MEDI'S STATIC CHANGE-OVER TYPE SINE WAVE INVERTER 3KVA TO 10KVA

MEDI's static change-over type sine wave inverter is a DSP based design with advanced features like mains short circuit protection and output short circuit protection along with cycle by cycle current limiting.

The IGBT based static change over promises no delay during change over which works excellent for computer load. This design is ideal for solar application with its superior features like no-load shut down, automatic load restart and priority solar charging.

It has fold-back current limiting for short circuit and heavy loads. At short circuit or heavy loads, current limiting action will take place instead of tripping which will lead to more reliability.

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Highlights

1. Full bridge configuration based on IGBT half bridge module
2. Short circuit protection for mains and inverter both
3. DSP based intelligent control
4. IGBT based static change over – no relay change over
5. LCD based display for user-friendly display of parameters and status
6. Protection against overload
7. Buzzer indication for battery low, overload, short circuit etc. System continues normally if the error is corrected.
8. Four line LCD
9. Priority solar charging
10. No load shutdown and load restart for energy saving

11. Cutoff and auto restart with permanent cut after 5 consecutive cut offs.

12. SMPS type four stage charging with full charge cutoff and trickle charging.

13. Self powered driver module with built-in isolated supply simplifies the design and reduces component count.

14. 20KHz switching frequency resulting in silent operation. No audible noise.

15. Pure sine wave output

16. Ideal for mixed load.

17. Inverter/UPS selection switch, micro switch or ordinary switch selectable.

18. Protection against accidental output feedback disconnection.

19. Indigenous design with proven technology

SPECIFICATION FOR 3 KVA to 10 KVA INVERTER

POWER RATING	:	3000 VA - 10000 VA
CONTROL DEVICE	:	DIGITAL SIGNAL PROCESSING
POWER DEVICES	:	IGBT / MOSFETS
INPUT BATTERY VOLTAGE		48 - 240 V DC
OUTPUT VOLTAGE	:	220 V +/-1% AC SETTABLE

OUTPUT FREQUENCY	:	50 Hz +/-1%
OUTPUT WAVE SHAPE	:	SINOSOIDAL
OUTPUT T.H.D	:	< 2 % with resistive load
MAINS CHARGING	:	PWM
MAINS CHARGING CURRENT		SETTABLE 15A MAX
MAINS CHARGING VOLTAGE		140 – 270 V AC
MAINS TO INVERTER & INVERTER TO MAINS CHANGE – OVER	:	IGBT BASED STATIC SWITCH
SOLAR CHARGING PRIORITY		YES
BATTERY LOW LEVEL	:	SETTABLE
BATTERY FULL CHARGE CUT OFF LEVEL	:	SETTABLE
OVERLOAD PROTECTION		FOLDBACK CURRENT LIMITING
SHORT CIRCUIT PROTECTION		TRIP AFTER 3 SEC
SHORT. CIRCUIT RESTART		AUTO AFTER 15 SECS (5 TIMES)
OVER LOAD	:	112 % FOR 10 SECS.
OVER LOAD RESTART	:	AUTOMATIC (5 TIMES)
DISPLAY	:	LCD 1, 2 or 4 lines settable
ALARMS FOR FAULTY CONDITIONS		SHORT CIRCUIT, OVERLOAD, BATTERY LOW
SETUP	:	THROUGH MENU-DRIVEN SETUP

NO LOAD SHUT DOWN (if the load is less than 15W) AND LOAD RESTART (when load equal or above 15W is connected) ARE INCORPORATED FOR SAVING SOLAR ENERGY

PARAMETERS like BATTERY LOW, BATTERY FULL CHARGE, CHARGING CURRENT, INVERTER VOLTAGE, INVERTER FULL LOAD ETC CAN BE SET USING MENU-DRIVEN SET-UP.

WHEN THE SYSTEM IS IN BYPASS MODE PARAMETERS DISPLAYED

> BATTERY VOLTAGE

> INVERTER STANDBY ON/OFF

> MAINS VOLTAGE

> CHARGER ON/OFF

WHEN THE SYSTEM IS IN INVERTER MODE PARAMETERS DISPLAYED

> BATTERY VOLTAGE

> INVERTER OUTPUT VOLTAGE

> LOAD

> SOLAR CHARGING /MAINS CHARGING

> INVERTER MODE

> OVERLOAD

> SHORT CIRCUIT

> OVERLOAD TRIP

> SHORT CIRCUIT TRIP

> BATTERY LOW VOLTAGE TRIP

No load shut down and load restart – in a 10KVA inverter if there is no load, the inverter will automatically shut down. During this shut down, the inverter will consume only 15mA. When there is a load of even 15VA connected to the output, the DSP will detect the load and restart the system.

This is especially useful in solar applications as the energy consumption in shut down mode is extremely low. Hence this feature is very suitable for energy saving applications.

It has priority solar charging, i.e. if a solar panel is connected, while charging from the solar panel the mains charger will be standby. After charging from the solar panel, if the battery is not fully charged, only then mains charger will be activated. So we can save the electricity.

Minimum wattage detection for no load shutdown – 15W

During solar charging, when battery voltage reaches full charge (this value is settable), the inverter will be switched on and mains will disconnect from the load, till the battery voltage reaches reserve battery voltage (this value is settable).

Below the reserve battery voltage, inverter will switch off and mains charger will be switched on and mains bypass to the load will take place. This cycle will repeat automatically.

During this cycle, any permanent cut-off of the inverter due to short circuit or overload, it will come out of this mode to its original mode, that time if mains is present it will bypass the mains.

IGBT based static change over – the change over is happening using IGBT and not using relay. This means there is absolutely no change over delay and hence there is no chance for reboot.

A four line LCD will be of scrolling type, showing 'your company name' and the status of the inverter such as batt voltage, mains voltage, and inverter output voltage, inverter standby on/off, charger on/off, mains / solar charging and many more.

It is very simple to handle and very easy to set the values in the menu driven set-up mode.

In the menu driven set-up, we can see all the parameters in LCD like battery low – 21V, inverter voltage – 220V etc. By using the Up & Down keys, we can change the values. For ex: Battery low – 21V, by using the 'Up' key, you can increase the value to 21.2, 21.3 ….22, 23… By using the 'down' key you can decrease the value to 20.8, 20.7…..20, 19…If you want to set battery low at 21.4V, press the 'enter' key at 21.4 then this value will be fed to the memory and battery low will be set for 21.4V.

There is no need of any preset. In the conventional method of using a preset, we cannot view the set voltage, after setting the preset, we have to evaluate by varying the battery voltage and check if the battery low warning and cut is coming at the set voltage. Moreover, due to the mechanical vibrations and ageing, there are chances for the preset to shift the set position.

Technology cost – Rs.3,50,000

A discount of Rs.50,000 will be offered to all customers that have purchased MEDI's 300VA to 3KVA DSP based pure sine wave inverter technology.

Note : MEDI is an R&D firm and is not involved in manufacturing. MEDI can provide technology to manufacturers so they can manufacture the product at their end but MEDI will not provide semi-finished or finished goods / products.