



McUH5

**Microcontroller based
Solar Charge Controller
12V / 5A. Dual Output**

**TWO INDEPENDENT DC OUTPUTS (ONE DIMMABLE): USB PORT FOR MOBILE CHARGING: NORMAL OR DUSK TO DAWN OPERATION
BATTERY STATUS BAR GRAPH DISPLAY: FULL ELECTRONIC PROTECTIONS WITHOUT FUSE**

McUH5 is developed with the view to providing easy and ready-to-use solution for solar home lighting system upto output load of 60 W and panel input of 100Wp. Its fuse-less design comes with all protections electronically for output short, overload and reverse connections. It is suitable for all types of batteries, SMF, LEAD ACID, TUBULAR, LITHIUM ION or LITHIUM IRON PHOSPHATE depending upon the desired software provided as required at the time of dispatch.

For lead acid types, temperature compensation for charging and equalization mode are provided as an option if needed. It doesn't stop here. By default, it can operate in normal mode as well as dusk-to-dawn operation by selecting the switch position on-board itself.

DC outputs are uniquely provided as two independent outputs- one normal dc output and another controllable by dimming switch to drive the load in 4 different bright modes of 25%, 50%, 75% and 100% by a simple push button on board itself. For example, if LED bulbs are connected to this output, you can control the brightness of all bulbs to desired level by this switch. Other dc output is unaffected by dim control switch.

Mobile charging is another feature normally required in home lighting system. On-board USB is provided with high efficiency mobile charging circuitry built-in.

LED bar graph display on board to indicate the battery status- low, reserve, normal, healthy and full. Available in open frame or in enclosure.

Operation:

The controller has 8-way terminal for making connections to panel, battery and two outputs with polarities marked on it.

PV+/PV- : Solar panel upto 100Wp/12V can be connected with proper polarities marked.

BT+/BT- : Any battery of type Li Ion 11.1V or LFP 12.8V or SMF/TUBULAR 12V can be connected based on the relevant software for specific battery only.

DM+/DM- : LED bulbs operating on nominal 12VDC can be connected. All bulbs will be simultaneously controlled by SET_DIM switch on-board in 4 steps of 25% each.

LD+/LD- : Any dc load like fan, bulbs, sound system, radio etc can be connected.

MBL : USB port for mobile charging. Output is 5.6V/700mA

INDICATORS/SWITCHES:

SET_D2D: Slide switch. If put on D2D, entire operation will be D2D for all the loads. Else, it will be normal controller.

SET_DIM: Tact switch. Press repeatedly to have desired dimming of connected LED bulbs at DM+/DM- terminals only. The bulbs should have PWM compatibility for dimming operation.

CHR: Green LED to indicate charging, only if panel voltage is more than battery voltage. Turns on-off when battery is fully charged.

OVR: Red LED. If the combined load exceeds 5.5A, it will be instantly on and loads are disconnected. Controller will again check after 5 sec if load is reduced. If yes, load will be on again.

If load is more than 5A but less than 5.5A, load will be on only for 3 sec and then it will go to overload condition and operation will be as above.

LOW: Red LED. If battery goes below LVD, it will be on and loads are disconnected. If it is on-off alternately, battery is in lower reserve mode.

NML: Green LED. If battery is above LVR, it will be on. Turns on-off is battery is in upper reserve mode. For loads to be on for the first time, this LED must be on. Once loads are on, operation will continue till it reaches LVD.

HLY: Green LED. If battery is healthy.

FUL: Green LED. If battery is full.

NOTE: If battery voltage is dangerously high, both LOW and NML LEDs will be alternately on and off. Entire circuitry is disabled.

Although the controller is the same for all types of batteries, software is different for different types of batteries depending upon charge/discharge algorithm of battery.

Salient features:

- ✦ 16-bit microcontroller based 12V / 5A continuous capacity.
- ✦ Two independent outputs. One normal and another dimmable.
- ✦ Dimmable output controlled by push switch to set dimming in 4 steps.
- ✦ USB port for mobile charging. High efficiency charger.
- ✦ Switch to select normal mode or dusk-to-dawn mode.
- ✦ Bar graph display to show battery status.
- ✦ Temperature compensation for battery charging.
- ✦ Electronic over load / short circuit protection with auto recheck.
- ✦ 80Wp panel in and 5A load output
- ✦ Best suited for solar home lighting system.

Specifications:

- Panel Input: 100Wp max/ 12V nominal
- Battery: 12V Lead Acid, 11.1V Li Ion, 12.8V LFePO4
- Output: 5A max, total current including two outputs+mobile
- Two independent outputs- normal and dim controlled
- USB Port: Mobile charging out, 5.6V/700mA
- Indicators: **Battery status-** Low, (Reserve blink), Normal, Healthy, Full
- Over Load-** Auto resets after 5 sec delay
- Charging-** when panel is sufficient to charge
- Switch to select normal or d2d mode
- Dim SW: Multiple push to dim, 4 steps of 25%