

Refresh
Your Home
With Aspiro

ASPIRO 
CONVEY THE **SUN POWER**

PRODUCT
PORTFOLIO-2021



General Overview

ABOUT US

Innovation, engineering and constant endeavor to meet customer demands and needs has positioned ASPIRO group as a trusted and reliable name in the field of Low Voltage Switchgear products.

To be able to contribute towards 'Go Green' and to support the global community in saving power, ASPIRO group introduced energy efficient and high performing Solar Tubular Batteries and SMF Batteries, Solar Hybrid Inverters, DSP Sinewave Inverters, Online UPS and Static UPS, Automatic Lift Back-up Systems (ALBS), Three Phase Inverters, Solar Panels and Automotive Batteries to meet different residential, institutional and industrial requirements.

Our manufacturing plants are equipped with the best machinery, technologies, and systems to rival the best facilities anywhere in the world. Our vast network of distributors and agents in India and across the globe act like our extended arms to ensure the highest level of customer satisfaction.

India is poised for significant growth and ready to carve its place in the global economic landscape - we at ASPIRO group are well positioned to be an integral part of this journey.

WELCOME TO ASPIRO ELECTRIC

Electrical Distribution, Power Back-up and Energy Storage needs are continuously evolving in residential, commercial and industrial sectors. Improved operational safety, continuity of service, greater convenience and operating cost have assumed a tremendous significance. Aspiro Electric products have been designed to continuously adapt to these changing needs.



Group Values And Core Strengths

Our R&D plays a crucial role in fueling our business and is fundamental to ASPIRO group underlying enterprise spirit that has helped us in delivering superior quality, world class innovations and to change the landscape of power electronics.

We design and develop smart, rugged and highly reliable products that offer the best price to performance ratio in the class. This core philosophy has helped us to create a recognizable and trustworthy brand name in power back-up and energy storage industry.

We seamlessly integrate research & development, quality and delivery. Research by itself may not achieve much but research that brings efficient products with changing market needs to fulfill the customers requirement is what makes a big difference. ASPIRO group team focus on applied research that meets the market expectation level.

One of group core fundamental is to anticipate the evolving market needs and to deliver user friendly and cost-efficient products and solutions that best meets the customer requirements and industry standards, giving them best returns on investment.

Our team works extensively on customer delight round the clock with a commitment to surpass our customer expectation.

Integrity and Transparency is the group main value which is visible in all our offerings and dealings.

We strive for excellence, to constantly improve ourselves, our teams, our services and products, our society so as to become the best in the class.

SOLAR TUBULAR & SMF VRLA BATTERIES



ASPIRO uses premium technology and high grade materials in these lead tubular batteries to deliver maximum power for extended durations and have an appreciably longer life span. These batteries are specifically suitable for powering up UPS and inverters. ASPIRO flooded lead acid batteries are environment-friendly, highly reliable in performance and are low in cost. Hear again our extensive research and development wing has helped us create batteries customized to suit Indian operating conditions. These flooded batteries are perfect for use in battery powered vehicles and to power inverters as well as for telecom use.

TECHNICAL SPECIFICATIONS OF SOLAR TUBULAR BATTERIES

Model	Capacity at 27 deg C When discharged at (C20 upto 1.75 VPc 1.280)	Dimension (±3mm)			Weight (Kg±5%)		Initial Fresh Charge Minimum AH Input (AH)	Constant Charge (Amps)
		Length	Width	Height	Dry	Filled		
ASTB 12000	100 AH	500	220	280	24	42	810	7.5
ASTB 17000	150 AH	505	190	410	31	56	900	10
ASTB 20000	180 AH	505	190	410	32	58	1200	11
ASTB 22000	200 AH	505	190	410	38	61	1320	12
ASTB 24000	220 AH	505	190	410	41	64	1440	13
ASTB 26000	240 AH	505	190	410	44	68	1460	14
ASTB 27000	250 AH	505	190	410	47	71	1500	15

* The height mentioned is upto terminal top

CONDITION OF FULLY CHARGED

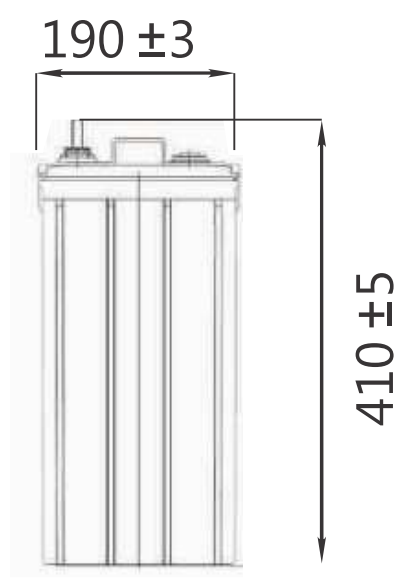
- 3 Consecutive hourly reading of specific gravity and voltage become constant
- Top of charge voltage will be around 16.2V - 16.5V
- All Cells should be gas freely
- Minimum Ah has been given
- Specific Gravity at fully Charged condition 1.240 ± 0.005 at 27 Deg C

PRODUCT FEATURES

-  Long shelf life when left unattended for extended periods
-  Pasted Negative Plates
-  Tubular Positive Plates
-  Acid Resistant Polyester Gauntlets
-  High Porosity Envelope Separators
-  Micro porous Ceramic Vent Plug

PRODUCT BENEFITS

-  Long design life
-  Very low maintenance
-  Can handle extreme weather conditions
-  Rugged Performance
-  Longer life without charging
-  More efficient and saves money



FEATURES

- Electrolyte level indicator
- High Acid volume per ampere hour
- Deep cycle design
- Tower type design
- Common sight venting
- IEC 60896-11 or equivalent

ADVANTAGES

I Very long life I user friendly I acid volume per ampere hour is 30% more than that off ordinary tubular batteries. it act as coolant and also ensure very low maintenance I suited for use in areas of frequent power cuts I can withstand overcharge better I occupies less floor space, totally new look I less pollution environment friendly I ensure consistent quality

NORMAL RECHARGING INSTRUCTION

Recharging through Inverter at constant potential mode of 14.2V with limited current as specified. After battery potential reaches 14.4V, the battery should continue in trickle charge mode at constant potential of 13.8V.

Statutory Notice

All batteries contain lead, which is harmful for humans and environment. As per statutory requirements, the used battery must be returned to the authorized dealer, manufacturer or at designated collection centers.

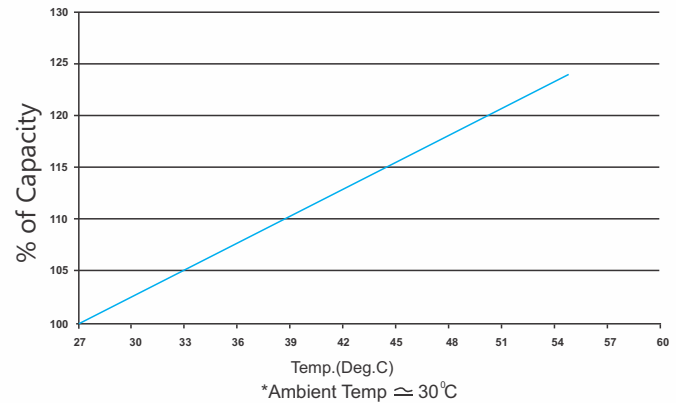
CHARACTERISTICS CURVES:

Charge Characteristic graph

For Boost Charging



Temperature Vs Capacity

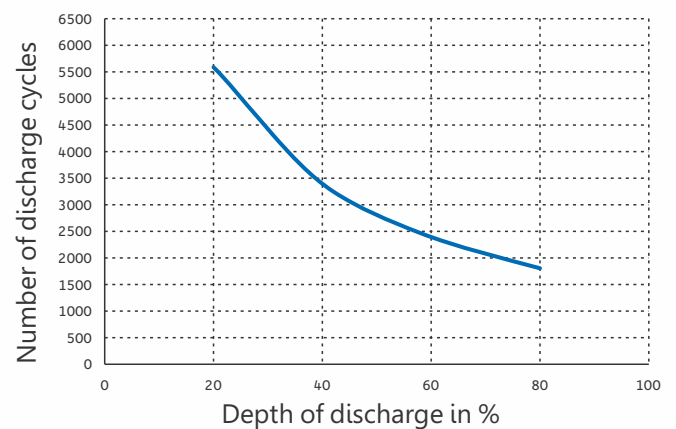


Discharge Characteristic Graph



*Above both graphs for 150 AH, $\frac{C_{20}}{C_{10}} \pm 2\%$ (Due power losses)

Cycle life vs. DOD of Aspiro Serie



Discharge & Charge Scenario (80%DOD)

1) Cycle method: Discharge with $2I_{10}$ for 4 hours (80% DOD), charge with $2I_{10}$ for 3.5hour + I_{10} for 0.5hour + $0.25I_{10}$ for 3.5hour. This is one cycle.

2) Residue Capacity determination: The batteries are discharged at 10 hour rate after every 50 cycles to test battery capacity. When residue capacity of 10 hour rate capacity is lower than 80%, test is ended. After discharge at 10 hour rate after every 50cycles, the charge method is: charge 80% of discharged capacity with current of $2I_{10}$ + charge 20% with current of I_{10} + charge 20% with current of $0.4I_{10}$ (i.e. charge 120% of discharged capacity)

3) Temperature: 27

Advantage of Upper Constant Current Charge Model Battery;
can be completely recharged within 8 hours.

The end charge voltage will be higher than 2.6Vpc, which is good for active material exchange.

Disadvantage of Upper Constant Current Charge Model

It has risk of battery malfunction without voltage limited. It isn't easy to manage charging in practice.

* Technical Parameters are Subject to Change due to Continuous improvements and R&D

SMF VRLA BATTERIES

HIGH SPECIFIC ENERGY

DESIGNING LIFE :
10 YEARS @25OC

EXCELLENT CYCLIC
PERFORMANCE

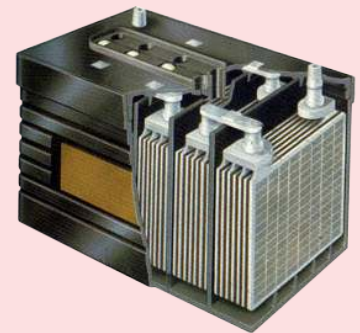
RECOVERY PERFORMANCE

HIGH PURITY MATERIAL

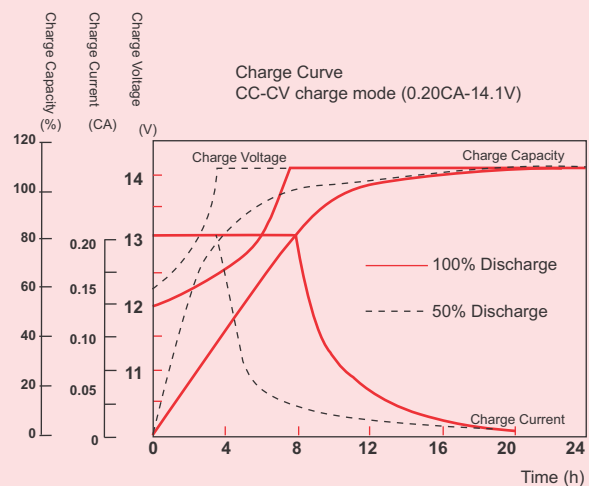
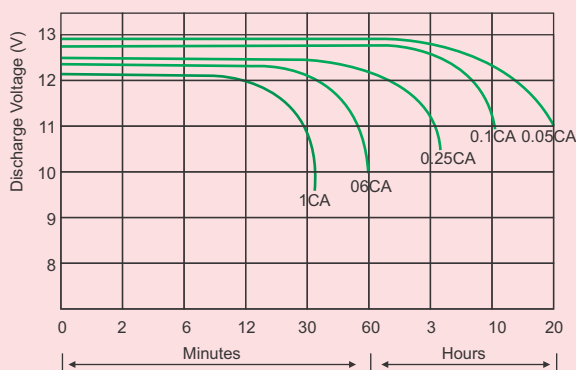


DESIGN AND CONSTRUCTION FEATURES

- Proprietary Positive Grid Alloy
- Proprietary positive Paste Composition
- Long Shelf Life above 6 Months
- Deep Discharge Recovery Even after 7 days
- Fast Charging Capability Within 6-8 hours
- Superior High rate Performance at 5 to 60 Minute rate of Discharge



DISCHARGE & CHARGING CHARACTERISTICS





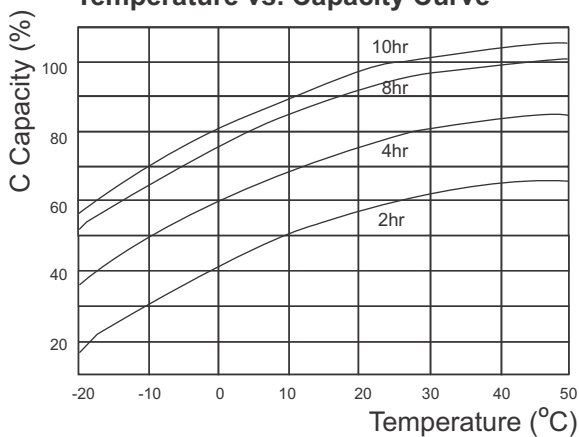
APPLICATION

UPS System, Telecommunication Equipment, Fire Alarm & Security System, Office Automation, EP ABX, Banking & Financial Market, Data Center, Street Light, Electronic Weighing Scale and in many other applications.

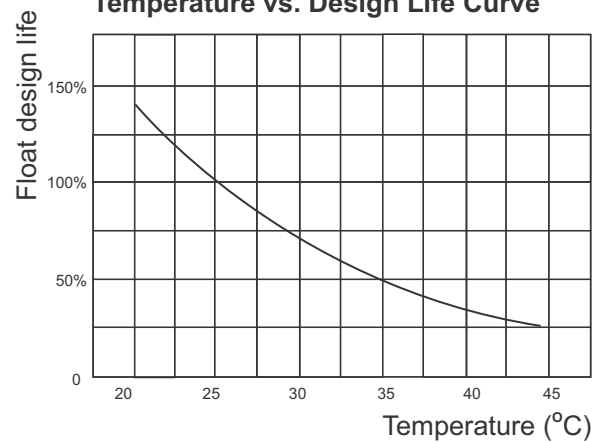


PERFORMANCE CHARACTERISTICS

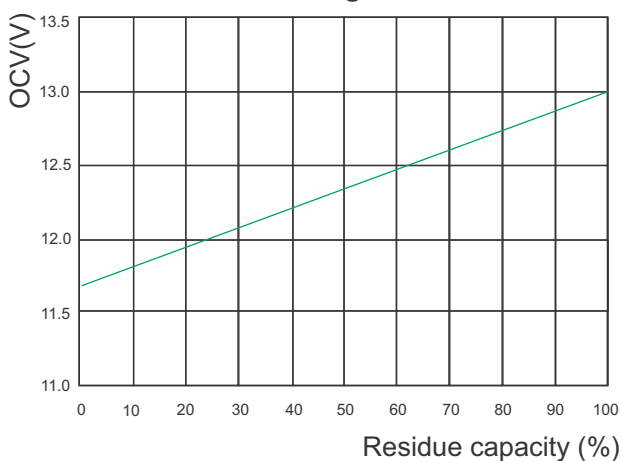
Temperature vs. Capacity Curve



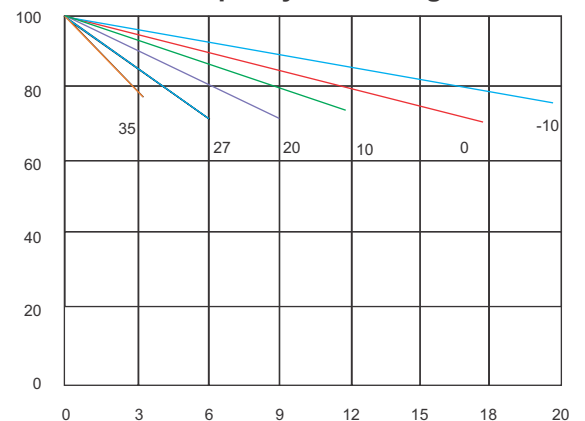
Temperature vs. Design Life Curve



OCV va state of charge



Residual Capacity VS. Storage time



PRODUCT SPECIFICATIONS

Model	Nominal Voltage	Rated Capacity @ C20 at 27OC (10.50 EBV)	Dimension (mm)			Weight (Kgs ± 5%)
			Length (± 5mm)	Width (± 5mm)	Height (± 5mm)	
LSB 42-12	12	42	198	167	175	13.5
LSB 65-12	12	65	350	167	190	22
LSB 80-12	12	80	307	169	240	23
LSB 100-12	12	100	330	173	222	29
LSB 120-12	12	120	406	171	240	35
LSB 150-12	12	150	485	170	240	44
MAXPRO20012	12	200	522	240	220	60

* Also Available in 75Ah & 90Ah

Electrolyte	Immobilized H ₂ So ₄
Positive Plate Alloy	"Arsenic and Cadmium Free Pb-Ca-Sn Alloy"
Positive Plate Type	Flat Pasted
Type of Connection	Bolted
Type of Separator Material	Absorptive Glass Mat
Container Material	"ABS"
Recommended Charging Method	Constant Potential
Shelf life at 27°C	6 Months
Self Discharge	<1% per week
Float Charge Voltage	13.5V - 13.62V
Boost Charge Voltage	13.8V - 14.1V
Charging Time from 20% SOC TO 90% SOC	6-8 Hrs
Operating Temperature Range	"0OC to 50OC"
Design Life at 27°C	10 Years
Cyclic Service Life (@27°C)	
At 20% D.O.D	1400 Cycles
At 50% D.O.D	650 Cycles
At 80% D.O.D	300 Cycles
Product Performance Conforms to	JIS C 8702

* Technical Parameters are Subject to Change due to Continuous improvements and R&D

ADVANCED SOLAR HYBRID HOME INVERTER



CONVENIENCE

Solar Hybrid DSP uses both Solar Power as well as Mains for charging the battery bank according to parameter priority set, providing the users availability of uninterrupted power supply.

SALIENT FEATURES

- = Smart Load sharing compatibility.
- = Inbuilt Solar Charge Controller with high charging Current
- = Three stage solar charging (TSSC), suitable for all type of battery charging .
- = PV availability, battery charging from solar power indication with display on LCD.
- = Deep discharge battery charging from mains as well as solar .
- = Battery type charging selection (Tubular /Flat /SMF/GEL)
- = Dual Modes of operation (EC/NC) Solar + Mains Charging Current Adding in NC Mode , Max charging current at below 13.7 V Battery voltage, > 13.7 charging current is 15A $\pm$ 1A.
- = Smart grid charging option with Enable/Disable option.
- = User selectable UPS and Normal Mode.
- = Resettable AC circuit breaker which reduce service calls.
- = Generator compatible.
- = Protections against short-circuit ,Mains Fuse Trip , Overload, reverse phase, low battery, reverse battery and over temperature (With proper indications with buzzer as well as display on LCD available).
- = User friendly, feather touch control and selection switches with LED indication on front panel.
- = Battery charging even at low voltage.
- = Comprehensive LCD Display

TECHNICAL SPECIFICATION

KEY FEATURES

- Operate on both Solar Power as well as Grid Power
- It is Integrated with in-built fully regulated 50Amp PWM Solar Charge Controller for maximum Solar Power Utilization
- Upgradable on 70Amp PWM Solar Charge Controller
- It senses the availability of Solar power, Grid power and accordingly gives preference to charging through solar power and switches to the grid power is not available
- It is designed to give you maximum benefit from the solar energy and minimize your electricity bill drastically
- Highly efficient battery charging from the solar energy as a result you will get non-stop power, save money, save electricity, and protect the environment
- Advanced DSP technology for absolute and stable and 100% pure sine wave output
- Indications for Mains ON, UPS ON, Battery Low, Charging/Discharging, Over Load, Short Circuit, Thermal Trip, Solar available/Not available and PV reverse on LCD Display
- User-Friendly LCD for the display of mode of operation and all parameters
- DUAL MODE OF WORKING : UPS AND NORMAL**
 - UPS Mode : Fast switching, Input operating range from 180V to 260V
 - Normal Mode : Wide Input operating range from 100V to 290V
- DUAL SOLAR MODE : HYBRID AND PCU MODE**
 - Hybrid Mode : Intelligent battery charging through the Solar Power and Grid Power
 - PCU Mode : Charge sharing and ability of running load with solar and battery hence saving grid power and utilizing maximum solar power to minimize the electricity bill
- DUAL BATTERY CHARGING MODE : TUBULAR AND SMF BATTERY MODE**
Different Battery selection mode to enhance the battery life
 - Intelligent overload sensing circuitry with auto retries facility
 - Programmable thermal protection : cooling fan which operates as needed
 - High Power new generation MOSFET cable to handle high in-rush/ surge current
 - Double stage MOSFET Over Current Protection by measuring Rds ON
 - Highest efficiency at lower cost
 - Pure Sine Wave Output with low Total Harmonic Distortion (THD)
 - High End ARM-Cortex based design of Solar Charge Controller for charging through Solar Power
 - Eco-friendly operation
 - Solar PV reverse voltage protection
 - Electronic Over Current Charging Protection
 - Reverse Current Flow Protection from Battery to Solar Panel generally during night
 - No mechanical contact for charge Controller
 - Designed for continuous reliable and robust operation

If solar is available and battery declared as full charged, then Mains will automatic cut till battery discharge upto pre-defined level in PCU mode

Model	900 VA	1100 VA	1600 VA	2100 VA
Nominal Battery Voltage	12 VDC		24 VDC	
Solar Panel Connected for 50 Amps PWM Charge Controller (Max.)	850 Wp	850 Wp	1700 Wp	1700 Wp

AC MAINS MODE

Input Voltage Range (Normal Mode)	100 to 290 VAC $\pm$ 5 VAC (Wide Range)	
Input Voltage Range (UPS Mode)	180 to 260 VAC $\pm$ 5 VAC	
Changeover Time Maximum	< 30 ms (in Normal Mode) and < 10 ms (in UPS Mode)	
Max. Charging Current	5A to 18A $\pm$ 1A (User Programmable)	
Boost Charging Voltage	14 VDC to 15 VDC $\pm$ 0.2 VDC per Battery (User Programmable)	
Boost Charging Voltage (Factory Default)	14.4 $\pm$ 0.2 VDC for Tubular 13.8 $\pm$ 0.2 VDC for SMF	28.8 $\pm$ 0.4 VDC for Tubular 27.6 $\pm$ 0.2 VDC for SMF
Float Charging Voltage (Factory Default)	13.7 $\pm$ 0.2 VDC for Tubular 13.5 $\pm$ 0.2 VDC for SMF	27.4 $\pm$ 0.4 VDC for Tubular 27.0 $\pm$ 0.2 VDC for SMF

BATTERY BACKUP MODE

Output Voltage at No Load	220 VAC $\pm$ 7 VAC	
Output Frequency	50.0Hz $\pm$ 0.5Hz	
Output Wave Form (At No Load)	100% Pure Sine Wave	
Battery Low Alarm	10.6 $\pm$ 0.2 VDC	21.2 $\pm$ 0.2 VDC
Battery Low Protection	10.4 $\pm$ 0.2 VDC	20.8 $\pm$ 0.2 VDC
Overload (Normal/UPS)	120% (30 Sec.)	
Short Circuit (Normal/UPS)	300%	

CHARGING MODE - SOLAR CHARGE CONTROLLER - 50 AMP

Max. Charging Current	5A to 30Amp. $\pm$ 1.5Amp. (User Programmable)
Charge Controller Efficiency	> 98%

DISPLAYING PARAMETERS

- AC Mains Voltage
- Output Voltage
- O/P Load in % on Battery
- O/P Load in % on Solar
- Actual O/P Wattage
- Battery Voltage
- Charging Mode
- Grid Charging Current
- Solar Charging Current
- Solar Load Current
- Solar Kwh (Saving)
- Faults Status
 - Overload
 - PV Reverse
 - PV High
 - Short Circuit
 - Mains Fuse Trip
 - Over Temp
 - Low Battery
 - High Battery
 - Grid Overload
- Inverter Status
- Solar Availability Status

PROTECTION

PV Reverse, Reverse Current Flow (to PV module), Battery Voltage Low (3 Auto Retries), Over Load (6 Auto Retries), Battery Full Charge, Over Temperature, Short Circuit

DESCRIPTION OF SWITCHES ON FRONT PANEL

S.No.	Switch	Function(s)	Switch Led Status
1	POWER	ON/OFF the UPS Output	System ON - Led ON System OFF - Led ON
2	INV/UPS	When it is Short Pressed it Enables UPS/Inverter Mode Selection When it is Long Pressed Enables the UPS Parameter Setting : The LCD Displays : "Edit Parameters Setting" The Switches function now Change to : POWER - Enter/OK Switch INV/UPS - Increment Value SMF/TUB - Decrement Value HYBRID/PCU - Back/Exit Switch	UPS Mode ON - Led ON UPS Mode OFF - Led OFF
3	SMF/TUB	When it is Short Pressed it Enables TUBULAR or SMF Battery Selection	TUBULAR Battery - Led ON SMF Battery - Led OFF
4	HYBRID/PCU	When it Short Pressed it Enables the Hybrid PCU Mode Selection	PCU Mode - Led ON Hybrid Mode - Led OFF

DESCRIPTION OF CENTER LED ON FRONT PANEL

S.No.	LED	Description
1	GREEN	LED ON - Full Solar Used LED Blinking - Partial Solar Used LED OFF - No Solar Used
2	RED	LED ON - PV Reverse Protection LED OFF - No Protection Selected

UPS PARAMETER SETTING

Default Values & Limits:

- Maximum Battery Voltage
SMF Battery : 13.8V (Cannot be Changed)
Tubular Battery : Min : 14.0V Default : 14.4V Max : 15.0V
- Battery Low Cut Voltage
Min : 10.4V Default : 10.6V (PCU Mode), 11.0V (HYBRID Mode) Max : 11.5V
- Maximum Grid Charging Current
Min : 05A Default : 15A Max : 18A
- Maximum Solar Charging Current
Min : 05A Default : 30A Max : 50A
**Solar Charging Current cannot be set less then Maximum Grid Charging Current
- Grid Reconnect Voltage
Tubular Battery : Min : 11.5V Default : 12.0V Max : 12.5V
SMF Battery : Min : 12.0V Default : 12.0V Max : 12.2V
**Grid Reconnect Voltage is always greater then Battery Low Cut Voltage by 0.5V

SETTING PROCESS

- Step 1 : Long press the INV/UPS Switch until LCD Display : "Edit Parameter Settings"
- Step 2 : Press POWER Switch (Enter/OK in Setting Mode) then "MAX BATT VOLTAGE" Setting Screen will appear if TUBULAR Battery Selected else "BATT LOW CUT" Setting Screen appear
- Step 3 : To Change the Maximum Battery Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 4 : After Setting Maximum Battery Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "BATT LOW CUT" Setting screen will appear
- Step 5 : To Change the Battery Low Cut Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 6 : After Setting Battery Low Cut Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "MAX GRID CHG" Setting Screen will appear
- Step 7 : To Change the Maximum Grid Charging Current Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 8 : After Setting Maximum Grid Charging Current Now press POWER Switch (Enter/OK in Setting Mode) then "MAX SOL CHG" Setting screen will appear
- Step 9 : To Change the Maximum Solar Charging Current value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 10 : After Setting Maximum Solar Charging Current Now press POWER Switch (Enter/OK in Setting Mode) then "GRID RECONNECT" Setting Screen will appear
- Step 11 : To Change the Grid Reconnect Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

ADVANCED SOLAR HYBRID INDUSTRIAL INVERTER

2.75/48VDC TO 10/120VDC



CONVENIENCE

Solar Hybrid DSP uses both Solar Power as well as A.C. Mains for charging the battery bank according to priority setting providing the users availability of uninterrupted power supply.

SALIENT FEATURES

- = User friendly Wide LCD display for battery user interface.
- = Smart Load sharing compatibility.
- = Monitoring/data logging feature for better system information at user end (optional)
- = Selectable charging current with high charging (HI) and Normal Charging (Low).
- = PV availability, battery charging from solar power indication with solar power priority
- = User friendly, control and selection switches with LCD indication on front panel
- = Protections such as Mains MCB Trip, Overload, Short circuit, Battery low, over temperature indication with buzzer as well as display on LCD available
- = Power Saving through No Load Shutdown Feature
- = Maximum Solar Power Utilization during charging and backup mode
- = PV pole reversal protection indication on LCD
- = Deep discharge battery charging from A.C. Mains as well as Solar
- = No humming Noise (Silent UPS)
- = AC Mains available, battery charging/charged and it voltage indication provided on LCD display

TECHNICAL SPECIFICATION

KEY FEATURES

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- It is Integrated with in-built fully regulated 50Amp PWM Solar Charge Controller for maximum Solar Power Utilization
- Upgradable on 70Amp PWM Solar Charge Controller
- It senses the availability of Solar power, Grid power and accordingly gives preference to charging through solar power and switches to the grid power if the solar power is not available
- It is designed to give you maximum benefit from the solar energy and minimize your electricity bill drastically
- Highly efficient battery charging from the solar energy as a result you will get non-stop power, save money, save electricity, and protect the environment
- Advanced DSP technology for absolute and stable and 100% pure sine wave output
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If solar is available and battery declared as full charged, then Mains will automatic cut till battery discharge upto pre-defined level in PCU mode

Model	2.75 KVA	3.75 KVA	5.2 KVA	5.2 KVA	7.5 KVA	10 KVA
Nominal Battery Voltage	48 VDC			96 VDC	120 VDC	120 VDC
Solar Panel Connected for 50 Amps PWM Charge Controller (Max.)	3000 Wp	3000 Wp	3000 Wp	6000 Wp	7500 Wp	8000 Wp

AC MAINS MODE

Input Voltage Range (Normal Mode)	100 to 290 VAC $\pm$ 5 VAC (Wide Range)
Input Voltage Range (UPS Mode)	180 to 260 VAC $\pm$ 5 VAC
Changeover Time Maximum	< 30 ms (in Normal Mode) and < 10 ms (in UPS Mode)
Max. Charging Current	5A to 18A $\pm$ 1A (User Programmable)
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Battery Low Protection	10.4 $\pm$ 0.2 VDC Per Battery
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3	SMF/TUB	When it is Short Pressed it Enables TUBULAR or SMF Battery Selection	TUBULAR Battery - Led ON SMF Battery - Led OFF
4	HYBRID/PCU	When it Short Pressed it Enables the Hybrid PCU Mode Selection	PCU Mode - Led ON Hybrid Mode - Led OFF

DESCRIPTION OF CENTER LED ON FRONT PANEL

S.No.	LED	Description
1	GREEN	LED ON - Full Solar Used LED Blinking - Partial Solar Used LED OFF - No Solar Used
2	RED	LED ON - PV Reverse Protection LED OFF - No Protection Selected

UPS PARAMETER SETTING

Default Values & Limits:

1 Maximum Battery Voltage

SMF Battery : 13.8V Per Battery (Cannot be Changed)

Tubular Battery : Min : 14.0V Per Battery Default : 14.4V Per Battery Max : 15.0V Per Battery

2 Battery Low Cut Voltage

Min : 10.4V Per Battery Default : 10.6V Per Battery (PCU Mode), 11.0V Per Battery (HYBRID Mode) Max : 11.5V Per Battery

3 Maximum Grid Charging Current

Min : 05A Default : 15A Max : 18A

4 Maximum Solar Charging Current

Min : 05A Default : 30A Max : 50A

**Solar Charging Current cannot be set less then Maximum Grid Charging Current

5 Grid Reconnect Voltage

Tubular Battery : Min : 11.5V Per Battery Default : 12.0V Per Battery Max : 12.5V Per Battery

SMF Battery : Min : 12.0V Per Battery Default : 12.0V Per Battery Max : 12.2V Per Battery

**Grid Reconnect Voltage is always greater then Battery Low Cut Voltage by 0.5V

SETTING PROCESS

Step 1 : Long press the INV/UPS Switch until LCD Display : "Edit Parameter Settings"

Step 2 : Press POWER Switch (Enter/OK in Setting Mode) then "MAX BATT VOLTAGE" Setting Screen will appear if TUBULAR Battery Selected else "BATT LOW CUT" Setting Screen appear

Step 3 : To Change the Maximum Battery Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 4 : After Setting Maximum Battery Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "BATT LOW CUT" Setting screen will appear

Step 5 : To Change the Battery Low Cut Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 6 : After Setting Battery Low Cut Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "MAX GRID CHG" Setting Screen will appear

Step 7 : To Change the Maximum Grid Charging Current Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 8 : After Setting Maximum Grid Charging Current Now press POWER Switch (Enter/OK in Setting Mode) then "MAX SOL CHG" Setting screen will appear

Step 9 : To Change the Maximum Solar Charging Current value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 10 : After Setting Maximum Solar Charging Current Now press POWER Switch (Enter/OK in Setting Mode) then "GRID RECONNECT" Setting Screen will appear

Step 11 : To Change the Grid Reconnect Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

DSP SINE WAVE HOME UPS



KEY FEATURES

- Highly efficient battery charging algorithm as a result you will get non-stop power
- Advanced DSP technology with Arm Cortex controller for absolute and stable and 100% pure sine wave output
- Indications for Mains ON, UPS ON, Battery Low, Charging/Discharging, Over Load, Short Circuit, Thermal Trip on LCD Display
- User-Friendly LCD for the display of mode of operation and all parameters
- **DUAL MODE OF WORKING : UPS AND NORMAL**
 - UPS Mode : Fast switching, Input operating range from 180V to 260V
 - Normal Mode: Wide Input operating range from 100V to 290VA
- **DUAL BATTERY CHARGING MODE : TUBULAR AND SMF BATTERY MODE**
Different Battery selection mode to enhance the battery life
- Intelligent overload sensing circuitry with auto retries facility
- Programmable thermal protection : cooling fan which operates as needed
- High Power new generation MOSFET cable to handle high in-rush/ surge current
- Double stage MOSFET Over Current Protection by measuring Rds ON
- Highest efficiency at lower cost
- Pure Sine Wave Output with low Total Harmonic Distortion (THD)
- High End ARM-Cortex based design of Solar Charge Controller for charging through Solar Power
- Eco-Friendly operation
- Electronic Over Current Charging Protection
- No mechanical contact for charge controller
- Designed for continuous reliable and robust operation

TECHNICAL SPECIFICATION

Model	900 VA	1100 VA	1600 VA	2100 VA
Nominal Battery Voltage	12 VDC		24 VDC	

AC MAINS MODE

Input Voltage Range (Normal Mode)	100 to 290 VAC $\pm$ 5 VAC (Wide Range)		
Input Voltage Range (UPS Mode)	180 to 260 VAC $\pm$ 5 VAC		
Changeover Time Maximum	< 30 ms (in Normal Mode) and < 7 ms (in UPS Mode)		
Max. Charging Current	5A to 18A $\pm$ 1A (User Programmable)		
Boost Charging Voltage	14 VDC to 15 VDC $\pm$ 0.2 VDC (User Programmable)		
Boost Charging Voltage (Factory Default)	14.4 $\pm$ 0.2 VDC for Tubular 13.8 $\pm$ 0.2 VDC for SMF	28.8 $\pm$ 0.4 VDC for Tubular 27.6 $\pm$ 0.4 VDC for SMF	
Float Charging Voltage (Factory Default)	13.7 $\pm$ 0.2 VDC for Tubular 13.5 $\pm$ 0.2 VDC for SMF	27.4 $\pm$ 0.4 VDC for Tubular 27.0 $\pm$ 0.4 VDC for SMF	

BATTERY BACKUP MODE

Output Voltage at No Load	220 VAC ± 7 VAC	
Output Voltage at Full Load	>207 VAC	
Output Wave Form (At No Load)	100% Pure Sine Wave	
Battery Low Alarm	10.6 ± 0.2 VDC	21.2 ± 0.2 VDC
Battery Low Protection	10.4 ± 0.2 VDC	20.8 ± 0.2 VDC
Overload (Normal/UPS)	120% (30 Sec.)	
Short Circuit (Normal/UPS)	300%	

DESCRIPTION OF SWITCHES ON FRONT PANEL

S.No.	Switch	Function(s)	Switch Led Status
1	POWER	ON/OFF the UPS Output	SYSTEM ON - Led ON SYSTEM OFF - Led OFF
2	INV/UPS	When it is Short Pressed it Enables UPS/Inverter Mode Selection When it is Long Pressed Enables the UPS Parameter Setting : The LCD Displays : "Edit Parameters Setting" The Switches function now Change to : POWER - Enter/OK Switch INV/UPS - Increment Value SMF/TUB - Decrement Value HYBRID/PCU - Back/Exit Switch	UPS Mode ON - Led ON UPS Mode OFF - Led OFF
3	SMF/TUB	When it is Short Pressed it Enables TUBULAR or SMF Battery Selection	TUBULAR Battery - Led ON SMF Battery - Led OFF
4	FREEZE	When it Freeze the Screen of LCD	

DISPLAYING PARAMETERS

- AC Mains Voltage
- Battery Voltage
- Faults Status
 - Overload
 - Low Battery
- Inverter Status
- Output Voltage
- Charging Mode
- Short Circuit
- High Battery
- O/P Load in % on Battery
- Grid Charging Current
- Mains Fuse Trip
- Over Temp
- Grid Over Load

PROTECTION

Battery Voltage Low (3 Auto Retries), Over Load (6 Auto Retries), Battery Full Charge, Over Temperature, Short Circuit

UPS PARAMETER SETTING

Default Values & Limits:

1 Maximum Battery Voltage

SMF Battery : 13.8V (Cannot be Changed)

Tubular Battery : Min : 14.0V Default : 14.8V Max : 16.0V

2 Battery Low Cut Voltage

Min : 10.4V Default : 10.5V (Tublar Mode), 11.0V (SMF Mode) Max : 11.5V

3 Maximum Grid Charging Current

Min : 05A Default : 15A Max : 18A

SETTING PROCESS

Step 1 : Long press the INV/UPS Switch until LCD Display : "Edit Parameter Settings"

Step 2 : Press POWER Switch (Enter/OK in Setting Mode) then "MAX BATT VOLTAGE" Setting Screen will appear if TUBULAR Battery Selected else "BATT LOW CUT" Setting Screen appear

Step 3 : To Change the Maximum Battery Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 4 : After Setting Maximum Battery Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "BATT LOW CUT" Setting screen will appear

Step 5 : To Change the Battery Low Cut Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 6 : After Setting Battery Low Cut Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "MAX GRID CHG" Setting Screen will appear

Step 7 : To Change the Maximum Grid Charging Current Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

Step 8 : To Change the Grid Reconnect Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

DSP SINE WAVE STATIC UPS & INVERTER SERIES

2.75/48VDC TO 10/120VDC



PRODUCT DESCRIPTION

Most appliances like LED Bulb, Fans, motor based equipments like air conditioners and pump sets are designed to work at Sine Wave 50Hz frequency. Running such equipments on unregulated quasi sine wave-square wave based inverters poses a risk in regards with performance and durability. ASPIRO DSP sine wave Static UPS and inverters are designed to provide stable 50Hz sine wave irrespective of load and battery voltage, making them the most suitable for inductive, capacitive and non-resistive loads. Importantly, our inverters and UPS are designed to deliver instantaneous high current during start up, especially in case of air conditioners and refrigerators, with safety cut out when battery voltage goes lower than a specified point to avoid brownouts and burning of motors.

SALIENT FEATURES

- = DSP Based Design with absolute and stable Sine Wave output voltage and frequency
- = State of the art MOSFET based PWM technology with greater efficiency at lower cost with Dynamic Stability
- = Over Temperature Protection
- = Three stage solar charging (TSSC) suitable for all types of battery charging..
- = Deep Discharge Battery charging from A.C. Mains.
- = Monitoring/data logging feature for batter system information at user end through SNMP / GPRS (optional)
- = Protection such as Mains MCB Trip, overload, short circuit, Battery low, over temperature indication with buzzer as well as display on LCD available.
- = AC Mains available, battery charging /charged and its voltage indication provided on LCD display.
- = Grid charging enable /disable options which makes it fully compatible with solar (Optional).
- = Selectable battery charging current (High /Low).
- = Fast change over in UPS mode makes computer compatible .
- = Comprehensive LCD Display

TECHNICAL SPECIFICATION

KEY FEATURES

- Highly efficient battery charging algorithm as a result you will get non-stop power
- Advanced DSP technology with arm cortex controller for absolute and stable and 100% pure sine wave output
- Indications for Mains ON, UPS ON, Battery Low, Charging/Discharging, Over Load, Short Circuit, Thermal Trip on LCD Display
- User-Friendly LCD for the display of mode of operation and all parameters

• DUAL MODE OF WORKING : UPS AND NORMAL

- UPS Mode : Fast switching, Input operating range from 180V to 260V
- Normal Mode : Wide Input operating range from 100V to 290V

• DUAL BATTERY CHARGING MODE : TUBULAR AND SMF BATTERY MODE

Different Battery selection mode to enhance the battery life

- Intelligent overload sensing circuitry with auto retries facility
- Programmable thermal protection : cooling fan which operates as needed
- High Power new generation MOSFET cable to handle high in-rush/ surge current
- Double stage MOSFET Over Current Protection by measuring Rds ON
- Highest efficiency at lower cost
- Pure Sine Wave Output with low Total Harmonic Distortion (THD)
- High End ARM-Cortex based design of Solar Charge Controller for charging through Solar Power
- Eco-friendly operation
- Electronic Over Current Charging Protection
- No mechanical contact for charge Controller
- Designed for continuous reliable and robust operation

Model	2.75 KVA	3.75 KVA	5.2 KVA	5.2 KVA	7.5 KVA	10 KVA
Nominal Battery Voltage	48 VDC			96 VDC	120 VDC	120 VDC

AC MAINS MODE

Input Voltage Range (Normal Mode)	100 to 290 VAC $\pm$ 5 VAC (Wide Range)
Input Voltage Range (UPS Mode)	180 to 260 VAC $\pm$ 5 VAC
Changeover Time Maximum	< 30 ms (in Normal Mode) and < 10 ms (in UPS Mode)
Max. Charging Current	5A to 18A $\pm$ 1A (User Programmable)
Boost Charging Voltage	14 VDC to 15 VDC $\pm$ 0.2 VDC per Battery (User Programmable)
Boost Charging Voltage (Factory Default)	14.4 $\pm$ 0.2 VDC per Battery for Tubular 13.8 $\pm$ 0.2 VDC per Battery for SMF
Float Charging Voltage (Factory Default)	13.7 $\pm$ 0.2 VDC per Battery for Tubular 13.5 $\pm$ 0.2 VDC per Battery for SMF

BATTERY BACKUP MODE

Output Voltage at No Load	220 VAC $\pm$ 7 VAC
Output Frequency	50.0Hz $\pm$ 0.5Hz
Output Wave Form (At No Load)	100% Pure Sine Wave
Battery Low Alarm	10.6 $\pm$ 0.2 VDC per Battery
Battery Low Protection	10.4 $\pm$ 0.2 VDC per Battery
Overload (Normal/UPS)	120% (30 Sec.)
Short Circuit (Normal/UPS)	300%

DISPLAYING PARAMETERS

- AC Mains Voltage
- Output Voltage
- O/P Load in % on Battery
- Battery Voltage
- Charging Mode
- Grid Charging Current
- Faults Status
 - Overload
 - Short Circuit
 - Mains Fuse Trip
 - Over Temp
 - Low Battery
 - High Battery
 - Grid Over Load
- Inverter Status

PROTECTION

Battery Voltage Low (3 Auto Retries), Over Load (6 Auto Retries), Battery Full Charge, Over Temperature, Short Circuit

DESCRIPTION OF SWITCHES ON FRONT PANEL

S.No.	Switch	Function(s)	Switch Led Status
1	POWER	ON/OFF the UPS Output	System ON - Led ON
2	INV/UPS	When it is Short Pressed it Enables UPS/Inverter Mode Selection When it is Long Pressed Enables the UPS Parameter Setting The LCD Displays : "Edit Parameters Setting" The Switches function now Change to : POWER - Enter/OK Switch INV/UPS - Increment Value SMF/TUB - Decrement Value HYBRID/PCU - Back/Exit Switch	UPS Mode ON - Led ON UPS Mode OFF - Led OFF
3	SMF/TUB	When it is Short Pressed it Enables TUBULAR or SMF Battery Selection	TUBULAR Battery - Led ON SMF Battery - Led OFF
4	FREEZE	When it Freeze the Screen of LCD	

UPS PARAMETER SETTING

Default Values & Limits:

- Maximum Battery Voltage
SMF Battery : 13.8V (Cannot be Changed)
Tubular Battery : Min : 14.0V Default : 14.8V Max : 16.0V
- Battery Low Cut Voltage
Min : 10.4V Default : 10.5V (Tubular Mode), 11.0V (SMF Mode) Max : 11.5V
- Maximum Grid Charging Current
Min : 05A Default : 15A Max : 18A

SETTING PROCESS

- Step 1 : Long press the INV/UPS Switch until LCD Display : "Edit Parameter Settings"
- Step 2 : Press POWER Switch (Enter/OK in Setting Mode) then "MAX BATT VOLTAGE" Setting Screen will appear if TUBULAR Battery Selected else "BATT LOW CUT" Setting Screen appear
- Step 3 : To Change the Maximum Battery Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 4 : After Setting Maximum Battery Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "BATT LOW CUT" Setting screen will appear
- Step 5 : To Change the Battery Low Cut Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 6 : After Setting Battery Low Cut Voltage Now press POWER Switch (Enter/OK in Setting Mode) then "MAX GRID CHG" Setting Screen will appear
- Step 7 : To Change the Maximum Grid Charging Current Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)
- Step 8 : To Change the Grid Reconnect Voltage Value press INV/UPS Switch (Increment Value in Setting Mode) or SMF/TUB Switch (Decrement Value in Setting Mode)

ONLINE UPS

1 PHASE OUT
MP SERIES
RACK MOUNT UPS 5/6/10/15/20 KVA
1:1 PHASE & 3:1 PHASE

ASPIRO
CONVEY THE SUN POWER



RATING 6KVA INSIDE BATTERY 15X7Ah

TECHNOLOGY
IGBT²
SAVE ENERGY

FEATURES

- = True Online double conversion with PWM IGBT inverter technology
- = Fully digitized microprocessor control
- = IGBT bases Rectifier and Inverter
- = Wide input range
- = LCD display Cold Start
- = Unique design for internal battery 16*7AH / 9AH for 5 & 6KVA
- = 5 & 6KVA are having unity output Power factor
- = Advanced battery management
- = Isolation Transformer Compatible
- = Automatic battery charging in UPS off mode
- = Lightning and surge protection
- = Short circuit and overload protection
- = Fan speed adjusted by load automatically
- = Network / Fax / Modem surge protection
- = Optional extension battery pack
- = EMI / RFI and Noise filter
- = EPO function
- = Parallel capacity up to 4 Nos., extendable 20KVA*4 up to 80KVA



(6KVA)



(20KVA)



PARALLEL OPERATION,
PARALLEL 4 UNITS

DISPLAY

1. LCD Display 2. LED Display 3. Button 4. Function

REAR PANEL

1. Intelligent Slot / SNMP (Optional) 2. Fan 3. Parallel Port
4. Rs232 5. USB (Optional) 6. EPO 7. Bypass 8. Terminal

TECHNICAL SPECIFICATION

Model	MP1105L16	MP1106B16	MP1110L16	MP3110L20	MP3115L20	MP3120L20
Capacity (KVA)	05	06	10	15	20	

INPUT

Normal Voltage	220V / 230V / 240V AC (1Ph+N+PE)	380 / 400/ 415V AC (3Ph+N+PE)
Operating Voltage Range	100V~300V AC Load Dependent	277V~480V AC Load Dependent
Operating Frequency Range	50 / 60 Hz $\pm$ 20% (Auto Sensing)	
Power Factor	≥ 0.99	

OUTPUT

Output Voltage	220V / 230V / 240V AC $\pm$ 1% (Configurable)	
Output Frequency	Auto Sensing 50 / 60 Hz $\pm 1 \sim 10\%$ Sync Mode (Configurable), 50/60 Hz ± 0.1 Hz Battery Mode	
Crest Factor / Power Factor	3:1 / 0.9 / 1.0 (Configurable)	
Harmonic Distortion (THDv)	$\leq 2\%$ with linear load; $\leq 5\%$ with non-linear load	
Overload	110% for 10min, $>130 \sim 150\%$ for 50 Sec, $>150\%$ for 200 ms	
Efficiency	Up to 95% Dual Conversion Mode, 99% ECO Mode	

BATTERY

Charging Voltage	192V DC $\pm 1\%$ (Based on 16 Nos. Battery)	273V DC $\pm 1\%$ (Based on 16 Nos. Battery)
Charging Current	6A Max.	4A Max.
Battery Nos.	16 Nos. (16~20 Nos. Adjustable)**	20 Nos. (18~20 Nos. Adjustable)**
Typical Recharge Time	8 Hrs. (to 90% of full Capacity)	

SYSTEM FEATURES

LCD Indication	Input Voltage & Frequency, Output Voltage & Frequency, Battery Voltage & Percent, Load Watt, VA & Percent, Inverter Temperature, Operation Mode Such as "ONLINE", "BYPASS", "ONBATT", "ERROR CODE",
LED Indication	Normal Operation, Bypass and Fault Indication
Audible Alarm	Battery Mode, Low Battery, Over Load and Fault
IP Protection	IP 20
Transfer Time	Zero

ENVIRONMENTAL

Temperature	Operating: 0~45°C, Storage:- 10°C ~ 55°C 0~45°C
Humidity / Altitude	0~95% RH Non-condensing / <1500 M
Noise	Low Audible Noise Level

PHYSICAL

Dimensions WxDxH (mm)	UPS	444X660X166 (4u)		443x580x133 (3U)		438x668x266 (6U)	
	Battery Pack	Spsce for 16x7AH/9AH Intl. Batt.		438x580x133 (3U)			
Net/Shipping Weight (Kg)		8/10	15.5/17.5	8.3/10.3	25/28	10/12	30/33

STANDARDS

Quality	ISO 9000, ISO 14001, OHSAS 18001, ISO 27001, BIS, RoHS
Safety	IEC/EN62040-1
EMC / Performance	IEC/EN62040-2; IEC/EN62040-3, Complying to CE

COMMUNICATION INTERFACE

Standard	RS-232
Optional	SNMP / ModBus / Dry Contact / USB / RS-485
Monitoring Software	NetAgent Utility v5.8 / View Power / UPSilon 2000 / Muser 4000

Specifications are subject to change without prior notice.

* Rail-Kit are available according to various size in U and Model No.

** Ups has flexi battery DC Bus, Battery Nos. can be adjusted to 16,18,20 Nos.

*** Maximum capacity can be configured upto 80KVA (4 x 20KVA in Parallel Mode).

SOLAR PV MODULE



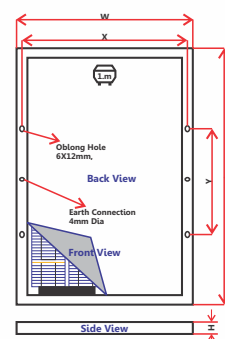
ASPIRO Global is the leading organization in the field of renewable energy attached with some leading companies in the power sector of India and Abroad as is proud to be among the list of 100% renewable companies with its focus on **“Designing, Engineering, Supplying. Testing and Commissioning any kind of Solar Photovoltaic plants, equipment and systems that cater to both Domestic and Industrial needs”.**

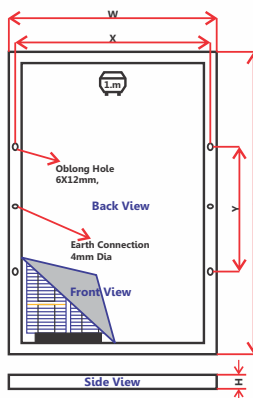
Strong vision coupled with professional and ethical business practices have helped it achieve good position in the markets it serves in India and Abroad.

PRODUCT FEATURES OF PV MODULES

- = Extra Long life
- = Extra Energy/Power
- = Extremely Compact Size
- = Made of A Grade Solar Cells with up to 23% cells efficiency
- = One of the most compact efficient 156.75x156.75 to 158.75x158.75mm60/72 cells module
- = Module stability and reliability due to high-quality raw materials
- = Positive Power Tolerance
- = Snow and wind load tested
- = ARC glass with UV-T & UV-C encapsulant ensure higher module efficiency
- = Reliable schottky bypass diode minimizes power drop by shed
- = All weather-resistance junctions box and crosslink cable
- = PID resistance cells & encapsulants yield efficient performance under hot humid weather
- = **TUV:IEC61215,IEC61730 certified from 3W-380 W**





Electrical Characteristics	NS-310 WP	NS-320 WP	NS-325 WP	NS-330 WP	NS-335 WP	NS-340 WP	NS-350 WP	NS-360 WP	NS-370 WP	NS-380 WP
Peak Power (WP)	310	320	325	330	335	340	350	360	370	380
Open Circuit Voltage (VOC) (V)	44.21	44.67	45.14	46.24	46.41	47.52	47.83	47.92	47.47	47.73
Short Circuit Current (Isc) (A)	9.13	9.19	9.22	9.25	9.28	9.34	9.42	9.46	9.68	9.78
Voltage at Maximum Power (Vmp) (A)	35.88	36.74	37.22	37.7	38.25	38.46	38.97	39.56	39.62	39.88
Current at Maximum Power (Imp) (A)	8.64	8.71	8.73	8.75	8.78	8.84	8.98	9.1	9.35	9.53
Hole to Hole Dimension (mm) (CTC)	X=950 / Y=980									
Module Size L x W x H x (mm)	1960 x 990 x 40									
Module Efficiency	≥16.21	≥16.72	≥17.01	≥17.24	≥17.50	≥17.80	≥18.30	≥18.80	≥19.30	≥19.80
Solar Cell Per Module (Units)	72									
Solar Cell type	MONO PERC	MONO PERC / POLY	MONO PERC / POLY	POLY	POLY	MONO PERC	MONO PERC	MONO PERC	MONO PERC / BIFACIAL	MONO PERC / BIFACIAL
Maximum System Voltage (V)	1500 VDC									
Arrangement of Cells (L * B) (nos)	12 Cells x 6 Strings									
Weight (kg)	21.8									
Junction Box (IP 67)	4 terminal with 3 bypass diodes)20A)									
Toleramnce of Electrical Paramerers:	± 3%, Pm positive tolerance			Guarantee and Certification : Product Warranty : 25 years						
Temperature Coefficients										
Coefficient of current α (%/ °C)	0.05 ± 0.02			Performance Guaranted Power Output of 90% for 10 Years & 80% for 25 Years						
Coefficient of Voltage β (%/ °C)	-0.35 ± 0.01									
Coefficient of Power λ (%/ °C)	-0.44 ± 0.02			Approval & Certificates : MNRE, IEC & ISO, IEC 61215 ,IEC 61730						
Maximum system voltage (V)	1500 VDC			Packing Information: Quantity/Pallet : 2 in 1						
Temperature range	-40° C to + 85° C									
Efficiency Reduction at 200W/m² , 25 °C	<5%									
Standard Test Condition (STC)	Irradiance 1000Wm², Temperature 25 °C, AM 1.5									
Mechanical Specification:										
Cable & Connectors	4mm², TUV Certified, 1000 mm (optional)									
Application Class	Class A									
Front Cover	High Transmission, Low Iron, Tempered Glass,									
Cell Encapsulate	Ethylene Vinyl Acetate (PID)									
Back Cover	Composite film									
Frame	≥ 17μ Anodize thickness aluminum frame with twin wall profile									





Corporate office :
Bank Colony, Dandi, Kederpur, Dehradun,
Uttarakhand, India
Branch Office :
Saimad General Trading LLC P.O. Box No. 377343
Debra DUBAI

For Customer Suggestion &
Complaint Call : +91-7060215095
E-mail : info@aspiroglobal.co.in
Website : www.aspiroglobal.co.in

