



**McUD31**



**McUD31L**



## **McUD31**

**Microcontroller Based  
12V/2.5A Solar Charge Controller**

*McUD31 is Solar Charge Controller with 2.5A current capacity for load as well as for charging the battery. It is available in two versions,*

*McUD31 as solar charge controller in metal casing and McUD31L in open frame with built-in LED driver with dusk to dawn and dimming option for solar LED lights.*

### **SALIENT FEATURES**

- Suitable for all types of batteries, SMF( LEAD ACID, TUBULAR), LITHIUM ION or LITHIUM IRON PHOSPHATE. (Customized as per user requirement)
- Full electronic protections against faults
- State of art design to save energy, extend battery life and self diagnosis
- Ease of installation/use and 100% pre-shipment checks
- LED display on board to indicate the battery status and charging status.

### **PROTECTIONS:**

- Full Electronic protection against over load or short circuits.
- Protections against deep discharge and over charge of battery.
- Protections against reverse flow of current from battery to panel during night.
- Protections against lightening.
- Epoxy coating of electronics for protections against humidity and dust.

### **SAVES ENERGY**

- High efficiency shunt control to regulate the battery and load.
- Extremely efficient and low loss Mosfets to save battery power.
- Negligible IVD and OVD
- Negligible quiescent current

### **SELF DIAGNOSTIC LED INDICATORS**

- Bicolour LED for battery status
- Fault indication by the same LED
- Green LED indicator for charge status

### **LONGER BATTERY LIFE**

- PWM algorithm for SMF battery charging for better SOC
- Battery specific algorithm for charging Lithium batteries
- Low voltage disconnect of load from battery.
- Over voltage disconnect of battery from panel.

### **EASE OF INSTALLATION AND USE**

- Industrial grade sheet metal enclosure.
- Easily accessible terminals for connections.
- Open frame controller for LED loads suitable for fitting in housing

### **QUALITY CONTROL AND CERTIFICATION**

- 100% pre-shipment testing of each controller
- Conforms to IEC 62093 to assure the reliability



**62093**

# TECHNICAL SPECIFICATIONS

## CHARGING: Green LED.

Turns on when panel voltage is more than battery voltage to indicate positive charging, It starts blinking when battery is charged.

## BAT STATUS : BICOLOUR LED.

- ➔ Turns Red when battery reaches LVD and disconnects the load.(**BAT LOW**)
- ➔ RED blinks if battery voltage is between LVD and LVR (**BAT RESERVE**)
- ➔ Turns Green when battery is **HEALTHY** (between LVR and HVD)
- ➔ Alternates **Red** and **Green** when battery >HVDD or over load. Load is disconnected. Charging is disabled.

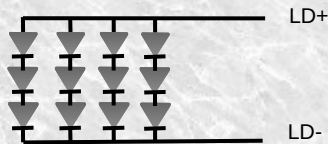
## 6-WAY TERMINAL :

On board connector marked PV+, PV-, BT+, BT-, LD+ and LD- to make connections to respective inputs and outputs.

### McUD31L

High efficiency buck converter to drive LED load.  
Theatre lighting mode to switch on the LED lights  
Indicating LED cables with relimate connectors.

#### LED load connection



(Forward voltage of LEDs: 2.7 V to 3.4 V)



(Forward voltage of LEDs: 8.2V to 10 V)

SYSTEM:	12V Nominal		
CAPACITY:	Input Panel 40Wp/12V, 2.5Amax		
	Output 2.5A max (McUD31) Upto 12W drive for LED load (McUD31L)		
REGULATION:	Low Loss, Shunt Type		
OUTPUT VOLTAGE DROP:	<100mV at 2.5A (OVD)		
INPUT VOLTAGE DROP:	<300mV at 2.5A (IVD)		
BATTERY OPERATION (Based on customization)	BATTERY TYPE		
	Lead Acid 12V	Li Ion 11.1V	LFP 12.8
LOW VOLTAGE PROTECT:	9.5 V	8 V	10 V
LOW VOLTAGE DISCONNECT:	10.7 V	9.6 V	11.2 V
LOW VOLTAGE RECONNECT:	12.3 V	11.2 V	13 V
HIGH VOLTAGE DISCONNECT:	14.4 V	12.6 V	14.4 V
HIGH VOLTAGE RECONNECT:	14.3 V	12.3 V	13.8 V
HIGH VOLTAGE PROTECTION:	15 V	13.5 V	15 V
DUSK_SENSE	Panel Voltage < 0.4V		
DAWN_SENSE	Panel Voltage > 1V, 10 sec delay		
PROTECTIONS:	*Short Circuit / Overload *Reverse Battery *Reverse Solar Panel *Reverse flow of current from Battery to Panel during night *Lightening		
Electronic shutdown	If load>2.5A, load off and checks after 5 seconds automatically		
APPLICATION;	In Door Use Only		
OPERATING TEMP RANGE;	0 to 60 C		
DIMENSIONS:	60X48X16 (mm) McUD31L Open Frame 75x68x27 (mm) McUD31 Metal Housing		



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