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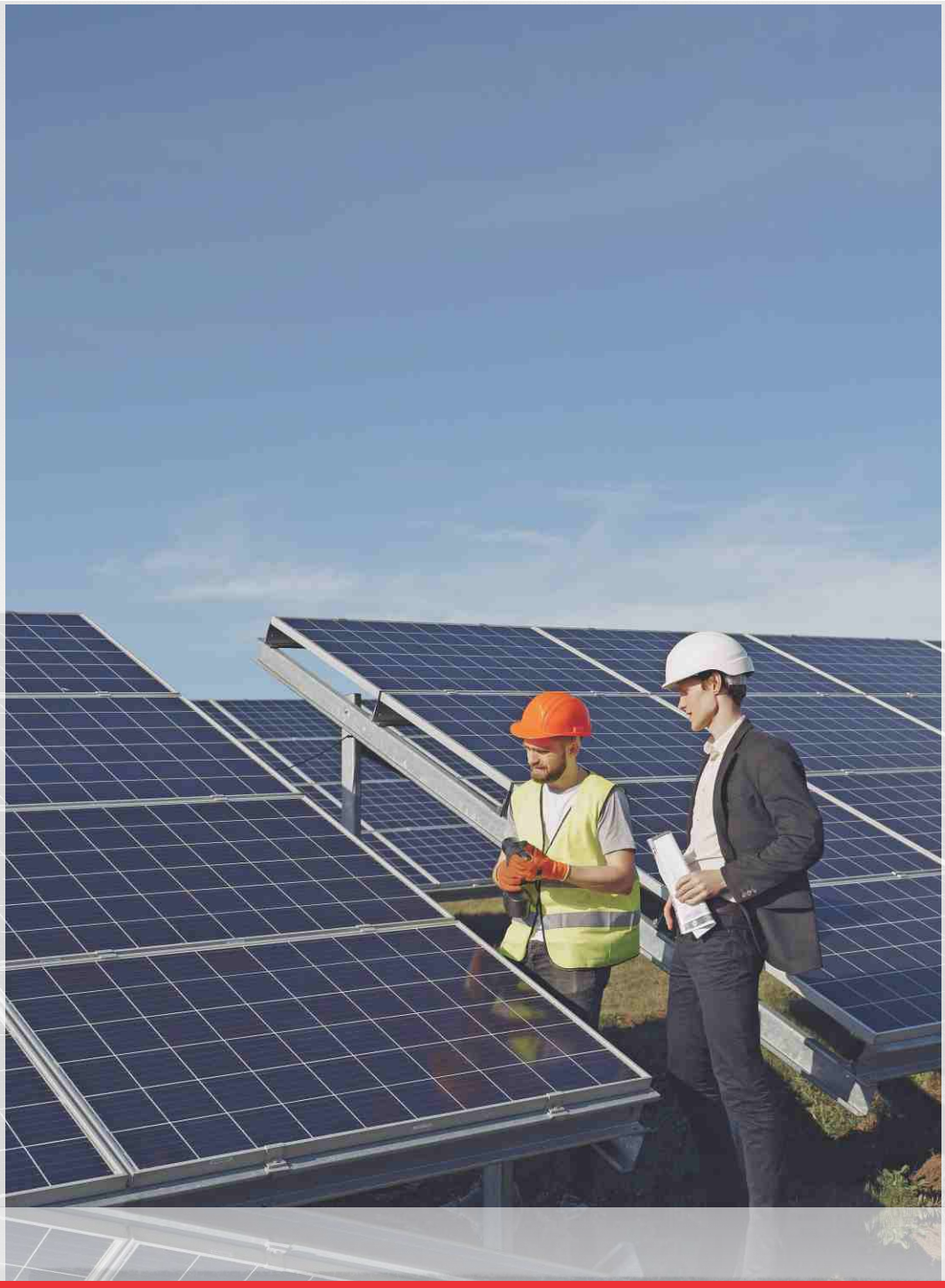
CONVEY THE SUN POWER



SOLAR HYBRID INDUSTRIAL INVERTER

INDUSTRIAL SOLUTION BY SOLAR

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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

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

BATTERY BACKUP MODE

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

CHARGING MODE - SOLAR CHARGE CONTROLLER - 50 AMP

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

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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:

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)

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