

Electronics-Salon CZH-LABS

Low Loss PWRshield LVD-HVD Power Guard Module

SUK: MD-F1009-1



The PWRshield module is a programmable LVD(Low Voltage Disconnect) and HVD(High Voltage Disconnect) power protect system. LVD function can protect the battery, prevent from over-discharging and damage the battery. HVD function can protect the load from being damaged due to excessive power supply voltage.

Programmable voltage setting for LVD and HVD(rocker switch set to AUTO). With emergency ON or OFF function, if you want switch output to be immediate and remain ON or OFF, you can set rocker switch to ON or OFF.

When the output is ON, the output status LED lights green. When the output is OFF, the output status LED lights red. When the input voltage is normal, the NORMAL LED(green) light is on. When the input voltage is lower than the normal value, the UNDER LED(red) light is on, and internal buzzer ALARM(slow-paced). When the input voltage is more than the normal value, the OVER LED(yellow) light is on, and internal buzzer ALARM(fast-paced). Three voltage status LEDs(NORMAL, UNDER and OVER) and buzzer are not affected by the state of the rocker switch. If you do not want to hear the annoying buzzer sound, you can open the upper cover and unplug a pin-jumper, however, we do not recommend you to do this because this "annoying voice" is a very useful reminder and warning.

NOTE:

Do not reverse input and output terminal, do not reverse connect battery/power supply polarity, otherwise it will damage battery or the module.

Features:

- The PWRshield module is a programmable LVD(Low Voltage Disconnect) and HVD(High Voltage Disconnect) power protect system. Programmable voltage setting for LVD and HVD(rocker switch set to AUTO). With emergency ON or OFF function, if you want switch output to be immediate and remain ON or OFF, you can set rocker switch to ON or OFF.
- Design based on microcontroller and low loss MOSFETs (on status resistance < 0.002 ohm), you do not have to add heatsinks even for 30 Amps of continuous working current.
- Standard 30 Amps Power pole connectors.
- High quality aluminum enclosure, thickness 1.5mm/0.06".
- Attachment includes: 2x black power pole housings.
2x red power pole housings.
2x PVC cover flame retardant sleeve.
4x silver plated copper 30A 14-12AWG power pole contacts.

Specification:

Operating voltage: DC 6.5 ~ 30V

Programmable HVD value: 14V/15V, 15V-16V, 16V/17V, 17V/18V.

Programmable LVD value: 10V/11V, 10V/12V, 11V/12V, 11V/13V.

Quiescent current(output off status): 2.5mA

Quiescent current(output on status): 13mA

Disconnect/Reconnect voltage tolerance: < 0.1V

Max. output current: 40A (< 5 seconds)

Max. continuous output current: 30A

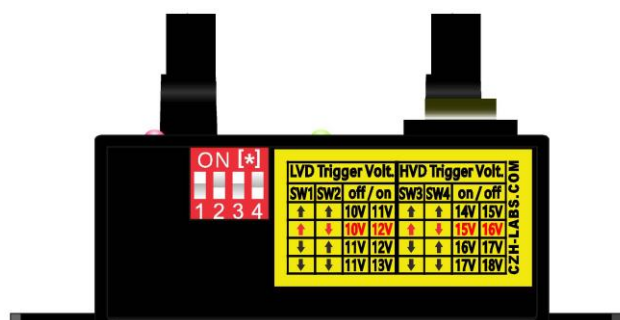
Voltage drop: 0.025V (at 10A)

0.070V (at 30A)

MOSFETs: 30V 60A P-Channel, on status resistance < 0.002 ohm.

Connectors: compatible 45A power pole connectors, **Red is positive, Black is negative.**

LVD and HVD Function Voltage Setting Example:



Low Voltage Disconnect (LVD Trigger Voltage OFF): 10V

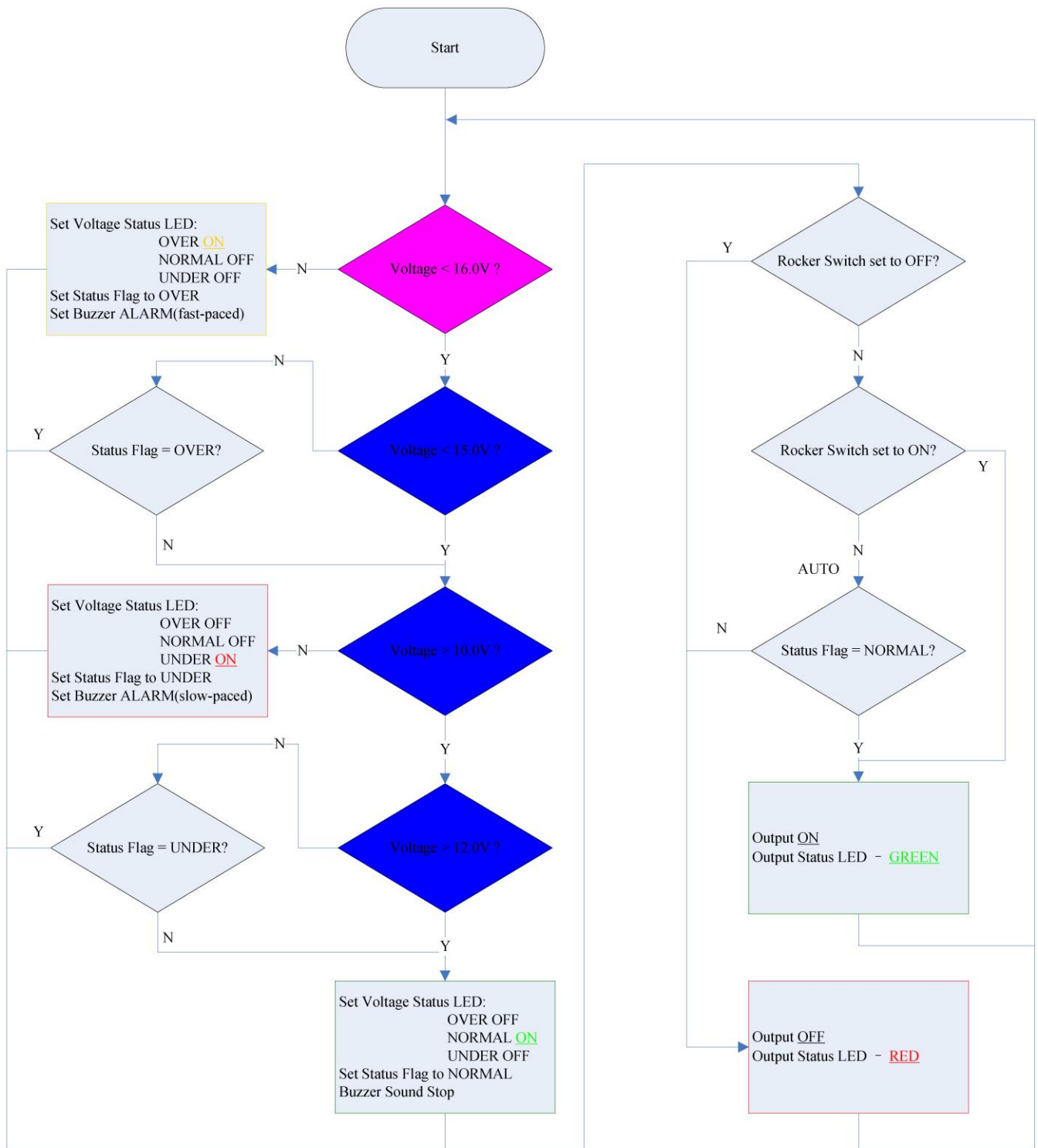
Low Voltage Restore Reconnect (LVD Trigger Voltage ON): 12V

High Voltage Disconnect (HVD Trigger Voltage OFF): 16V

High Voltage Restore Reconnect (HVD Trigger Voltage ON): 15V,

Set rocker switch to AUTO. when the input voltage falls to $\leq 10V$ and continuously held for 5 seconds, output will OFF. When the input voltage rise to $\geq 12V$ and continuously held for 5 seconds, output will return to ON state.

When the input voltage rise to $\geq 16V$, the output will be turned OFF immediately (response time is less than 5 ms). When the input voltage falls to $\leq 15V$ and continuously held for 5 seconds, output will return to ON state.



Note:

1, Examples of setting voltage in this flowchart are LVD 10V-12V and HVD 15V-16V.

High Voltage Disconnect 16V

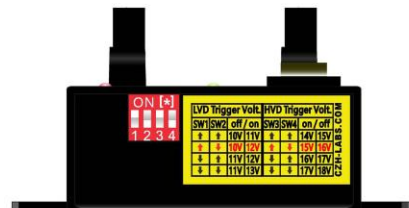
High Voltage Restore Reconnect 15V

Low Voltage Disconnect 10V

Low Voltage Restore Reconnect 12V

2, High Voltage Disconnect response time 5mS / 0.005 Second (Purple rhombus part).

3, High Voltage Restore Reconnect, Low Voltage Disconnect and Low Voltage Restore Reconnect response time 5 Seconds (Blue rhombus parts).

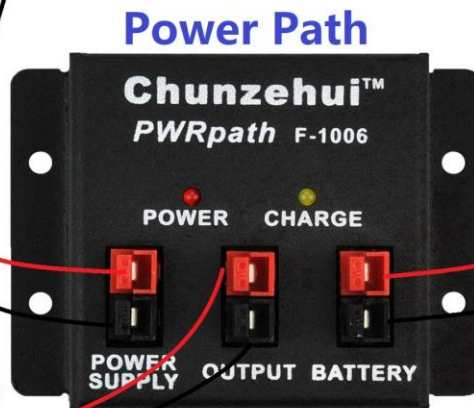




Power Supply



Battery



Power Path

Red - Positive
Black - Negative



Power Guard



Power Timer



Load

Dimensions:

