

Application Note – Host Charge/Discharge Control

Background

It's quite usual that one wants to send command from host to BMS to control the ON and OFF of the charge/discharge channel (the charge/discharge MOSFET) as they did previously to the charge/discharge relays in some old fashion Lithium battery systems.

Typical approach

All typical PCM (BMS) designed by BMTPow will control the charge/discharge MOSFETs solely by BMS's protection algorithm which is quite lined up with industrial practices.

Special request

Under special request, BMTPow BMS may also accept MOSFET control commands from host side via either SMBus, RS232, RS485, CANBus, Bluetooth or even via isolated I/O pin signal, in such case the following priority scheme may applied,

- a) If the charge/discharge MOSFET is in ON (close circuit) state and host commands it OFF, BMS will respect it and set it OFF, just the battery can not charge/discharge anymore except the host release it.
- b) If the charge/discharge MOSFET is in OFF (open circuit) state and host commands it ON, BMS must first make sure there is no violation to the protection conditions, or otherwise BMS will ignore the ON command.
- c) If host commanded the charge/discharge MOSFET to ON (close circuit), BMS may still set it OFF due to protection reasons.

The above scheme can be negotiated, for detail, please check with BMTPow.

For command to set the charge/discharge MOSFET ON/OFF and how to use the I/O pin, please consult BMTPow.

Remark: Turning OFF the discharge MOSFET does not mean to shutdown the BMS, therefore the BMS is still working to manage and protect the battery, also communication is still working, just provides no output to the load.

Reason why host need to control the charge/discharge

May due to various reasons, one of the reasons is that user thought that the battery system does not built-in the protection functions so that has to control it externally, if it is the only reason, please simply leave it to BMS as all BMS platforms made by BMTPow has the protection

functions built-in.

Second reason is that user try to lower the power consumption by turning off the output (discharge channel), again if it is the only reason, leave it to BMS, since BMS will detect the charge, discharge current and communication, if none of them is detected, the BMS will set itself to idle mode, thus only 180~250 μ A¹ is consumed, a BMS in idle mode will automacitally wake up itself to check the protection thresholds and performing varies kinds of housekeeping jobs.

¹ May vary per PCM model