

# Nishan Solar MPPT for offgrid applications

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- efficiency above 99%
- 1 year memory



- Reduces carbon emissions and
- Greenhouse gases





## Specification of Nishan MPPT

### Features:

1. DSP based eight phased interleaved switching.
2. Control device – dsPIC Microchip USA.
3. Power topology – eight phased interleaved switching
4. Switching element – MOSFETs
5. Isolation - No isolation, positive common.
6. Switching frequency in each phase is 18KHz, resultant switching frequency in the final output 144KHz.
7. Very low ripple current in input and output due to inter-leaved switching.

### Operation:

MCCV battery charger with temperature compensation – Maximum Current Constant Voltage (MCCV) battery charging method.

When the battery is discharged or not fully charged, the MPPT action will track the panel impedance and give the maximum current to charge the battery.

When the battery voltage is close to full charge voltage, it will reduce the current to keep the battery voltage constant. The current will become zero when the battery voltage is equal or more than the full charge voltage.

Temperature compensated charging -22mv to -30mV per °C per battery (settable).

Internal monitoring and recording of data like panel current, panel voltage, battery current, battery voltage is done using RTC and flash memory with year, month, date, day, hour, minute with leap year correction.

Every 55 micro-second the unit will read the data and display on the LCD. Average of these samples will be taken every fifteen minutes which will be used for data logging. Data can be stored up to one year which can be monitored through RS485 / USB.

### Protections:

- Panel input high voltage – usually the panel voltage should be equal or lesser than the rated voltage of the MPPT. But if accidentally, the connected panel is more voltage than the MPPT's rated voltage, it will be protected.
- Lightning surges at panel input – due to lightning, high voltage spikes coming to the panel input will not cause any damage to the system.
- Accidental high current panel connection – usually the panel current and VA should be equal or lesser than the rated current and VA of the MPPT. But if accidentally, the connected panel is more current and more VA than that of MPPT, the MPPT will trip and indicate "Over-rated panel" in the LCD.
- Battery full charge cut off.

### Efficiency:

Greater than 99%. (High efficiency is achieved because of inter-leaved switched technology)

**Total input voltage range:** 48V to 220V,

**Total output voltage range:** 40V to 150V

Input voltage range	Corresponding output voltage
48V to 88V	40V to 60V
60V to 110V	50V to 75V
72V to 132V	60V to 90V
96V to 176V	80V to 120V
120V to 220V	100V to 150V

### Range:

5 KW to 50 KW

*For more details on ordering please contact,*

### **Nishan Power Converters**

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