FU-Dyson-BMS Firmware State Flowchart

Charging Wait (Waits 70 seconds) — White

Charger disconnected

Last Charge Cycle Length >= 10 seconds

Wait complete

Temp >= Max charge temp or Safety Checks not OK

Max cell >= 4.2V

Last Charge Cycle Length < 10 seconds

Set charge_complete_flag = true

Max cell >= 4.2V

Charging Enabled — Blue

Max Cell Voltage < 4.2V
Safety Checks OK
Temp < Max Charge Temp

Charger Connected charge_complete_flag == false

Charger disconnected

Temp >= Max charge temp or Safety Checks not OK

Sleep

Trigger Pulled
or
Charger Connected
(ISL enables power to PIC)

Init

Idle for 30 seconds

Min cell <= 3V

Set full_discharge_flag = true

Min cell voltage <= 3V

Charger connected

Trigger released

Idle/Awake — Green

Charger Disconnected

Trigger Pulled

Min cell voltage > 3V
full_discharge_flag == false
Safety Checks OK

Output Enable — Blue

Safety Checks not OK

Safety Checks not OK

Max cell < 4.1V or charger disconnected

Set charge_complete_flag = false

full_discharge_flag == true

Fault cleared
Trigger/charger removed
Error code shown 3 times
No fault for 3 seconds

Error
- Shows applicable LED error codes
- Logs faults to EEPROM

Red/Blue Blink Code

Exit conditions not met /
Fault not cleared for 60 seconds
(Does not apply if charger connected)

LED blink codes during state transitions

△ Cell Delta LED Indicator

◖ Cell Voltage LED Indicator

★ Firmware Version LED Indicator

△ Fancy Statup LED Flashes

LED color shown while in state

Green | White

Blue

Red/Blue Blink Code

Safety Checks =
ISL Internal Temp < Max Temp
Thermistor Temp < Max Tem
ISL and Thermistor Temp > Min Temp
No ISL fault flags
Discharge Current < Max Current

Yellow = Towards idle state

Blue (or is this purple?) = Away from idle state

FU-Dyson-BMS - (unofficial) Firmware Upgrade for Dyson BMS - V6/V7 Vacuums
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