



Solar Home Lighting System **McSHS12i pro** (WITH LED BULBS & electronic overload protection)

McSHS12 is a Solar Home Lighting System which by default uses new generation LED bulbs although it can be used for CFL lighting load as well. The system works for 4 hours daily with all 4 bulbs on (NO-Sun Autonomy 2 days). The system is optimised for cost and performance to cater to the remote areas where grid power is a luxury. The system comes in total package which includes long life LED bulbs for better light at less consumption, extension cable with holder and plug for bulb connection, crystalline solar panel and control box with all plug and play arrangement for connections to panel and bulbs.

It does not stop here. To cater to the needs of mobile charging in the remote areas, control box by default comes with high efficiency mobile charger.

Additionally, the charge controller is designed with unique feature that protects against accidental shorts and overload at the output. If any output is overloaded, it automatically trips the load. A bicolour LED is used to indicate normal operation which turns red during overload. A manual reset switch is provided to bring back the system to normal after removal of faults.

Solar Charge Controller inside is PWM type to have the best SOC of the battery.

The bulbs are of 30 LED cluster type in attractive ABS moulding. It has built-in high efficiency smps type LED driver inside which continuously saves battery power and gives constant illumination over entire operating range of battery.

The box has independent on/off switches provided for individual lamps. Battery low and Charging are indicated by Red and Green LEDs on the front.

The charge controller is high efficiency shunt type with full protections against over charge and deep discharge of battery. Battery is SMF type needing absolutely no maintenance.

The system has optional feature of charging from mains/grid power. Optional adaptor which is specially designed for solar integration can be had if required. The electronics inside has a provision to accept grid charge as well.

Salient Specifications:

BATTERY:	12V/7.2Ah SMF
PANEL:	10Wp Max, Load 1 A Max
DAILY USE:	4hours for 4 bulbs (STC Insolation, 5 ½ hours) (Two Days No-Sun Autonomy)
CHARGE CONTROLLER:	LOW LOSS, SHUNT TYPE
NLC:	No Load Current/Quiescent current <1 mA
OVD:	Output Voltage Drop < 300mV at 1 A load
IVD:	Input Voltage Drop < 300mV at 1 A charge
LVD:	Low Voltage Disconnect, 11 V
HVD:	High Voltage Disconnect, 14.4 V
LVR:	Low Voltage Reconnect, 12.7 V
HVR:	High Voltage Reconnect, 14.35 V

BULBS: 4 nos. 42 LED cluster bulb in attractive ABS moulding with built-in driver. Extension cable of 4 meter with holder and plug to directly connect the bulb to the control box.

MOBILE CHARGING: High efficiency smps type

PROTECTIONS: Short circuit and overload at load(electronic)
Over current from panel
Reverse polarity of Battery and Panel
Reverse current flow from battery to panel
Lightening protection in panel circuit

BACK UP FUSE : 2A

Indicators and Controls:

CHRG : Green LED. 1. Green: When panel is connected properly and voltage is more than 12V. It thus indicates positive charging.

When battery is fully charged, it starts flickering indicating onset of PWM absorption mode. Such type of charging enhances the life of battery giving the excellent State of Charge.

BTLO : Red LED. When battery voltage is less than LVD level, it turns on and disconnects the supply to the load including mobile output. Loads will be on only when battery is charged above LVR level.

When battery is connected for the first time, its voltage must be more than LVR to have supply at output. If BTLO is on, battery must be charged first through panel. Once in loop, battery will work between LVD and HVD as specified.

NML/OVR: Bi-colour led. Turns green when supply is available at outputs. Turns Red if overload/short at any output.

Reset SW: Microswitch to remove the overload condition after fault is addressed.

SOCKETS: 4 Sockets to plug in the bulb cables of 4 LED lamps.

1 Socket to plug in the panel cable

1 Socket for mobile charging output

SWITCHES: 4 On/Off switches on the box for 4 bulbs independently.

FUSE HOLDER: On the box for 2A glass fuse.