	12V
Solar Charging Current	25 AMP
Grid Charging Current (Optional)	2 AMP
Charge Controller Technology	MPPT
Battery Charging Voltage	13.7V
Battery Low Disconnect	9.5V
Over Charge Cut-off Voltage	13.7V
Fuse Rating	30A
Panel recommended	40-380 W
Battery	12 V 18 AH Life PO4 battery

OTHER SPECIFICATIONS

Operating Temperature	0°C to 55°C
DC Output	3 DC Output 20 W For Tube and Fan 2 USB Port total 100W



FEATURES

- Fuse provided to protect short circuit condition
- System in-built protection against battery over-charge & deep discharge
- In-built blocking diode provided to prevent reverse flow of current through PV module
- It has high efficiency SMPS charger. It implements a smart maximum peak power tracking (MPPT) algorithm that tracks the peak power point of a solar panel, irrespective of operating conditions.
- Increase life of battery by :
 - Using Battery State of Charge SOC% for controlling depth of discharge. SOC controls are factory adjustable.
 - Normal battery voltage base controls also protect battery along with SOC controls.
 - It runs Periodic Finishing loop for better charging.
- It implements a low battery disconnect feature to prevent the battery from discharging below a certain charge state. Battery Voltage settings are optionally temperature compensated thermistor based temperature sensor supported.
- Suppose two modes of operation for load.
 - Normal On/ Off via switch
 - Auto mode. Use Dusk Dawn monitoring & Load is switched on only during Dusk after a factory programmable delay.
 - Duration of load on is also programmable.
- Maintains Solar Energy Meter for solar energy produced in a day & for last 30 days.

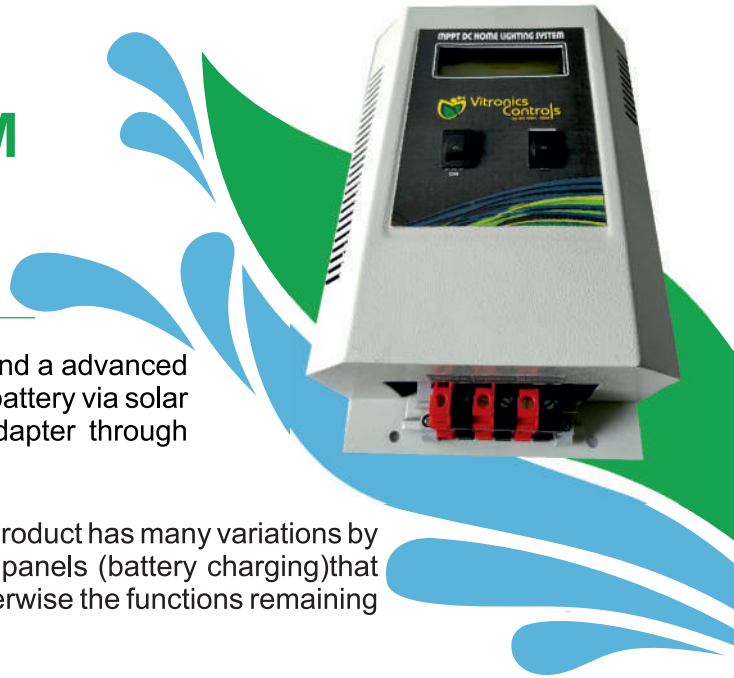
DISPLAY

- It incorporates 2 line LCD to showing following parameters
- Company Name
- Battery Status
- PV Voltage
- PV Current
- KWHD (Kilo watt hour in a day)
- KWH in a month
- Battery Voltage
- Battery Current
- Battery deep charging
- Over Temperature
- Battery / PV reverse protection

SOLAR PRODUCTS

HOME LIGHTING SYSTEM

HLS25ME



PRODUCT INTRODUCTION

- The power box which has a External 12v battery and a advanced MPPT based solar charge controller also charges battery via solar or even by AC power using the included DC adapter through electricity.
- Runs DC load
- There is LCD display showing all parameters This product has many variations by way of battery capacity (stored power) and solar panels (battery charging)that can be used all offering different back up times otherwise the functions remaining the same.

PACKAGE CONTENTS

- Solar Home Lighting With 3 DC Port and 2 USB for Mobile Charger
- 40W to 380 W Panel (Optional)
- 12V 7AH to 12V 100AH Battery (Optional)
- AC Charger (Optional)
- DC Bulb /Tube 7 W-2 No (Optional)
- DC Fan (Optional)
- DC TV (Optional)

PROTECTIONS

- Battery deep discharging
- Battery over charging
- Short Circuit
- Over Temperature
- Battery / PV reverse protection

ELECTRICAL SPECIFICATIONS

Parameter	Value
Panel Voltage	17-45 V
Solar Charging Current	25 AMP
Grid Charging Current (Optional)	4 AMP
Charge Controller Technology	MPPT
Battery Charging Voltage	14.2 V
Battery Low Disconnect	10.2 V
Over Charge Cut-off Voltage	14.2 V
Fuse Rating	30A
Panel recommended	40-380 W
Load	100
Suitable Batteries	Flat plate, Tubular, GEL, AGM, Li Ion chemistries

OTHER SPECIFICATIONS

Operating Temperature	0°C to 55°C
DC Output	4 DC Output For Tube and Fan. 2 USB Port total 100W With Dusk Dawn selectable

FEATURES

- Fuse provided to protect short circuit condition
- System in-built protection against battery over-charge & deep discharge
- In-built blocking diode provided to prevent reverse flow of current through PV module
- It has high efficiency SMPS charger. It implements a smart maximum peak power tracking (MPPT) algorithm that tracks the peak power point of a solar panel, irrespective of operating conditions.
- Increase life of battery by :
 - Using Battery State of Charge SOC% for controlling depth of discharge. Normal battery voltage base controls also protect battery along with SOC controls.
 - It runs Periodic Finishing loop for better charging.
- It implements a low battery disconnect feature to prevent the battery from discharging below a certain charge state. Battery is disconnected on the basis of cell voltage.
- Battery Voltage settings are optionally temperature compensated thermistor based temperature sensor supported.
- Suppose two modes of operation for load.
 - Normal On/ Off via switch Auto mode.
 - Use Dusk Dawn monitoring & Load is switched on only during Dusk after a factory programmable delay.
 - Duration of load on is also programmable.
- Maintains Solar Energy Meter for solar energy produced in a day & for last 30 days.

DISPLAY

- It incorporates 2 line LCD to showing following parameters
- Company Name
- Battery Status
- PV Voltage
- PV Current
- KWHD (Kilo watt hour in a day)
- KWH in a month
- Battery Voltage
- Battery Current

SOLAR PRODUCTS

HOME LIGHTING SYSTEM

HLS20PE



PRODUCT INTRODUCTION

- The power box which has a External 12v battery and a advanced PWM based solar charge controller battery via solar or even by AC power using the included DC adapter through electricity runs DC load
- This product has many variations by way of battery capacity (stored power) and solar panels (battery charging)that can be used all offering different back up times otherwise the functions remaining the same.

PACKAGE CONTENTS

- Solar Home Lighting With 3 DC Port and 2 USB for Mobile Charger
- 20W to 330 W Panel (Optional)
- 12V 7AH to 12V 100AH Battery (Optional)
- AC Charger (Optional)
- DC Bulb /Tube 7 W-2 No (Optional)
- DC Fan (Optional)

SPECIFICATIONS

Parameter	Value
Panel Voltage	UPTO 18V
Solar Charging Current	10 AMP
Grid Charging Current (Optional)	4 AMP
Charge Controller Technology	PWM
Battery Charging Voltage	14.2 V
Battery Low Disconnect	10.5 V
Over Charge Cut-off Voltage	14.2 V
Fuse Rating	10A
Panel recommended	20-160 W
Suitable Batteries	SMF/ Lead Acid

INDICATIONS

- Solar Charging
- Mains Charging
- Battery Low
- Fault

OTHER SPECIFICATIONS

Operating Temperature	0°C to 55°C
DC Output	4 DC Output For Tube and Fan. 2 USB Port total 100W

PROTECTIONS

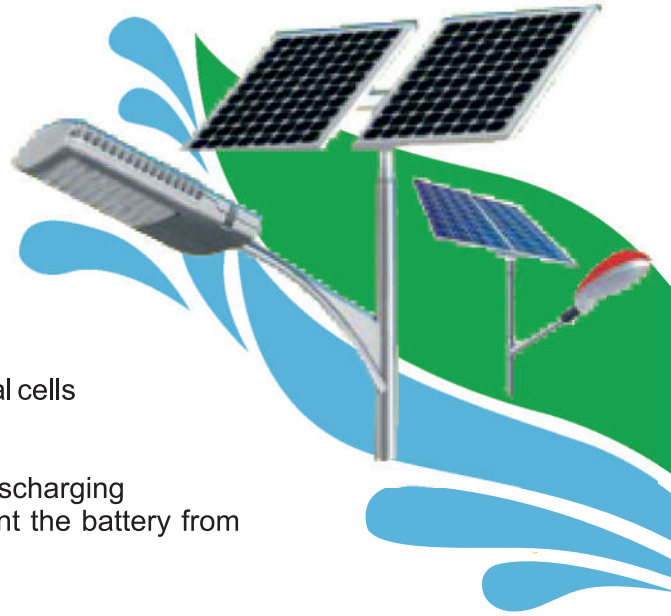
- Short Circuit
- Battery Over Charging
- Battery deep charging
- Battery / PV reverse protection

FEATURES

- Fuse provided to protect short circuit condition System in-built protection against battery over charge & deep discharge
- In-built blocking diode provided to prevent reverse flow of current through PV module

SOLAR PRODUCTS

STREET LIGHT JYOTI



TECHNICAL SILENT FEATURES

- Implemented MPPT based Solar Charger
- High efficiency SMPS Charger
- Optimized Discharging Method to increase battery life
- Periodic Equalization loop for fully charging the Individual cells
- Active Balancing Circuit to balance individual cells
- Inbuilt Monitoring of Individual Cells
- Temperature Compensated Profiles for Charging and Discharging
- Implements a low battery disconnect feature to prevent the battery from discharging below a Certain Charge State
- Dusk to Dawn Operation

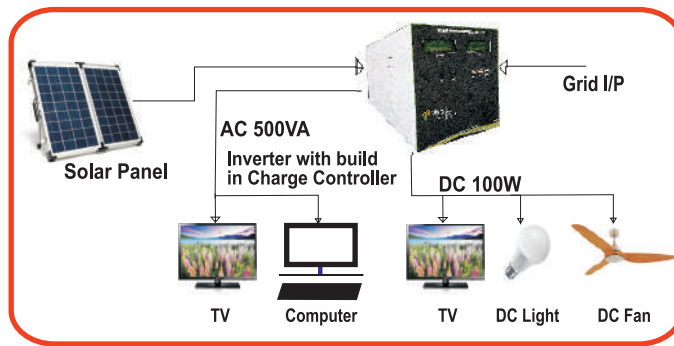
TECHNICAL SPECIFICATIONS

SYSTEM WATTAGE(LED + DRIVER)	9W	12W	15W	20W
System Output	1800 Lumens	2400 Lumens	3000 Lumens	4000 Lumens
LED Level Efficiency	200 Lumens/Watt Osram LED			
LED Life	50,000 Hours			
Driver Efficiency	85%			
Driver Type	DC-DC			
Driver Life	2 years Warranty			
Housing	IP 65 ALUMINIUM DIE-CAST HOUSING, IP66			
Luminaire Arm	Powder Coated			
SOLAR PANEL				
Capacity	30 W	40 W	60 w	75 W
Solar Cells	Polycrystalline Silicon Celss			
Solar Cell Efficiency	13.50%			
Junction Box	IP65, IP66			
Mounting Frame	Powder Coated			
Country Of Manufacturer	India			
Battery And Battery Box				
Capacity	12.8v 10ah LifePo4 Battery	12.8v 14ah LifePo4 Battery	12.8v 18ah LifePo4 Battery	12.8v 24ah LifePo4 Battery
Type	Lithium Ferrous Phosphate Battery			
Permitted Depth Of Discharge	70%			
Battery Backup	12 Hours			
Mounting Position	In Built Box With P.v. Panel Structure			
Battery Box Material & Protection	M.s. Sheet With Powder Coated 1 Mm Thk.			
Charge Controller				
Type	MPPT Based			
Rating	12.8v Nominal, Load 2.1a Max.SMPS For Led Load.			
Efficiency	95%			
Pole(optional)				
Type	MS GALVANIZED POLE/ OCTAGONAL GALVANIZED POLE			
Height	5 Mtrs Above Ground			
Wind Speed Resistance	170 Kmph			
System Requirements				
Duty Cycle	4 Hrs Full And 8 Hrs 50% Dimming			

SOLAR PRODUCTS

PORTABLE GENERATOR ELINA

Elina provides clean, quiet portable power; perfect for the campground yet powerful enough for the job site. Elina delivers stable, pure sine wave AC output, reliable enough to power even the most sensitive electronic equipment. It is an easy to move, all-in-one integrated unit. As a stylish portable smart portable generator, Elina embraces the best of two worlds by powering your indoors and outdoors through the usage of grid and abundant solar power. The solar energy stored provides constant and clean power that makes for adequate and efficient energy availability. LifePO4 battery cells integrated in Solar PCU powers safe homes & proves as an bliss by saving 25% more energy than lead acid battery. With its in-built battery management system & safety mechanism against surge and short circuit protection. The lifecycle of these batteries are up to 10 years followed by no water top-up and zero maintenance.



DISPLAY

- It incorporates 2 line LCD to showing following parameters
- Company Name
- Battery Status
- PV Voltage
- PV Current
- KWHD (Kilowatthourinaday)
- KWH in a month
- Battery Voltage
- Battery Current
- Mains Voltage
- Load

FEATURES

- Fuse provided to protect short circuit condition
- System in-built protection against battery over-charge & deep discharge
- In-built blocking diode provided to prevent reverse flow of current through PV module
- It has high efficiency SMPS charger. It implements a smart maximum peak power tracking (MPPT) algorithm that tracks
- The peak power point of a solar panel, irrespective of operating conditions.
- Increase life of battery by :
Using Battery State of Charge SOC% for controlling depth of discharge.
Normal battery voltage base controls also protect battery along with SOC controls.
It runs Periodic Finishing loop for better charging.
- It implements a low battery disconnect feature to prevent the battery from discharging below a certain charge state.
- Battery is disconnected on the basis of cell voltage.

FEATURES

- Battery Voltage settings are optionally temperature compensated thermistor based temperature sensor supported.
- Support two modes of operation for load.
- Normal On/ Off via switch Auto mode.
- Use Dusk Dawn monitoring & Load is switched on only during Dusk after a factory programmable delay.
- Duration of load on is also programmable.
- Maintains Solar Energy Meter for solar energy produced in a day & for last 30 days.
- Last Fault Display and record.
- Highest charging current 20 A (30 A on request) On Mains
- A patent ALR (Adaptive Loss Reduction) process give more efficient charging system.
- In built SBM (Smart Battery Management) system provides highest degree of battery protection & life.
- 5-stage battery charge control system for lower gassing and faster charging.
- Higher Ruggedness: gives higher degree of protection to the card from Reverse Phase & Battery Loose connections.
- Backup 2.5 Hr for 4 LED Tubes and 2 Fan

PROTECTION

- Battery deep discharging
- Battery over charging
- Short Circuit
- Over Temperature
- Battery / PV reverse protection

OTHER SPECIFICATIONS

Operating Temperature	-35°C to 55°C
DC Output	10 K gms (approx.)

OUTPUT

DC Output	3 Dc Output 20 W For tube and Fan. 2 USB Port
AC Output	230 V 500 VA/

SPECIFICATIONS: SOLAR PORTABLE GENERATOR SYSTEM MPPT 500 VA & 800 VA

Parameter	Value
Rated Voltage	12V(500 VA)/24V(800 VA)
Rated Current	30 AMP
Charge Controller Technology	MPPT
Boost Voltage	14.2V (Factory Settable)
Battery Low Disconnect	10.2V (Factory Settable)
Over Charge Cut-off Voltage	14.2V (Factory Settable)
Fuse Rating	30A
Panel recommended	40-380 W/ 800W
Suitable Batteries	12 V 50 AH LIFEPO4(500VA) 24 V 50 AH LIFEPO4(800VA)

SOLAR PRODUCTS

WALL MOUNTABLE PCU NANLA

Unexpected power cuts and power fluctuations can become regular experiences as it reduces your machine's efficiency, automatically putting you at a tough situation. by Vitronics Controls come as your unwavering power companion and a one stop solution to a stable power backup system. As a stylish wall mounted smart power backup, Nanla embraces the best of two worlds by powering your indoors through the usage of grid and abundant solar power. The solar energy stored provides constant and clean power that makes for adequate and efficient energy availability. LifePO4 battery cells integrated in Solar PCU powers safe homes & proves as a bliss by saving 25% more energy than lead acid battery. With its in-built battery management system & safety mechanism against surge and short circuit protection.

The lifecycle of these batteries are up to 10 years followed by no water top-up and zero maintenance. Welcome to the brighter side of thing! Wall mounted smart power backup Nanla endlessly power flow through the usage of grid and abundant solar power. Absolute brightness for all times is what Solar PCU brings to you.

Bring your unwavering power companion home to experience a power house connectivity.




LifePO4

FEATURES

- Fuse provided to protect short circuit condition
- System in-built protection against battery over-charge & deep discharge
- In-built blocking diode provided to prevent reverse flow of current through PV module
- It has high efficiency SMPS charger. It implements a smart maximum peak power tracking (MPPT) algorithm that tracks the peak power point of a solar panel, irrespective of operating conditions.
- Increase life of battery by : Using Battery State of Charge SOC% for controlling depth of discharge. SOC controls are factory adjustable.
- Normal battery voltage base controls also protect battery along with SOC controls.
- It runs Periodic Finishing loop for better charging.
- It implements a low battery disconnect feature to prevent the battery from discharging below a certain charge state.
- Battery Voltage settings are optionally temperature compensated thermistor based temperature sensor supported.
- Maintains Solar Energy Meter for solar energy produced in a day & for last 30 days.
- Last Fault Display and record.
- Highest charging current 20 amps (30 Amps on request)
- A patent ALR (Adaptive Loss Reduction) process gives more efficient charging system.
- In built SBM (Smart Battery Management) system provides higher degree of battery protection and life.
- 5-stage battery charge control system for lower gassing and faster Charging.
- Higher Ruggedness: gives higher degree of protection to the card from
- REVERSE PHASE and
- BATTERY LOOSE connections.


SOLAR CHARGER SPECIFICATIONS

PARAMETER	NANLA 800VA	NANLA 1500VA
Rated Voltage	12 V	24 V
Rated Current	30 AMP	60 AMP
Charge Controller Technology	MPPT	MPPT
Battery Charging Voltage	13.7 V (Factory Settable)	27.4 V (Factory Settable)
Battery Low Disconnect	9.5 V(Factory Settable)	19 V(Factory Settable)
Over Charge Cut-off Voltage	14.2 V (Factory Settable)	28.4 V (Factory Settable)
Fuse Rating	30 A	30 A
Panel recommended	380 W	800 W
Suitable Batteries	12 V 50 AH LifePO4	24 V 50 AH LifePO4
OTHER SPECIFICATIONS		
Operating Temperature	0°C to 55°C	
Weight	20 K gms (approx.)	30 K gms (approx.)
OUTPUT		
DC Output	3 Dc Output 20 W For tube and Fan. 2 USB Port total 100W	
AC Output	230 V 800 VA	230 V 1500 VA
DISPLAY		
It incorporates 2 line LCD to showing following parameters		
<ul style="list-style-type: none"> • Company Name • Battery Status • PV Voltage • PV Current • KWHD (Kilo watt hour in a day) • KWH in a month • Battery Voltage • Battery Current 		
PROTECTION		
<ul style="list-style-type: none"> • Battery deep discharging • Battery over charging • Short Circuit • Over Temperature • Battery / PV reverse protection 		


IS DESIGNED AESTHETICALLY TO SUIT YOUR MODERN SENSIBILITIES



Zero Maintenance
No water top up or maintenance required



3x life
LifePO4 batteries with extra long life



3x charging speed
Gets fully charge within 2-4 hours




upto 15% more efficient
High efficiency cells that save energy


IS DESIGNED AESTHETICALLY TO SUIT YOUR MODERN SENSIBILITIES



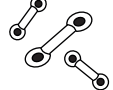
Child safe
No open wires and terminals, eliminates risk of accidental contact with electrical points




Safe for Appliances
Your appliances will love the pure sinewave output of Nanla which gives them longer life



Safe for Environment
Nanla uses LifePO4 battery technology which is safe for environment



Surge & short circuit protection
Nanla protects your appliances by blocking voltage surges and short circuits through its in-built safety mechanisms



UPS Mode
UPS mode to power your more voltage sensitive devices such as desktop PCs

SOLAR PRODUCTS

IPS SOL SOLANA

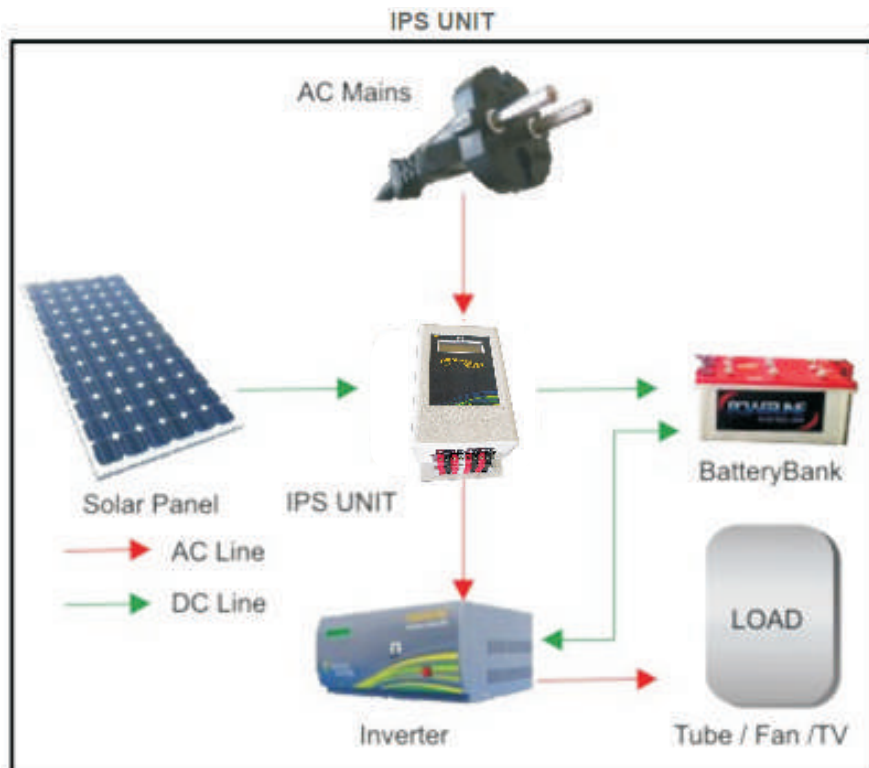
The Intelligent Power Selector (IPS) converts any conventional Inverter into a Solar Inverter. With IPS Product Series we are targeting large customer base of existing installed home UPS & Inverters to convert them to Solar Inverter. Our IPS solution will assist in reducing electricity bills & ensure a dependable back up system, contribute proudly to clean environment. The product can be customized for many other applications beyond the Inverter. It is also a self-sufficient solar DC power system. By adding IPS to your normal inverter, you will get all the features of our smart solar inverter in your converted inverter system which can be used in home and street lighting applications.



It provides the facility to charge the battery bank either through Solar or Grid (Priority will be to Solar). The IPS continuously monitors the state of Battery Voltage, Solar Power output and the loads. When the Batteries are charged above a preset level, the Grid power supply to the IPS automatically cuts off from the system, in the presence of solar. The IPS is designed to give priority to solar power first and use

Grid power only when the Solar power / Battery charge is insufficient to meet the load requirement. It switches to Grid charging automatically. Due to sustained usage of power, when the Battery Voltage falls below a preset level, the IPS transfers the load automatically to the Grid power and also charges the Batteries through the Inverter in-built Solar / Grid Charger.

Convert your existing conventional Inverter/UPS in to Solar Power Conditioning Unit with the help of "Vitronics controls" IPS



THE SALIENT FEATURES INCLUDE:

- Maximization of Solar Energy Harvest
- Higher Power Conversion Efficiency
- Universal Inverter / UPS compatibility
- Affordable Roof top solar system solutions
- Lower Electricity Bills
- Dependable back up system
- Integrated high efficiency solar charge controllers

FEATURES

- Display as well as LED to indicators to observe the working status, Solar Power generation (in watts), operations modes etc.
- Effective Power Management.
- Two Ways of Power Selection
 - a) Automatic Power Selection (Mains or Solar)
 - b) Manual Power Selection (For Mains Power)

THE INTELLIGENT POWER SELECTOR MODELS:

PRODUCT	Battery Voltage (v)	Solar Charging Current (I)	Max Voc Per Pv Input (v)	Max Input Wp Per Input (wp)	Suitable for Inverter	Inverter Operating Voltage
SOL IPS1220	12.00	20.00	30.00	300	400,600,800va, 1Kva	12v D.C
SOL IPS1240	12.00	40.00	30.00	600	As above	12 v D.C
SOL IPS2420	24.00	20.00	50.00	500	1.5, 2 Kva	24 v D.C
SOL IPS2440	24.00	40.00	50.00	1000	As above	24 v D.C
SOL IPS3620	36.00	20.00	70.00	800	2.5,3,3.5 Kva	36 v D.C
SOLANA IPS3640	36.00	40.00	70.00	1000.00	As above	36 v D.C
SOLANA IPS4820	48.00	20.00	100.00	1000.00	2,2.5,3.5 Kva	48 v D.C
SOLANA IPS4840	48.00	40.00	100.00	2000.00	As above	48 v D.C
SOLANA IPS4860	48.00	60.00	110.00	3000.00	3.5 Kva	48 v D.C
SOLANA IPS9620	96.00	20.00	200.00	2000.00	3 Kva &	96 v D.C
SOLANA IPS9640	96.00	40.00	200.00	4000.00	Above system,	96 v D.C
SOLANA IPS12040	120.00	40.00	230.00	5000.00	On line UPS/INV	120 v D.C
SOLANA IPS12060	120.00	60.00	230.00	7000.00	On line UPS/INV	120 v D.C
SOLANA IPS14440	144.00	40.00	300.00	6000.00	On line UPS/INV	144 v D.C
SOLANA IPS14460	144.00	60.00	300.00	9000.00	On line UPS/INV	144 v D.C
SOLANA IPS18040	180.00	40.00	360.00	7000.00	On line UPS/INV	180 v D.C
SOLANA IPS18060	180.00	60.00	360.00	11000.00	On line UPS/INV	180 v D.C

Above models are available with MPPT Charge Controller also.

SOLAR PRODUCTS

MPPT IPS CYRA

High efficiency, high reliability MPPT IPS provides solar capability to the existing inverters. During solar availability the system disconnects the mains supply to the inverter which in turn puts the load on batteries; simultaneously the IPS starts to charge the batteries, thus saving electricity.

When the batteries reach 50%DOD, the IPS reconnects the mains supply, transferring the load to the mains and the inverter along with SMU, starts charging the batteries again.

The mains disconnect and reconnect points are settable as per user requirement.



- Tracks the maximum power point for solar Energy utilization. The Solar energy is transferred by an SMPS converter & is tuned to get Max possible power transferred to the battery.
- Auto detects the inverters running on 12 V or 24 v batteries and adjusts the current from the solar panels accordingly.
- SBM (Smart Battery Management) system provides higher degree of battery protection and life.
- A five stage battery charger for lower gassing and faster Charging. Assures improved battery life.
- It incorporates 2 line LCD to show the following parameters
 - (a) Company Name (b) Battery Status (c) PV Voltage (d) PV Current (e) KWHD (Kilo watt hour in a day) (f) KWH in a month
 - (g) Battery Voltage (h) Battery Current
 - (i) Mains status (Whether the SMU has disconnected the mains supply and running the inverter on battery mode and battery charging is supported by solar panels.
- Smart SMU, the system can be interfaced to a smart inverter to maximize the solar energy utilization.

TECHNICAL SPECIFICATIONS: Models available : 12 V - 48 V 40 A/ 60 A .

MODEL	VS 12/24, 30 A	24 V 50 A	48 V 30 A
Max PV	Up to 400 watt for 12 V and 800 Watts for 24 V	Upto 1600 W	Upto 1600 W
Max Voc	45 V	45 V	100 V
Protections	Over charge, SPV revers, Over Temperature.		
Suitable	Flat plate, Tubular		
Batteries	GEL, AGM, Li Ion chemistries, Factory settable		
Battery Voltage selection Mode	Auto Detect	Fixed	
Mains disconnect Voltage	Factory settable		
Mains reconnect Voltage	Factory settable		
Max charging current Limit	Factory settable		
Efficiency	Max efficiency is 95%, Varies as per the solar output voltage		

SOLAR PRODUCTS

MPPT IPS BHASKARA

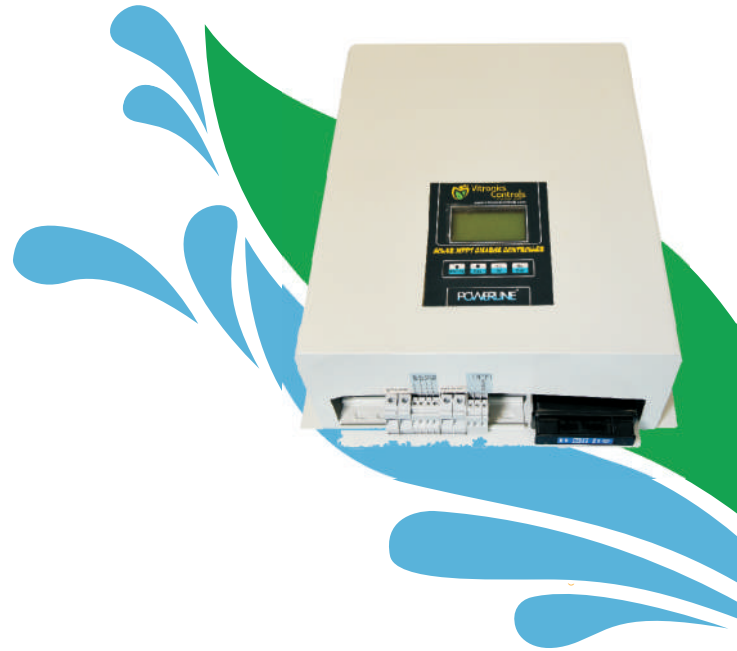
Convert your existing Inverter, On line UPS, Lift Inverter into Solar Inverter using Bhaskara MPPT IPS

What is MPPT:

MPPT or Maximum Power Point Tracking is an algorithm included in this system which used for extracting maximum available power from solar panels under certain conditions. The voltage at which solar panels can produce maximum power is called 'maximum power point' (or peak power voltage). Maximum power varies with solar radiation, ambient temperature and solar cell temperature

How MPPT Works:

The major principle of MPPT is to extract the maximum available power from solar panel by making them to operate at the most efficient voltage (maximum power point). That is to say: MPPT checks



output of solar panels, compares it to battery voltage then fixes what is the best power that panels can produce to charge the battery and converts it to the best voltage to get maximum current into battery

TECHNICAL SPECIFICATIONS: Models available : 12 V – 360 V 40 A/ 60 A .

MODEL	VCMP 12V 40A	VCMP 12V 40A	VCMP 24V 60A	VCMP 48V 40A	VCMP 48V 60A	VCMP 72V 40A
Max Panel Wattage Wp	600W	1000W	1500W	2000W	3000W	3000W
Max Panel PV for MPPT	50V	100V	100V	160V	160V	250V
Solar I/P Voltage Range for MPPT	20-50V DC	30-100V DC	30-100V DC	60-160V DC	60-160V DC	90-100V DC
MPPT Range	15-40V	30-90V	30-90V	15-40V	50-60V	80-220V
OUTPUT SPECIFICATIONS						
Battery Voltage	12V	24V	24V	48V	48V	72V
Max Charging Voltage	14.2V	28.4V	28.4V	57V	57V	87V
Max Charging Current	40A	40A	60A	40A	60A	40V
PROTECTION						
Lightning (MOV)	YES	YES	YES	YES	YES	YES
Panel Reverse Polarity	YES	YES	YES	YES	YES	YES
Battery Reverse Polarity (by fuse)	YES	YES	YES	YES	YES	YES
Short Circuit	YES	YES	YES	YES	YES	YES
Over Load	YES	YES	YES	YES	YES	YES
COOLING SYSTEM	YES	YES	YES	YES	YES	YES

TECHNICAL SPECIFICATIONS: Models available : 12 V – 360 V 40 A/ 60 A .

MODEL	VCMP 12V 40A	VCMP 12V 40A	VCMP 24V 60A	VCMP 48V 40A	VCMP 48V 60A	VCMP 72V 40A
INDICATIONS on LCD Display						
Solar Voltage	YES	YES	YES	YES	YES	YES
Battery Voltage	YES	YES	YES	YES	YES	YES
Solar Current	YES	YES	YES	YES	YES	YES
Generation Of Solar Energy(watts)	YES	YES	YES	YES	YES	YES
ENCLOSURE TYPE	IP20					
Operating Temperature	0-50C					

TECHNICAL SPECIFICATIONS

MODEL	VCMP 96V 40A	VCMP 120V 40A	VCMP 180V 40A	VCMP 2408V 40A
Max Panel Wattage Wp	4000W	5000W	8000W	10000W
Max Panel PV for MPPT	250V	250V	350V	450V
Solar I/P Voltage Range for MPPT	120-250V DC	140-250V DC	210-350V DC	260-425V DC
MPPT Range	100-220V	120-220V	200-330V	240-400V
OUTPUT SPECIFICATIONS				
Battery Voltage	96V	120V	180V	240V
Max Charging Voltage	115V	145V	218V	290V
Max Charging Current	40A	40A	60A	40A
PROTECTION				
Lightning (MOV)	YES	YES	YES	YES
Panel Reverse Polarity	YES	YES	YES	YES
Battery Reverse Polarity (by fuse)	YES	YES	YES	YES
Short Circuit	YES	YES	YES	YES
Over Load	YES	YES	YES	YES
COOLING SYSTEM	YES	YES	YES	YES
INDICATIONS on LCD Display				
Solar Voltage	YES	YES	YES	YES
Battery Voltage	YES	YES	YES	YES
Solar Current	YES	YES	YES	YES
Generation Of Solar Energy(watts)	YES	YES	YES	YES
ENCLOSURE TYPE	IP20			
Operating Temperature	0-50C			

SOLAR PRODUCTS

SOLAR PCU MITRA

- DSP Based
- 5 Stage Battery Charging
- Highlight Ruggedness
- A Patent ALR Technology For Efficient Charging
- Inbuild SBM Smart Battery Management

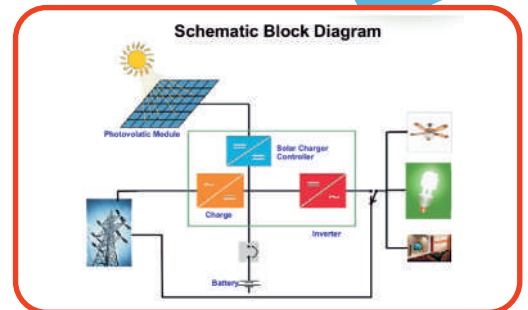
Solar Hybrid Inverter (Power Conditioning Unit)

A solar Hybrid Inverter (PCU) can benefit the home in a variety of ways. Depending on the size, it can allow an establishment to remain unaffected in the event of power failure. It can also be used to simply cut the costs of daily energy use. Ideal for usage in homes, shoppes, Hospitals, Banks, schools etc.

The Power Conditioning unit, ensures maximum utilization of solar by prioritizing the control process. The panels usually bigger in size charges the battery enough to take care of not only backup during power failure; but also the entire load during night. The inverter automatically disconnects the EB/Mains power supply and the inverter supplies the entire power to the load, saving electricity.

FEATURES

- DSP based; less components, small size less electricity bill more efficiency.
- Soft Start features; protects appliances at start up.
- Last Fault Display and record : the system records the last fault and you can analyze it.
- Adaptive loss reduction process gives more efficient charging system.
- 5 stag battery charge control system for lower gassing and faster Charging
- In built SBM (Smart Battery Management) system to provide higher degree battery production & life
- Battery usage data is recorded for better evaluation of battery.
- Supply the highest quality pure sine wave power; protects your expensive household appliance & sensitive office equipments.
- Musical Alarm
- Highly cost effective design with special features to safeguard the mosfets to poor electrical quantity.
- Over load and D.C. low protection
- Software controlled Auto self testing
- Fully computer friendly UPS operation.
- Intelligent Auto sense; continuously monitors health of system.
- AC input low & high voltage cut off protections in both, inverter & U.P.S.modes.
- Silent operation of fans, tube light or appliances.
- Quick Change over from Mains to inverter mode.
- Software controlled Auto reset feature for over load, Short ckt & low battery.
- Very low no load current for prolonged battery operation under standby.
- Cooling fan improves reliability of system.



TECHNICAL SPECIFICATIONS

MODEL	400VA/600VA/800VA/12V	1000VA/1600VA/2500VA/24V	3500VA/5000VA/48V
Input Voltage (UPS)	180-260V		
Input Voltage (INV)	130-280V		
Output Voltage on mains mode	Same as input		
Output Frequency on inverter mode	50Hz ±0.1Hz		
Display			
A.C Output Voltage of inverter, Mains Voltage input of inverter, Mains Frequency of the inverter, Inverter Load %, Battery Current Battery Level in %, Battery Status, Inverter Status, Inverter Error (if any), Solar Voltage, Solar Current, Solar watts, Solar KWH, Solar Voltage, Days in service, Solar Status & mode of operation			
Bill reducing protocol	Available		
Output Waveform on mains mode	Same as input		
Output Waveform on inverter mode	PURE SINE WAVE		
Overload	110%		
Overload delay	0-20sec	Settable for handling motor loads	
Overload restart	5 times	Auto restart on over load	
Charging current	5amp till 20amps		
Charging process	5 stage charging process		
Data logged	Battery usage	Number of time battery discharged till warning and number times battery charged	
	Last Fault record.	Last Fault record.	
Mode control	Fast / slow	For computer applications selectfast mode In fast mode transfer is within 4milli sec.	
Inverter Protection			
Unique protection scheme have been incorporated to enhance reliability.			
Reverse Phase	In the event of phase voltage wrongly connected to the inverter output safe shut down will occur		
Overload	In the event of overload system will shut down and restart 5 times		
Short Circuit	A short circuit on the output will be detected separately and lead to lock down.		
Over temperature	Excessive temperature rise due to poor cooling or fan failure will		
Under charged battery	cause shut down		
Battery loose	Sparking or spikes on the dc bus will cause safe shut down and lock down.		
Battery deep discharge	Soft current build up in case of deep discharge battery		
Battery bad	In event a cell is dead or shorted a time out circuit will prevent prolonged charging.		
Auto reset features	Yes	Yes	
Solar Charger Protection			
Solar panel Reversal			
Solar panel shorted			
Solar switch Bad			
Inverter comm. failure			
Alarm	6 Separate alarms		
DC high / battery loose			
Phase reverse or short			
Hot or fuse fail			
Overload / Output low			
Battery low or bad, Battery			
Water reminder			
Solar Charger Specificaton			
PV Panel Input Voltage	15-25 V	27-45 V	60-100 V
PV Panels Max	300/500/500 W	1000/1500/1600 W	2000/3000 W
Output Voltage	12V	24V	48V

SOLAR PRODUCTS

SOLAR PCU BHANU

- DSP Based
- 5 Stage Battery Charging
- Highlight Ruggedness
- APatent ALR Technology For Efficient Charging
- Inbuild SBM Smart Battery Management
- True MPPT Solar Charger

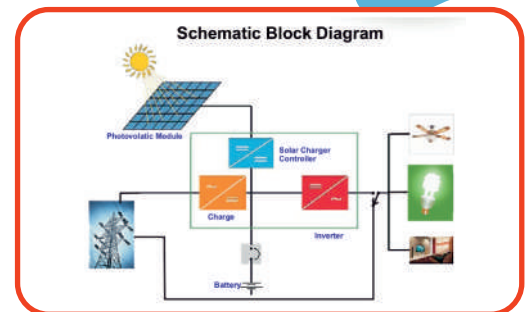
Solar Hybrid Inverter (Power Conditioning Unit)

A solar Hybrid Inverter (PCU) can benefit the home in a variety of ways. Depending on the size, it can allow an establishment to remain unaffected in the event of power failure. It can also be used to simply cut the costs of daily energy use. Ideal for usage in homes, shoppes, Hospitals, Banks, schools etc.

The Power Conditioning unit, ensures maximum utilization of solar by prioritizing the control process. The panels usually bigger in size charges the battery enough to take care of not only backup during power failure; but also the entire load during night. The inverter automatically disconnects the EB/Mains power supply and the inverter supplies the entire power to the load, saving electricity.

FEATURES

- DSP based; less components, small size less electricity bill more efficiency.
- Soft Start features; protects appliances at start up.
- Last Fault Display and record : the system records the last fault and you can analyze it.
- Adaptive loss reduction process gives more efficient charging system.
- 5 stag battery charge control system for lower gassing and faster Charging
- In built SBM (Smart Battery Management) system to provide higher degree battery production & life
- Battery usage data is recorded for better evaluation of battery.
- Supply the highest quality pure sine wave power; protects your expensive household appliance & sensitive office equipments.
- Musical Alarm
- Highly cost effective design with special features to safeguard the mosfets to poor electrical quantity.
- Over load and D.C. low protection
- Software controlled Auto self testing
- Fully computer friendly UPS operation.
- Intelligent Auto sense; continuously monitors health of system.
- AC input low & high voltage cut off protections in both, inverter & U.P.S.modes.
- Silent operation of fans, tube light or appliances.
- Quick Change over from Mains to inverter mode.
- Software controlled Auto reset feature for over load, Short ckt & low battery.
- Very low no load current for prolonged battery operation under standby.
- Cooling fan improves reliability of system.



TECHNICAL SPECIFICATIONS

MODEL	800VA30/800VA60	1000VA/1600VA30/1600VA50 /2500VA50	2000VA30/2500VA30/3500VA30/3500VA60/5000VA60
Input Voltage (UPS)	180-260V		
Input Voltage (INV)	130-280V		
Output Voltage on mains mode	Same as input		
Output Frequency on inverter mode	50Hz ±0.1Hz		
Display			
A.C Output Voltage of inverter, Mains Voltage input of inverter, Mains Frequency of the inverter, Inverter Load %, Battery Current Battery Level in %, Battery Status, Inverter Status, Inverter Error (if any), Solar Voltage, Solar Current, Solar watts, Solar KWH, Solar Voltage, Days in service, Solar Status & mode of operation			
Bill reducing protocol	Available		
Output Waveform on mains mode	Same as input		
Output Waveform on inverter mode	PURE SINE WAVE		
Overload	110%		
Overload delay	0-20sec	Settable for handling motor loads	
Overload restart	5 times	Auto restart on over load	
Charging current	5amp till 20amps		
Charging process	5 stage charging process		
Data logged	Battery usage	Number of time battery discharged till warning and number times battery charged	
		Last Fault record.	
Mode control	Fast / slow UPS/Inverter	For computer applications selectfast mode In fast mode transfer is within 4milli sec.	
Inverter Protection			
Unique protection scheme have been incorporated to enhance reliability.			
Reverse Phase	In the event of phase voltage wrongly connected to the inverter output safe shut down will occur		
Overload	In the event of overload system will shut down and restart 5 times		
Short Circuit	A short circuit on the output will be detected separately and lead to lock down.		
Over temperature	Excessive temperature rise due to poor cooling or fan failure will		
Under charged battery	cause shut down		
Battery loose	Sparking or spikes on the dc bus will cause safe shut down and lock down.		
Battery deep discharge	Soft current build up in case of deep discharge battery		
Battery bad	In event a cell is dead or shorted a time out circuit will prevent prolonged charging.		
Auto reset features	Yes		
(Solar Charger) Protection			
Solar panel Reversed			
Solar panel shorted			
Solar switch Bad			
Inverter comm. failure			
Alarm	6 Separate audio tones		
DC high / battery loose			
Phase reverse or short			
Hot or fuse fail			
Overload / Output low			
Battery low or bad, Battery			
Water reminder			
MPPT CHARGER SPECIFICATON			
PV Panel Input Voltage	17-50 V	30-45V	70-120V
Output Voltage	12 V	24 V	48 V
Max Solar Charging Current	30 Amp	30/30/50/60 Amp	30/30/30/60/60 Amp
Battery Full Charge Cutoff Settable as per SMF/ Lead Acid/LIFEPO4(Configurable)	13/14.2 VDC	26/28.4 VDC	53.2/56.8 VDC
Max Pv Panel Connected	400/800 W	800/800/1500/2000 W	1600/1600/1600/3000/3000 W

SOLAR PRODUCTS

SOLAR PCU AARUSH

- DSP Based
- 5 Stage Battery Charging
- Highlight Ruggedness
- A Patent ALR Technology For Efficient Charging
- Inbuild SBM Smart Battery Management

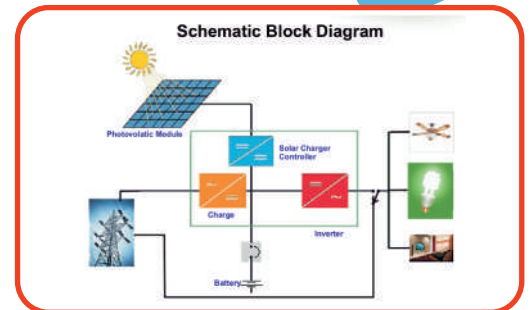
Solar Hybrid Inverter (Power Conditioning Unit)

A solar Hybrid Inverter (PCU) can benefit the home in a variety of ways. Depending on the size, it can allow an establishment to remain unaffected in the event of power failure. It can also be used to simply cut the costs of daily energy use. Ideal for usage in homes, shoppes, Hospitals, Banks, schools etc.

The Power Conditioning unit, ensures maximum utilization of solar by prioritizing the control process. The panels usually bigger in size charges the battery enough to take care of not only backup during power failure; but also the entire load during night. The inverter automatically disconnects the EB/Mains power supply and the inverter supplies the entire power to the load, saving electricity.

FEATURES

- DSP based; less components, small size less electricity bill more efficiency.
- Soft Start features; protects appliances at start up.
- Last Fault Display and record : the system records the last fault and you can analyze it.
- Adaptive loss reduction process gives more efficient charging system.
- 5 stag battery charge control system for lower gassing and faster Charging
- In built SBM (Smart Battery Management) system to provide higher degree battery production & life
- Battery usage data is recorded for better evaluation of battery.
- Supply the highest quality pure sine wave power; protects your expensive household appliance & sensitive office equipments.
- Musical Alarm
- Highly cost effective design with special features to safeguard the mosfets to poor electrical quantity.
- Over load and D.C. low protection
- Software controlled Auto self testing
- Fully computer friendly UPS operation.
- Intelligent Auto sense; continuously monitors health of system.
- AC input low & high voltage cut off protections in both, inverter & U.P.S.modes.
- Silent operation of fans, tube light or appliances.
- Quick Change over from Mains to inverter mode.
- Software controlled Auto reset feature for over load, Short ckt & low battery.
- Very low no load current for prolonged battery operation under standby.
- Cooling fan improves reliability of system.



TECHNICAL SPECIFICATIONS

MODEL	1100VA/1600VA/2500VA/24V	1100VA/1600VA/48V	2000VA/2500VA/3500VA/ 5000VA/48V
Input Voltage (UPS)	180-260V	180-260V	180-260V
Input Voltage (INV)	130-280V	130-280V	130-280V
Output Voltage on mains mode	Same as input	Same as input	Same as input
Output Frequency on inverter mode	50Hz ±0.1Hz	50Hz ±0.1Hz	50Hz ±0.1Hz
Display			
A.C Output Voltage of inverter, Mains Voltage input of inverter, Mains Frequency of the inverter, Inverter Load %, Battery Current			
Battery Level in %, Battery Status, Inverter Status, Inverter Error (if any), Solar Voltage, Solar Current, Solar watts, Solar KWH			
Solar Voltage, Days in service, Solar Status & mode of operation			
Bill reducing protocol	Available	Available	Available
Output Waveform on mains mode	Same as input	Same as input	Same as input
Output Waveform on inverter mode	PURE SINE WAVE	PURE SINE WAVE	PURE SINE WAVE
Overload	110%		
Overload delay	0-20sec	Settable for handling motor loads	
Overload restart	5 times	Auto restart on over load	
Charging current	5amp till 20amps		
Charging process	5 stage charging process		
Data logged	Battery usage	Number of time battery discharged till warning and number times battery charged	
	Last Fault record.	Last Fault record.	
Mode control	Fast / slow	For computer applications select fast mode In fast mode transfer is within 4milli sec.	
Inverter Protection			
Unique protection scheme have been incorporated to enhance reliability.			
Reverse Phase	In the event of phase voltage wrongly connected to the inverter output safe shut down will occur		
Overload	In the event of overload system will shut down and restart 5 times		
Short Circuit	A short circuit on the output will be detected separately and lead to lock down.		
Over temperature	Excessive temperature rise due to poor cooling or fan failure will		
Under charged battery	cause shut down		
Battery loose	Sparking or spikes on the dc bus will cause safe shut down and lock down.		
Battery deep discharge	Soft current build up in case of deep discharge battery		
Battery bad	In event a cell is dead or shorted a time out circuit will prevent prolonged charging.		
Auto reset features	Yes	Yes	Yes
(Solar Charger) Protection			
Solar panel Reversed			
Solar panel shorted			
Solar switch Bad			
Inverter comm. failure			
Alarm			
6 Separate audio tones			
DC high / battery loose			
Phase reverse or short			
Hot or fuse fail			
Overload / Output low			
Battery low or bad, Battery			
Water reminder			
MPPT CHARGER SPECIFICATONS			
PV Panel Input Voltage	30-80 V	75-150V	75-150V
Output Voltage	24	48	48
Max Solar Charging Current	40 AMP	40 AMP	40 AMP
Battery Full Charge Cutoff Settable as per SMF/ Lead Acid/LIFEPO4(Configurable)	26/28.4 VDC	53.2/56.8 VDC	53.2/56.8 VDC
Max Pv Panel Connected	1000/1500/1600 W	1000/1500/1600 W	2000/2000/3000 W

SOLAR PRODUCTS

SOLAR PCU AARUSH +

- DSP Based
- Highly Ruggedness
- User settable all parameters
- Inbuild MPPT

Solar Hybrid Inverter (Power Conditioning Unit)

A solar Hybrid Inverter (PCU) can benefit the home in a variety of ways. Depending on the size, it can allow an establishment to remain unaffected in the event of power failure. It can also be used to simply cut the costs of daily energy use. Ideal for usage in homes, shoppes, Hospitals, Banks, schools etc.

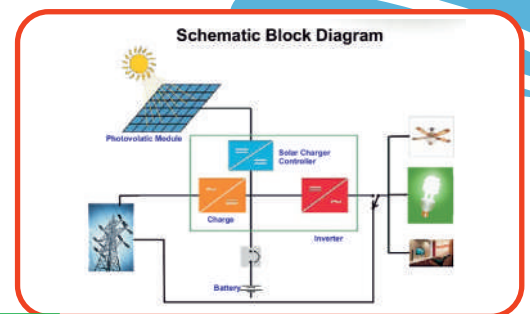
The Power Conditioning unit, ensures maximum utilization of solar by prioritizing the control process. The panels usually bigger in size charges the battery enough to take care of not only backup during power failure; but also the entire load during night. The inverter automatically disconnects the EB/Mains power supply and the inverter supplies the entire power to the load, saving electricity.

Working of Solar Hybrid Offline Inverter

- When Solar energy is sufficient then total o/p load will operate on solar through MPPT & Inverter Excess solar power will charge batteries.
- When solar energy is weak then inverter is taking DC source from solar & balance from batteries. When batteries reach TO SET discharge level (50%% kept as a buffer as default) the o/p load is shifted to grid and change over time will be 1 to 2 seconds.
- After shifting load to grid (bypass) the batteries are charged from solar energy and if solar energy not sufficient to charge the batteries, then remaining DC power is taken from grid chargers. if grid charger is on.
- Once the batteries are fully charged from solar to set level and solar is present then load is shifted back to inverter from grid.
- If grid supply is not present then again load is shifted to inverter to use buffer battery backup. When grid returns during inverter which is working on buffer battery backup then the load is shifted to grid & batteries are charging through solar or grid

FEATURES

- DSP based; less components, small size less electricity bill more efficiency.
- Soft Start features; protects appliances at start up.
- Last Fault Display and record : the system records the last fault and you can analyze it.
- Adaptive loss reduction process gives more efficient charging system.
- 5 stag battery charge control system for lower gassing and faster Charging
- In built SBM (Smart Battery Management) system to provide higher degree battery production & life
- Battery usage data is recorded for better evaluation of battery.
- Supply the highest quality pure sine wave power; protects your expensive household appliance & sensitive office equipments.
- Musical Alarm
- Highly cost effective design with special features to safeguard the mosfets to poor electrical quantity.
- Over load and D.C. low protection
- Software controlled Auto self testing
- Fully computer friendly UPS operation.



FEATURES

- Intelligent Auto sense; continuously monitors health of system.
- AC input low & high voltage cut off protections in both, inverter & U.P.S.modes.
- Silent operation of fans, tube light or appliances.
- Quick Change over from Mains to inverter mode.
- Software controlled Auto reset feature for over load, Short ckt & low battery.
- Very low no load current for prolonged battery operation under standby.
- Cooling fan improves reliability of system.

TECHNICAL SPECIFICATIONS

MODEL	5.5KVA-8KVA		10KVA-12.5KVA		15KVA-30KVA		50KVA-100KVA
Rating	5.5KVA-8KVA		10KVA-12.5KVA		15KVA-30KVA		50KVA-100KVA
DC Voltage	96V/120V		120V/192V		192V/360V		360V
Solar Voltage Range	120V-180V	144V-200V	144V-200V	240V-350V	240V-350V	400V-500V	400V-500V
Charge Controller	MPPT based Charge Controller.						
MPPT Rating	KVA = kW (Customized as per requirement)						
Grid charger Rating	10 A						
Grid Input	Single Phase/Three Phase						
Grid Voltage Range	180V-270V or 360V - 470V						
Type of Inverter	IGBT based PWM Inverter						
O/P Waveform	Pure Sinewave						
O/P Power Capacity	1kVA-100kVA (@ Output PF 0.8)						
O/P Voltage	230 = 2% (1-phase), 415 = 2% (3-Phase)						
Frequency	50Hz						
T.H.D	<3% on Linear Load, <5% on Nonlinear Load						
O/P P.F	0.8 lagging to Unity						
Inverter Efficiency	>90%						
Overload Capacity	100%-120% for 30sec, 125%-150% for 0 sec						
Change Over Time	2 sec						
Duty Cycle	Continuous						
Operating Mode	Hybrid Offline						
Noise	50dB at 1m distance						
Operating Temperature	0-50 Deg. Celsius						
Storage Temperature	-10 Deg. Celsius to 55 Deg. Celsius						
Humidity	95% (Non Condensing)						
Altitude	<1000m above sea level						
Enclosure Protection	IP20 or IP21						
Cooling	Forced Air Cooling						
Color	Grey + White						
Cable Entry	Bottom Rear Side						
Dimensions	470mm(L) X 710(W) X 650mm(H)-5kVA, 600mm X 1000mm X 950mm - 10kVA-30kVA , 850mm X 1420mm X 1200mm - 50kVA-150kVA						
Weight	85kg (5kVA), 128kg - 300kg (10kW-30kVA) , 460kg - 570kg (50kVA-100kVA)						
Metering	Solar Voltage Solar Current Solar Power		O/P Voltage O/P Current		Grid Voltage Grid Current		Battery Voltage Battery Status Frequency
Faults Display	O/P Under O/P Over		DC Under DC Over		O/P Overload Over Temperature* Short Circuit		
Protections	MCB at Grid MCB/FUSE at Array Fuse at Battery		Battery Reverse Polarity* Array Reverse Polarity*		AC Over AC Under DC Over DC Under		Over Temperature* Overload Short Circuit
	Above Protections with Alarm						
Pre Alarm	Overload & Battery Low						

SOLAR PRODUCTS

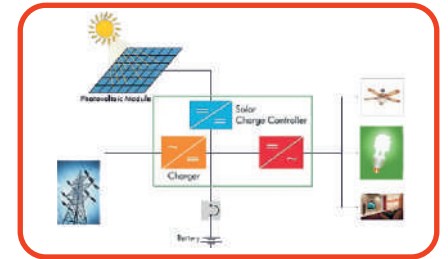
SOLAR PCU HELIX

- DSP Based
- High Ruggedness
- User Settable all Parameters
- Inbuild MPPT 30% more power
- Remote Monitoring (Optional)



GRID SHARING SOLAR PCU

- Excellent load sharing between solar and grid
- Ensures 100% utilization of solar power by using highly efficient built-in MPPT Converter
- Rugged Industrial grade IGBT inverter with complete galvanic isolation, ensures high quality power delivery.
- High efficiency battery charger ensures extended battery life by providing temperature compensation and Float cum Boost charging.



WORKING OF GRID SHARING SOLAR PCU

[A] PRIORITY: SOLAR - > GRID - > BATTERY

- **When solar energy is sufficient** then total o/p load. will operate on solar through MPPT & Inverter. Excess solar power will charge batteries.
- **When solar energy is weak** then inverter is taking DC source from solar & balance from grid.
- When solar energy is absent then the entire load is working on grid via grid charger
- When grid is absent then the load will be shifted onto batteries and moment the grid energy resumes load will be shifted back to grid. During this sequence any discharge of batteries will be refurbished via grid & available solar.
- All the operational logic will work with a zero transfer time for sensitive loads

[B] PRIORITY: SOLAR - > BATTERY - > GRID

- **When solar energy is sufficient** then total o/p load will operate on solar through MPPT & Inverter. Excess solar power will charge batteries.
- **When solar energy is weak** then inverter is taking DC source from solar & balance from batteries.
- When batteries reach to set discharge level (50% kept as a buffer) the o/p load is shifted to grid without any change over time.
- After shifting load to grid the batteries are charged from solar energy and if solar energy not sufficient to charge the batteries, then remaining DC power is taken from grid charger. Once the batteries are fully charged to set level then load is shifted back onto battery backup from grid.
- During changeover of load from battery backup to grid supply (i.e battery discharged upto set level) and if grid supply is absent then load is shifted to inverter to use buffer battery backup(i.e balance %)
- When grid returns during which inverter is working on buffer battery backup then the load is shifted to grid & batteries are charging through solar or grid as per logic explained above.

FEATURES

- DSP based; less components, small size less electricity bill more efficiency
- Soft Start features; protects appliances at start up.
- Supply the highest quality pure sine wave power; protects your expensive equipments.
- Over load and D.C. low protection
- Software controlled Auto self testing
- Fully computer friendly UPS operation.
- Intelligent Auto sense; continuously monitors health of system.
- AC input low & high voltage cut off protections in both, inverter & U.P.S.modes.
- ZERO Change over from Mains to inverter mode.
- Software controlled Auto reset feature for over load, Short ckt & low battery.
- Very low no load current for prolonged battery operation under standby.
- Cooling fan improves reliability of system.
- Excellent load sharing between Solar and Grid
- Ensures 100% utilization of Solar power by using highly efficient built-in MPPT Converter.
- Rugged Industrial grade IGBT inverter with complete galvanic isolation, ensures high quality power delivery.
- The GSS UPS is most ideal solution for utilities with only day time loads like for Banks,Institutions, Industries.
- Here the Battery use can be minimal or nil.
- Further GSS UPS ensures always a steady power as by default there is a stabilizer as it s an Online UPS and there is no changeover unlike in inverter.
- High efficiency battery charger ensures extended battery life by providing temperature compensation and float cum Boost Charging.
- There you have galvanic isolation provided in the UPS at the output side to protect the critical load.

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU (1Ph in 1Ph out)

Parameters	Units	Rating			
System Rating	KVA	5	6	7.5	10
Operating DC Voltage	V	96	120	120	180
Photovoltage Input					
Input Voltage Range (Min-Max)	VOC	144-360	180-450	270-660	
Maximum PV Power Recommended	KW	5.0	6.0	7.5	10
Number of Charge Controller		1			
MPPT Based Charge Controller					
Switching Element		IGBT			
Controller		DSP			
Type of Charge		MPPT			
Priority		Solar/Grid/Battery			
Efficiency		95			
Configurable Parameters					
Battery Low Buzzer	V	Battery Low Cut + 0.2			
Battery Low Cut	V	10-11.7			
Battery High Cut	V	15-17			
Battery Charging voltage by SPV	V	13.5-16			
Battery Charging Current by SPV	A	12-50			
Battery Charging Voltage by Grid	V	12.8-14.5			
Battery Charging Current by Grid	A	5-15			
Grid Low Cut Voltage	V	N/A			
Grid High Cut Voltage	V	N/A			
Output Voltage Low	V	170-190			
Output Voltage High	V	250-260			
Battery					
Temp. Compensation		@ 3mV/cell; 18mV/Battery			
Grid Disconnect (Solar Available)	V	13-14.5 & 20%-90% of Solar Charging Current			
Grid Reconnect	V	10.2-12.5			
Inverter					
Switching Element		IGBT			
Control		PWM			
Nominal Output Voltage	VAC	220			
Output Supply Phase		1 Phase, 3 Wire			
Output Waveform		Sinewave			
Nominal Frequency	HZ	50.0			
Load Current	A	18	21.8	27.2	36.3
Voltage Regulation	%	1.00			
Output Voltage Distortion with 100% Linear Load	%	< 3			
Overload Capacity	%	100-110 : 10 Minutes	150-200 : 2sec	>400 : 20ms	
		110-120 : 2 Minutes	200-300 : 1sec		
		120-150 : 30 sec	300-400 : 250ms		

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU (1Ph in 1Ph out)

Parameters	Units	Rating			
Peak Efficiency	%	86			
Noise @ 1 meter	DB	55			
Cooling		Temp. Controlled Fan			
Protections		Overload, Battery Low, Battery High, Output Low, Output High, Output Short Ckt., Overload, Under Frequency, Over Frequency, Solar Panel Reverse			
Display Parameters		Battery Voltage, Charging Current, Discharging Current, Charging KWH, Discharging KWH, Battery Status Bar Graph Solar Voltage, Solar Current, Instantaneous Power, Cumulative Power Grid Voltage, Grid Current, Cumulative Power, Instantaneous Power, Grid Frequency Output Voltage, Output Current, Cumulative Power, Instantaneous Power, Output Frequency			
Switches		Reset for System ON/OFF, UP, Down, Back, Enter (for LCD Configuration)			
Indications		System ON, Inverter ON, SPV Charging, Grid Charging, Battery Low/High, Overload, Overheat, Mains Low, Mains High, Under Frequency, Over Frequency			
Environment					
Operating Temperature	°C	0-50			
Max Relative Humidity@25°C (non Condensing)	%	95			
Degree of Protection		Ip21			
Data Logging		30 days Data Storage			
Dimension (LXWXH) Inch		24X13X23		26X13X26	
Weight	V	65	70	80	94

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 1Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
Input					
Voltage Range	400V± 20% Three phase four wire				
Frequency Range	50Hz±20Hz				
Power Factor	>0.92				
Charger Topology	Buck				
Connection Type	Terminal Block				
SOLAR					
K watt	5KW	7.5KW	10KW	15KW	20KW
Voc(min-max)	400-740 V				
Vmp	288-660V				
Configuration 72 Cell	16 panel in series *1 string	12 panel in series *2 string	16 panel in series *2 string	12 panel in series *4 string	16 panel in series *4 string
Switching devices	IGBT				
Switching Frequency	16KHZ				
No. of Charge Controller	One				
Charge Topology	Buck				
Type of Charge	PWM with MPPT				
Peak Efficiency (DC-DC)	96%				

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 1Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
SOLAR					
Parameter	Configurable				
Battery Low Buzzer	Batt Low Cut + 0.2				
Battery Low Cut	10-11.7V				
Battery High Cut (Charger)	Batt Volt By SPV + 0.7				
Batt. CHG. Volt. by Grid	13-14.5V				
Batt. CHG. Current. by Grid	3-12A				
Batt. CHG. Volt. by SPV	13.5-15V				
Batt. CHG. Current. by SPV	5-24A				
Grid Charger Reconnect	Enable /Disable				
Output Voltage Low Cut	170-190V				
Output Voltage High Cut	250-260V				
Output					
Voltage	220V/230V/240V±1% (1phase 2 wire)				
Load Current	17.4A	26.08A	34.78A	52.17A	69.56A
Efficiency(AC to DC)	>90%@Full load				
Frequency	50HZ				
Waveform	Pure Sine Wave				
Transient Response	<8(10%-90% Linear Load)				
Voltage Harmonics	<3% (Linear Load)				
Overload Capacity	100 to 110%-10 Min., 110 to 120%-2 Min.; 120 to 150%-30 Sec; 150 to 200%-2 Sec; 200 to 300%-1sec.;300 to 40%-250msec., >400%-20-30msec				
Crest Factor	3:1				
Voltage Harmomics	±1%v				
Freqency Regulation	±0.05HZ				
Output					
Connection Type	Terminal Block				
Alarm	Battery low, Battery high, Overload				
LED indication	#UPS ON #Mains CHG.#Overload #Output High/Low #Battery High/Low #Bypass#SPVCG.ON				
LCD(20*4)	#SPV High/Low #CHG. OVERHEAT #AC Input High/Low R,Y,B #fault #Input Voltage & Freq. R,Y,B #Output Voltage, Freq. & Load% # Battery Voltage #Charging Current #Solar Voltage, Solar Current, Solar Watt, #Working Status				
Protections	# Output Overvoltage/Undervoltage # Overload # Output Short Circuit # Battery Overvoltage/Undervoltage #Input Overvoltage/Undervoltage				
MISCELLANEOUS					
Transfer time	0 msec				
Extended Battery Charging	Optional				
Caster wheels	Yes				
ENVIRONMENTAL					
Operating Environment	0-50 C				
Operating Relative Humidity	5-95% (Non-condensed)				

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 1Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
ENVIRONMENTAL					
Storage Environment	0-75 C				
Storage Relative Humidity	0-95%				
Degree of Protection	IP 20				
Remote Monitoring	Ethernet(Optional)				
Dimension (LXWXH) Inch	23X13X26		30X16X27		38X26X35

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 1Ph out)

POWER RATING	25KVA/360V	30KVA/360V	40KVA/360V
Input			
Voltage Range	400V± 20% Three phase four wire		
Frequency Range	50Hz±6Hz		
Power Factor	0.94		
Charger Topology	Buck		
Connection Type	Terminal Block		
SOLAR			
K watt	25	30	40
Voc(min-max)	540-810		
Vmp	430-730		
Configuration 72 Cell	5 string of 16 panel	6 string of 16 panel	8 string of 16 panel
Switching devices	IGBT		
Switching Frequency	16KHZ		
Charge Controller	One		
Charge Topology	Buck		
Type of Charge	PWM with MPPT		
Output			
Voltage	2202V/230V±1%		
Load Current	86.9A	104.3A	145A
Efficiency(AC to DC)	>90%@Full load		
Frequency	50HZ		
Waveform	Pure Sine Wave		
Transient Response	<8(10%-90% Linear Load)		
Voltage Harmonics	>3% (Linear Load)		
Overload Capacity	100-110%@10 Min, 110-120%@20 Min, 120-150%@30 Min, 150-200%@2s, 200-300%@1s, 300-400%@250ms,>400%@ms		
Crest Factor	3:1	6 string of 16 panel	8 string of 16 panel
Voltage Regulation	±1%v		
Frequency Regulation	±0.05HZ		
Connection Type	Terminal Block		

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 1Ph out)

POWER RATING	25KVA/360V	30KVA/360V	40KVA/360V
AUDIBLE WARNING			
Alarm	Battery low, Battery high, Overload		
INDICATIONS			
LED	UPS ON # CHG ON # Input R,Y,B High / low # Output Low-High # Overload # Fault # Batt. Low/High # SPV Low/High # SPV CHG ON #		
LCD(20*4)	Output Voltage, Load & Freq. # Battery Voltage # Charging Current # Input Voltage, Freq R,Y,B # Solar Voltage # Solar Current # Solar Watt # Working Status		
PROTECTIONS			
Parameters	# Output Overvoltage/Undervoltage # Overload # Output Short Circuit # Battery Overvoltage/Undervoltage #Input Overvoltage/Undervoltage		
MISCELLANEOUS			
Transfer time	0 msec		
Extended Battery Charging	Optional		
Caster wheels	Yes		
ENVIRONMENTAL			
Operating Environment	0-50 C		
Operating Relative Humidity	0-95% (Non-condensed)		
Storage Environment	0-75 C		
Storage Relative Humidity	0-95%		
Degree of Protection	IP 20		
Remote Monitoring	Ethernet(Optional)		
Dimension (LXWXH) Inch	0-95%		
Degree of Protection	39X26X35		34X34X43

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 3Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
Input					
Voltage Range	400V± 20% Three phase four wire				
Frequency Range	50Hz±20Hz				
Power Factor	>0.92				
Charger Topology	Buck				
Connection Type	Terminal Block				
SOLAR					
K watt	5KW	7.5KW	10KW	15KW	20KW
Voc(min-max)	400-740 V				
Vmp	288-660V				
Configuration 72 Cell	16 panel in	12 panel in	16 panel in	12 panel in	16 panel in
	series *1 string	series *2 string	series *2 string	series *4 string	series *4 string

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 3Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
SOLAR					
Switching devices	IGBT				
Switching Frequency	16KHZ				
No. of Charge Controller	One				
Charge Topology	Buck				
Type of Charge	PWM with MPPT				
Peak Efficiency (DC-DC)	96%				
Parameter	Configurable				
Battery Low Buzzer	Batt Low Cut + 0.2				
Battery Low Cut	10-11.7V				
Battery High Cut (Charger)	Batt Volt By SPV + 0.7				
Batt. CHG. Volt. by Grid	13-14.5V				
Batt. CHG. Current. by Grid	3-12A				
Batt. CHG. Volt. by SPV	13.5-15V				
Batt. CHG. Current. by SPV	5-24A				
Grid Charger Reconnect	Enable /Disable				
Output Voltage Low Cut	170-190V				
Output Voltage High Cut	250-260V				
Output					
Voltage	380V/400V/415V±1% (3phase 4 wire)				
Load Current	5.8A	8.7A	11.6A	17.4A	23.2A
Efficiency(AC - AC)	>90%@Full load				
Frequency	50HZ				
Waveform	Pure Sine Wave				
Transient Response	<8(10%-90% Linear Load)				
Voltage Harmonics	<3% (Linear Load)				
Overload Capacity	100 to 110%-10 Min., 110 to 120%-2 Min.; 120 to 150%-30 Sec; 150 to 200%-2 Sec; 200 to 300%-1sec.;300 to 40%-250msec., >400%-20-30msec				
Crest Factor	3:1				
Voltage Harmonics	±1%				
Frequency Regulation	±0.05HZ				
Connection Type	Terminal Block				
Alarm	Battery low, Battery high, Overload				
LED indication	#UPS ON #Mains CHG.#Overload R,Y,B#Output High/Low #Battery High/Low #Bypass#SPVCG.O				
LCD(20*4) Display	#SPV High/Low #CHG. OVERHEAT #AC Input High/Low R,Y,B #fault #Input Voltage & Freq. R,Y,B #Output Voltage, Freq. & Load% # Battery Voltage #Charging Current #Solar Voltage, Solar Current, Solar Watt, #Working Status				
Protections	# Output Overvoltage/Undervoltage # Overload # Output Short Circuit # Battery Overvoltage/Undervoltage #Input Overvoltage/Undervoltage				



TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 3Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
MISCELLANEOUS					
Transfer time	0 msec				
Extended Battery Charging	Optional				
Caster wheels	Yes				
ENVIRONMENTAL					
Operating Environment	0-50 C				
Operating Relative Humidity	5-95% (Non-condensed)				
Storage Environment	0-75 C				
Storage Relative Humidity	0-95%				
Degree of Protection	IP 20				
Remote Monitoring	Ethernet(Optional)				
Dimension (LXWXH) Inch	23X13X26		30X16X27		38X26X35

TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 3Ph out)

POWER RATING	20kVA/360V	30kVA/360V	40kVA/360V	50kVA/360V	60kVA/360V	80kVA/360V	100kVA/360V	120kVA/240V
Input								
Voltage Range	400V± 20% Three phase four wire							
Frequency Range	50Hz±20Hz							
Power Factor	>0.92							
Charger Topology	Buck							
Connection Type	Terminal Block							
SOLAR								
K watt	20KW	30KW	40KW	50KW	60KW	80KW	100KW	120KW
Voc(min-max)	540-810 V							
Vmp	430-730 V							
Configuration 72 Cell	16 panel	16 panel	16 panel	16 panel	16 panel	16 panel	16 panel	16 panel
	4 string of	6 string of	8 string of	10 string of	12 string of	16 string of	20 string of	24 string of
Switching devices	IGBT							
Switching Frequency	16KHZ							
No. of Charge Controller	One							
Charge Topology	Buck							
Type of Charge	PWM with MPPT							
Peak Efficiency (DC-DC)	96%							
Output								
Voltage	380V/400V/415V±1% Configurable by LCD Display							
Load Current	23A	34.8A	46.3A	57.9A	69.5A	92.75A	115.9A	139A
Efficiency(AC to AC)	>88%@Full load							
Frequency	50HZ							
Waveform	Pure Sine Wave							
Transient Response	<8(10%-90% Linear Load)							



TECHNICAL SPECIFICATIONS: ONLINE SOLAR PCU(3Ph in 3Ph out)

POWER RATING	5kVA/240V	7.5kVA/240V	10kVA/240V	15kVA/240V	20kVA/240V
Output					
Voltage Harmonics	<3% (Linear Load)				
Overload Capacity	100 to 110%-10 Min., 110 to 120%-2 Min.; 120 to 150%-30 Sec; 150 to 200%-2 Sec; 200 to 300%-1sec.;300 to 40%-250msec., >400%-20-30msec				
Crest Factor	3:1				
Voltage Harmonics	±1%v				
Frequency Regulation	±0.05HZ				
Connection Type	Terminal Block				
Alarm	Battery low, Battery high, Overload				
LED indication	#UPS ON #Mains CHG.#Overload R,Y,B #Output High/Low #Battery High/Low R,Y,B # AC Input High / low R,Y,B #SPV Charging ON#CHG.Overheat #SPVHigh/Low				
LCD(24*4)	#Input Voltage & Freq. R,Y,B #Output Voltage, Freq. & Load%R,Y,B # Battery Voltage # Charging Current #Solar Voltage, Solar Current, Solar Watt, #Working Status				
Protections	# Output Overvoltage/Undervoltage # Overload # Output Short Circuit # Battery Overvoltage #Input Overvoltage/Undervoltage				
MISCELLANEOUS					
Transfer time	0 msec				
Extended Battery Charging	Optional				
Caster wheels	Yes				
ENVIRONMENTAL					
Operating Environment	0-50 C				
Operating Relative Humidity	5-95% (Non-condensed)				
Storage Environment	0-75 C				
Storage Relative Humidity	0-95%				
Degree of Protection	IP 20				
Remote Monitoring	Ethernet(Optional)				
Dimension (LXWXH) Inch	39X26X35		34X34X43		49X34X69

SOLAR PRODUCTS

SURIA SOLAR INVERTER

Run Your Load On Solar Without Battery



KEY FEATURES

- Run Load Without Battery
- Load Sharing From Solar & Grid
- Pure Sinewave Output
- Auto Reset On Fault event
- Load Will be Continued To Run On Solar During Grid fail

APPLICATION

- Educational Institutes
- Bank and Small Offices
- Corporate Offices
- Use with existing Solar On Grid & Water Pump Systems
- Industrial and Commercial

TECHNICAL SPECIFICATION: 1 PHASE SOLAR ONLINE INVERTER

MODEL	3KVA	5KVA	7.5KVA	10KVA	12.5KVA
SOLAR PV					
Solar Charger	True Mppt Based Technology				
Switching Element					
PV Rating	3KWp	5KWp	7.5KWp	10KWp	12.5KWp
PV Voltage	250-360	250-360	250-360	250-360	250-360
INVERTER					
Type	IGBT and DSP Based True Sine Wave Inverter				
Technology	16 Bit DSP Based				
Inverter Capacity	3KVA	5KVA	7.5KVA	10KVA	12.5KVA
Output Voltage & Regulation	1 phase, 230 VAC, +/- 2%				
Output Frequency	50 Hz +/- 0.5 HZ				
Voltage THD	< 3%				
Inverter Efficiency	>90% @ full load				
No Load consumption	<2%				
Overload	125% for 60 sec, 150% for 30 sec, 200% for 3 sec				
Crest Factor	3:1				
Load Isolation	Galvanic Isolation Through Built-in Transformer				
Load Power Factor	0.8 Lag				
Load Changeover	Automatic through Relay / Contactor / Static				
ENVIRONMENT					
Operating Temperature	0 to +50°C				
Storage Temperature	10 to 50°C				
Relative Humidity Noise Level	95% non-condensing <50dB				
Protection Class	IP 20/IP21				
GRID					
Grid Input	230 VAC, -20%, + 15% , 1				
Frequency	50 Hz +/-10%				



TECHNICAL SPECIFICATION: 1 PHASE SOLAR ONLINE INVERTER

MODEL	3KVA	5KVA	7.5KVA	10KVA	12.5KVA
PROTECTION					
System Protection	Short circuit, Overload, PV overvoltage, PV under voltage, PV reverse Polarity, Grid Over voltage, Grid under voltage, Voltage Surge Protection, Over temp				
LED Indication	Main On, Inverter On, PV On, PV Low, Load ON, Fault, Bypass				
LCD Display	Output: Voltage, Current, Power(KVA), Load Percentage, KVAH PV: Voltage, Current, Power, KWH Grid: Voltage, Current, Power(KVA) Status: Load On Inv/Grid, HS Temp, Fault Condition				
Dimension (LxWxH) mm	600x250x500		680x350x650		
Remote Monitoring (Optional)	With GSM				
*Specification are subject to change without prior notice due to constant improvement in design & Technology					

TECHNICAL SPECIFICATION: 3 PHASE SOLAR ONLINE INVERTER

MODEL	10KVA	15KVA	20KVA	30KVA	50KVA
SOLAR PV					
Charger Technology	True MPPT Based				
Switching Element	IGBT				
PV Rating	10KWp	15KWp	20KWp	30KWp	50KWp
PV Voltage	350-460 V				
INVERTER					
Type	IGBT Based True Sine Wave Inverter				
Technology	16 Bit DSP Based				
Inverter Capacity	10KVA	15KVA	20KVA	30KVA	50KVA
Output Voltage & Regulation	3 phase, 230 VAC L-N/400VAC L-L, +/- 2%				
Output Frequency	50 Hz +/- 0.5 HZ				
Voltage THD	< 3%				
Inverter Efficiency	>90% @ full load				
No Load consumption	<2%				
Overload	125% for 60 sec, 150% for 30 sec, 200% for 3 sec				
Crest Factor	3:1				
Load Isolation	Galvanic Isolation Through Built-in Transformer				
Load Power Factor	0.8 Lag				
Load Changeover	Automatic through Contactor / Static Switch				
ENVIRONMENT					
Operating Temperature	0 to +50°C				
Storage Temperature	-10 to 50°C				
Relative Humidity	95% non-condensing				
Cooling	Forced Air cooled				
Noise Level	<50dB				
Protection Class	IP 20/IP21				
GRID					
Grid Input	230 VAC L-N, 400 VAC L-L, -25%, + 15% , 3				
Frequency	50 Hz +/-5%				
PROTECTION					
System Protection	Short circuit, Overload, PV overvoltage, PV under voltage, PV reverse Polarity, Grid Over voltage, Grid under voltage, Voltage Surge Protection, Over temp				
LED Indication	Main On, Inverter On, PV On, PV Low, Load ON, Fault, Bypass				
LCD Display	Output: Voltage, Current, Power(KVA), Load Percentage, KVAH PV: Voltage, Current, Power, KWH Grid: Voltage, Current, Power(KVA) Status: Load On Inv/Grid, HS Temp, Fault Condition				
Dimension (LxWxH) mm	700x350x660		850x400x830		
Remote Monitoring (Optional)	With GSM				
*Specification are subject to change without prior notice due to constant improvement in design & Technology					

SOLAR PRODUCTS

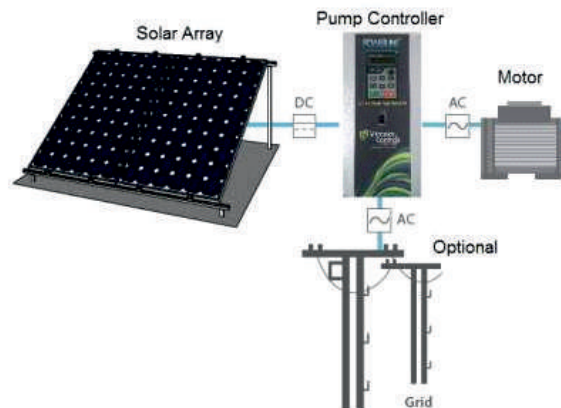
PUMP CONTROLLER JAL

WHAT IS A SOLAR PUMP

A solar pump is an application of photovoltaic technology which converts solar energy in to electricity to run motor and pump. The motor powered by solar energy draws water out of borewell, river, lake or pond

SOLAR WATER PUMP WORKING PROCEDURE

The photo-voltaic cells in solar modules converts sunlight in to Direct Current (DC) electrical energy. This energy is fed to the pump via Pump Controller in case of DC pump or via Variable Frequency Drive (VFD) in case of AC pumps (VFD converts DC into Alternative Current (AC)). Pump system is a combination of an impeller and a motor; the impeller propels water movement and the motor drives the pump. The water is propelled out of the borewell / river/ lake/ pond through the pipe; water can then be to the fields to the fields for irrigation and other purposes. Water output varies during the day with varying solar irradiance.



BENEFITS OF SOLAR PUMP

- Higher yield due to crop irrigation during day time when crop gets all the necessary
- Water output across all seasons to cultivate multiple crops every year
- One time investment and then zero running cost (free sunlight) for many years to come
- Easy for farmer to cultivate the land during day time rather than night time when grid is erratic
- Drip and sprinkler systems can be connected with solar system to further improve crop yield
- Solar system needs no maintenance except regular cleaning of the modules - no consumables easy to operate
- Non dependency on conventional energy (fuel and electricity)
- Contribution in reduction of carbon emission, contributing to reduction in pollution
- Un-interrupted supply for irrigation during day time.
- Highly reliable and trouble free performance
- High efficiency & Eco friendly
- Accessibility in remote areas

TECHNICAL SPECIFICATIONS

Pump Controller	Operating Voltage DC Vtg	Modules Required Panel	Module Combination	VOC of each Module
1 HP 3 Ph 110V	150-300	1000-1200Watt	300WX4No.	42-45V
2 HP 3 Ph 160V	200-350	2400Watt	300WX8No. String of 12 Panel	42-44V
3 HP 3 Ph 220V	200-700	3000Watt	300WX10No. 1 String of 10 Panel	42-44V
5 HP 3 Ph 415V	500-700	5200Watt	320WX15/16No. 1 String of 16 Panel	42-44V
7.5 HP 3 Ph 415V	500-700	7500Watt	250WX30/32No. 2 String of 15/16 Panel	42-44V
10 HP 3 Ph 415V	500-750	10400Watt	320WX32No. 2 String of 16 Panel	42-44V
15 HP 3 Ph 415V	500-750	15600Watt	320WX48No. 3 String of 16 Panel	42-44V
20 HP 3 Ph 415V	500-750	20800Watt	320WX64No. 4 String of 16 Panel	42-44V
25 HP 3 Ph 415V	500-750	25600Watt	320WX80No. 5 String of 16 Panel	42-44V

TECHNICAL SPECIFICATIONS - 220 V THREE PHASE

Input specification	
Maximum Input DC Voltage	400VDC
Recommended Voc Range	320~370VDC
Recommended MPPT Voltage Range	250~350VDC
Starting Voltage Range	120~400VDC
Grid or backup generator input	
Input Voltage Single phase	220V(-15%~30%)
Output specification	
Rated output voltage	3PH 220V
Output frequency	0~600.00Hz(Default 0~50.00Hz)
Protection	
Built-in Protection	Lighting Protection, over-current, overvoltage, output phase-lose, under-load, under-voltage, short circuit, overheating, water pump run dry etc
General Parameters	
Application Site.	No direct sunshine, no dust, corrosive gas, combustible gas, oil mist steam, dripping or salinity etc.
Altitude	0~2000 m Derated use above 1000m, per 100m, the rated output current decrease 1%
Env. Temperature	-10°C~40°C (Environment temperature be 40°C~50°C, please keep derated use.)

TECHNICAL SPECIFICATIONS - 220 V THREE PHASE

Input specification

Humidity	5~95%, non-condensation
Vibration	Less than 5.9 m/s ² (0.6g)
Storage Temperature	-20°C~+70°C
Efficiency	Rated power Run>93%
Installation	Wall or rail mounting
Cooling	Forced Air cooling
Protection	Ip20

TECHNICAL SPECIFICATIONS - 415 V THREE PHASE

Input specification

Maximum Input DC Voltage	800VDC
Recommended Voc Range	500~700VDC
Recommended MPPT Voltage Range	450~600VDC
Starting Voltage Range	250~400VDC
Grid or backup generator input	
Input Voltage Single phase	Three phase 380V(-15%~30%)
Output specification	
Rated output voltage	3PH 380V
Output frequency	0~600.00Hz(Default 0~50.00Hz)
Protection	
Built-in Protection	Lighting Protection, over-current, overvoltage, output phase-lose, under-load, under-voltage, short circuit, overheating, water pump run dry etc
General Parameters	
Application Site.	No direct sunshine, no dust, corrosive gas, combustible gas, oil mist steam, dripping or salinity etc.
Altitude	0~2000 m Derated use above 1000m, per 100m, the rated output current decrease 1%
Env. Temperature	-10°C~40°C (Environment temperature be 40°C~50°C, please keep derated use.)
Humidity	5~95%, non-condensation
Vibration	Less than 5.9 m/s ² (0.6g)
Storage Temperature	-20°C~+70°C
Efficiency	Rated power Run>93%
Installation	Wall or rail mounting
Cooling	Forced Air cooling
Protection	Ip20

SOLAR PRODUCTS

GRID TIE INVERTER

- IP65 Weather Protection
- Excellent Low Light Sensitivity
- Rugged cast Aluminium Chassis
- Wi Fi module as standard for free
- 5 Year Warranty Standard
- Zero export limitation
- Dynamic MPPT efficiency >99.9%
- Euro efficiency >97.3%



TECHNICAL SPECIFICATIONS

MODEL NO	VT1500TL	VT2200TL	VT3000TL	VS3600TL	VS4400TL	VS5000TL
DC side/ Input parameters						
Max. DC power [W]	1800	2500	3400	3680	4500	5500
Max. DC voltage [Vdc]	450	500	550			
Min. System start/Shut down voltage [Vdc]	75/150		75/100			
MPPT voltage range[Vdc]	100-450	100-500	100/550			
Max. input current	10	13	15	13.5/13.5	13.5/13.5	15/15
Number of MPP trackers	1			2		
Strings per MPP tra[A]	1					
AC side/ output parameters						
Nominal output power [W]	1500	2200	3000	3300	4000	4600
Maximum output power [W]	1650	2420	3300	3680	4400	5000
Nominal output voltage/range [V]	208,220,230,240/180-270					
AC grid frequency/range [Hz]	50Hz 60Hz(Auto Selection)/44Hz 55Hz, 54Hz 65Hz					
Maximum output current [A]	8	12	17	16	21	23
AC connection(with PE)	Single Phase					
Current distortion(THDi) [%]	< 1.5			< 2.5		
Power factor [%]	> 99.9			> 99.95		
Efficiency						
Maximum conversion efficiency[%]	97.3	97.4	97.5	97.8		
European efficiency[%]	97	97.1	97.2	97.3		
MPPT efficiency[%]	99.9					

TECHNICAL SPECIFICATIONS

MODEL NO	VT1500TL	VT2200TL	VT3000TL	VS3600TL	VS4400TL	VS5000TL
Safety and protection						
DC reverse polarity protection				Yes		
Anti islanding / Overvoltage protection				Yes		
Short circuit protection				Yes		
Leakage current protection				Yes		
Grid monitoring / Ground fault monitoring				Yes		
DC/AC side varistors(thermally protected)				Yes		
General Parameters						
Dimension(L/W/H)[mm]	382*317*151			382*317*166		
Weight (kg)	10			13.5		
Embedded DC Switch				Optional		
Night power consumption[W]				< 0.2		
Isolation type				Transformerless		
Protection degree				IP65 according to IEC60529		
Operation temperature[°C]				-25 -60		
Cooling concept				Natural convection		
Operating Altitude[m]				<2000m without power derating		
Acoustic noise level[dB]				< 25		
Display				Graphic LED		
Communication Interface				Standard Wi Fi		
Certificates and Approvals General				CE (EMC/LVD) : EN(IEC) 61000 1/ 2/ 3/; EN(IEC) 62109 1/ 2		
Warranty				5 years; 10 years for optional		

Zero export controller(limiter)

Vitronics 's limiter is zero-export power control device to limit the excess power feed into grid, it could optimize your PV power self-consumption

Zero export limiter is Vitronics 's Energy management solution for the solar system, which not be allowed to export the pv power into the grid, or limit the power that can be exported to a specific limit.

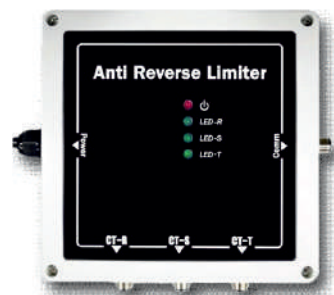
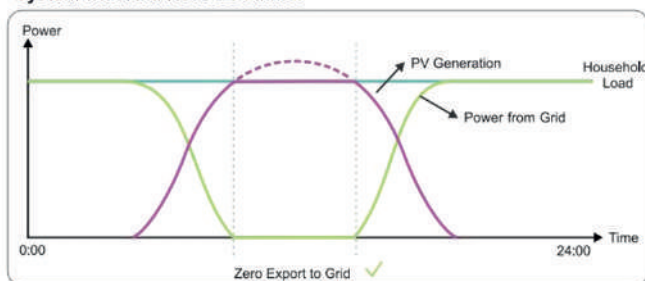
Export limitation is integrated into the inverter firmware - install only an Anti reverse limiter

Fast Response Time - ensuring that even with rapid changes in load consumption and PV production the exported power does not exceed the limit

Failsafe Operation - the operation is designed to guarantee that the exported power will never exceed the preconfigured limit under any fault

In a multi-inverter system, one inverter will serve as the energy manager

System with Anti Reverse Limiter



TECHNICAL SPECIFICATIONS

MODEL NO	VTP6kTL	VTP8kTL	VTP10kTL	VTP15kTL	VTP20kTL
DC side/ Input parameters					
Max. DC power [W]	7500W	9500W	11500W	16500W	22000W
Max. DC voltage [Vdc]	1000V	1000V	1000V	1000V	1000V
Min. System start/Shut down voltage [Vdc]	250V	250V	250V	250V	250V
MPPT voltage range[Vdc]	250V 850V	250V 850V	250V 850V	250V 850V	250V 850V
Max. input current/per string(A)	17/17	17/17	17/17	20/20	25A*2
Number of MPPT trackers	2	2	2	2	2
Strings per MPPT trackers[A]	2	2	2	2	2
AC side/ output parameters					
AC Nominal Power	6KW	8KW	10KW	15KW	20KW
Maximum AC apparent power	6.6KVA	8.8KVA	11KVA	16.5KVA	22KVA
Nominal AC Voltage	3/N/PE 230V/400V				208Vac/400Vac
AC grid frequency/range [Hz]	50Hz/60Hz				50,60/±4.5
Maximum output current [A]	15	15	17	23	30
Power factor [%]	0.8leading 0.8laging				
Harmonics	<1.5%				<3%
Efficiency	> 99.9			> 99.95	
Maximum conversion efficiency[%]	98.2	98.4	98.4	98.4	98.4
European efficiency[%]	97.7%	97.7%	97.9	98.1	98.1
MPPT efficiency[%]	99.9				
Safety and protection					
DC reverse polarity protection	Yes				
Anti islanding / Overvoltage protection	Yes				
Short circuit protection	Yes				
Leakage current protection	Yes				
Grid monitoring / Ground fault monitoring	Yes				
DC/AC side varistors(thermally protected)	Yes				
General Parameters					
Dimension(L/W/H)[mm]	510/584/272mm				607*540*271.5
Weight (kg)	35KG				47.5KG
Operating temperature range	25°C~+60°C				
Degree of protection(according IEC60529)	IP65				
Climatic category(according IEC60721 3 4)	4K4H				
Protection degree	4K4H				
Internal consumption: (night) Topology	<1W				
Cooling concept	Natural convection				
Display	LCD				
Humidity	0 95%,no condensation				
Communication	Wi Fi / GPRS(optional)				
Warrenty:5/10/20	yes / opt. / opt.				

SOME OF OUR INSTALLATIONS



CLIENTS

BANKS



GOVERNMENT / NGO



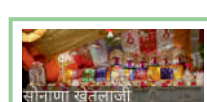
HOSPITAL



CONSTRUCTION / INFRASTRUCTURE



TEMPLE



EDUCATIONAL



EDUCATIONAL



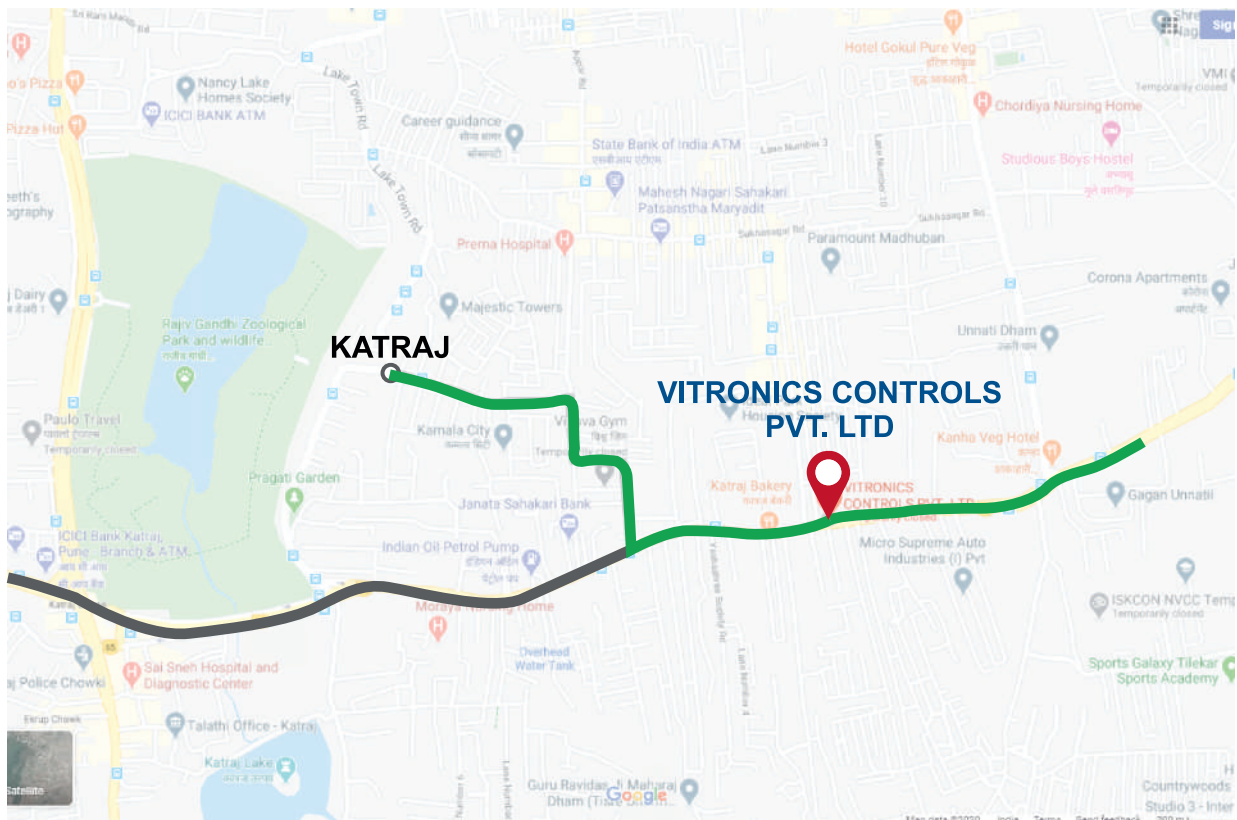
INDUSTRIAL



OUR PRESENCE

VITRONICS CONTROLS PVT. LTD.

S. No. 58/7A/1, Opp. Kheteshwar Ashram,
 Gokul Nagar, Katraj Kondhwa Road,
 Kondhwa Bk., Pune - 411048
 Maharashtra, India.





 S. No. 58/7A/1, Opp. Kheteshwar Ashram,
Gokul Nagar, Katraj Kondhwa Road,
Kondhwa Bk., Pune - 411048,
Maharashtra, India

 +91 - 20 - 2696 2548, 2696 1311

 +91 - 20 - 2696 2548

 +91 - 20 - 26961311

 +91 - 7972224395, 9404731535

 marketing@vitronicscontrols.com

