

Protection Circuit Module with LED Fuel Gauge

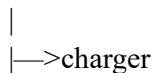
For 12V NiMH/NiCd Battery Packs

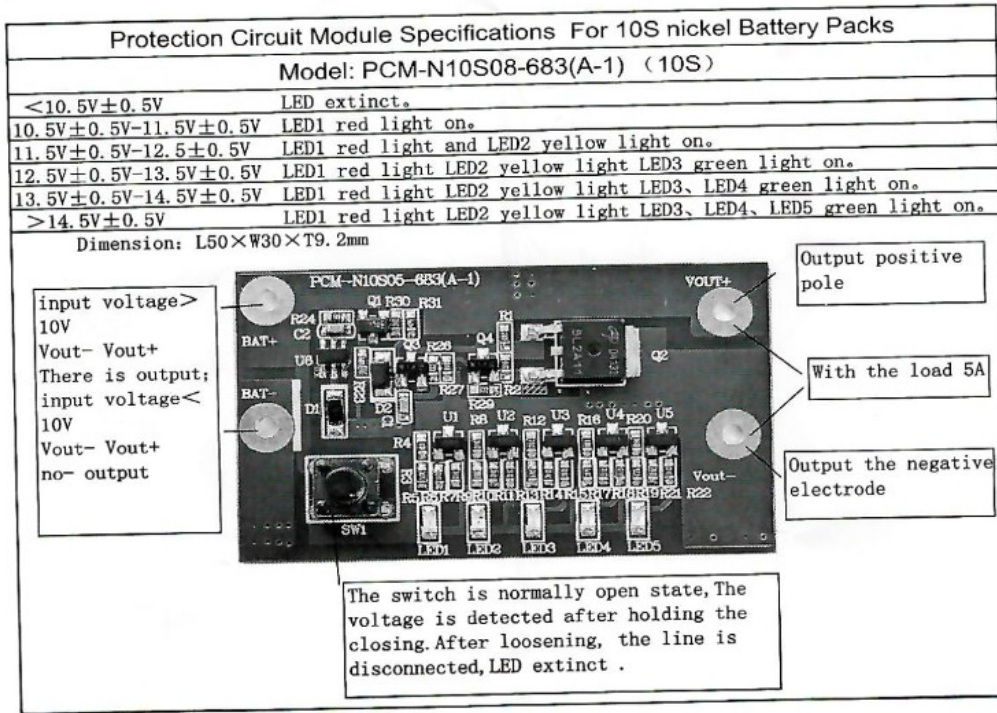
This protection circuit is specially designed for 12V NiMH/NiCd Battery pack with up to a max of 5.0A discharging rate.

- Apply for 10 Cells NiMH/NiCd Battery pack with discharging current <5.0A
- Keep 12V NiMH/NiCd Battery pack from over-discharge (10V)
- No over-charge protection
 - Must use the correct voltage charger to properly charge the battery pack!
- Max discharging /charge current <5.0A.
- PCB will cutoff at 10V±0.3V to protect battery pack from over discharge
- Dimension (LxWxH): 50mm (2.0") x 30mm (1.2") x 10mm (0.4")
- Weight: 5.6 grams (0.2Oz)
- 5 LEDs display battery pack's voltage (press button to turn on LEDs indicators, it will turn off when you let go)

<10.5V±0.5V	LED off
10.5V±0.5V to 11.5V±0.5V	LED1 (Red) on, must recharge battery ASAP
11.5V±0.5V to 12.5V±0.5V	LED1 (Red) and LED2 (Yellow) on, battery need recharging soon
12.5V±0.5V to 13.5V±0.5V	LED1 (Red), LED2 (Yellow) and LED3 (Green) on
13.5V±0.5V to 14.5V±0.5V	LED1 (Red), LED2 (Yellow), LED3 and LED 4 (Green) on
>14.5V±0.5V	LED1 (Red), LED2 (Yellow), LED3 , LED 4 and LED 5 (Green) on, battery is fully charge
	NO LED - disconnect the load (device) and recharge the pack ASAP!!

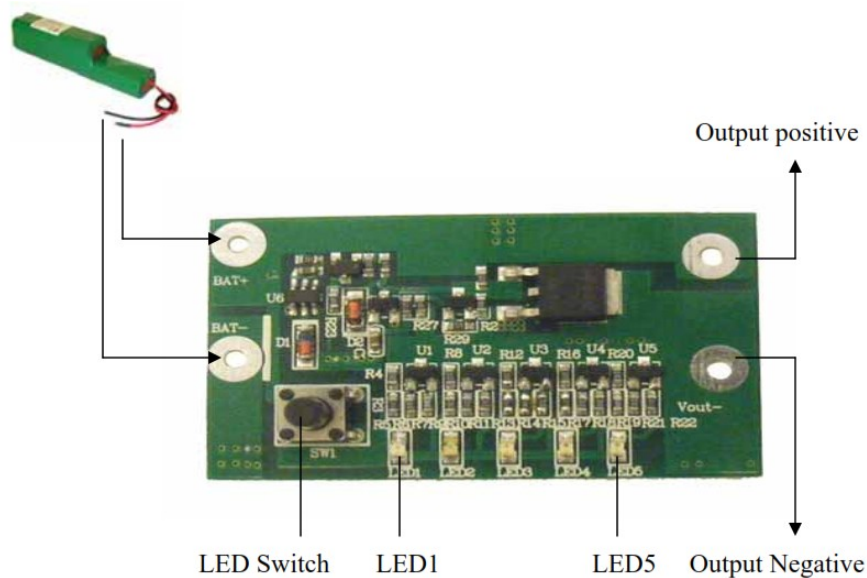
- To Reset the PCB:
 - Connect a 12V charger to "Reset" the PCB once the PCB is open when battery pack voltage drop below 10V±0.3V
 - If you have a multi-voltage charger, it might not "reset" the PCB, you can "reset" the PCB by:
 - Connect the charger directly to the Batt+ and Batt- of the PCB
 - If you cannot remove the load, then you can add an on/off switch like this to "reset" PCB and start charging:
 - battery-----> PCB -----> switch ----->load





Connection Diagram:

- Input positive = 'BAT +' = 12V positive
- Input negative = 'BAT -' = 12V Negative
- Output positive = 'Vout +' (Solder spot above 'Vout-') = Charge + / Discharge +
- Output negative = 'Vout-' = Charge - / Discharge -





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Warning:

- Misusing PCB may cause battery damage or explode. We are not responsible for any damage caused by user.
- Don't use this PCB with Li-Ion / LifePo4 battery pack
- Must charge battery up to 12VDC minimum
- Must disconnect load from PCB to "Reset" PCB before charging
- Since this PCB does not have over-charge protection function, must use our 12V NiMH/NiCd smart charger to recharge 12V battery pack.