



SPECIFICATIONS

Parameter	Mode	SPEC...	Unit
Operating Voltage	Output Battery Voltage	6.0 - 30	V
	Charger Input Voltage	55	Vmax
Battery Type	Lithium Polymer Battery Only	3.7V nominal cell voltage	
Operated Mode	Connection Mode		
	Disconnection Mode		
Balance Battery Cells	Lithium Polymer Battery	2 - 6	Cells
Max Current		10	Amps max
Voltage Resolution	Connection / Disconnection Mode	±5 *	mV
Display Type	Battery Condition LED	Green, Red	
	Status LED	Red	
Case Type	Plastic CASE		
Input Type	Wire Cable	P0.18X50X200	
Output Type	Wire to board Connector	SMAW250-08	Pin
FUNCTION	Over Charge Protection Voltage	4.30±0.010 *	V/Cell
	Over Discharge Protection Voltage	3.00±0.010 *	V/Cell
	Short Protection Voltage	2.00±0.010 *	V/Cell
	Power Down Voltage	2.75±0.010 *	V/Cell
	Connection Error Check		
INTERFACE CABLE	Servo Connector Male(FUT)/ Male(FUT)	P0.08X30X300	
NETWORK CABLE	MOLEX	P0.08X60X150	

* Digital calibrated value

Operating mode

Initial mode : When the balancer is connected with the LiPo battery pack, it should immediately check battery connection, network cable, and the Mater selection for 12 seconds.

Connection mode : When the balancer is actually connected to a charger or discharger, the balancer should function in Connection mode.

Disconnection mode (standalone) : When the balancer is disconnected from a charger or discharger, the balancer should function in Disconnection mode.

Choose the proper harness from the included set to match your battery's cell count.

Connect the lithium pack to the balancer in Disconnection mode (standalone).

Now watch the Status LED and Condition LED as like :

<u>Status LED</u>	<u>Function</u>
one flash per second (x x x)	Initial Mode
ON solid	balancer in Disconnection Mode
one flash per second (x x x)	balancer in Connection Mode
two flashes (xx xx xx)	over-voltage error
three flashes (xxx xxx xxx)	short (voltage) circuit error
four flashes (xxxx xxxx xxxx)	connection error

Battery condition LEDs

Before the battery pack is connected to the balancer first time, **please ensure that the selectable switch MUST be set to " Mater " if one balancer is being used.** If the switch is set to " Slave", the balancer is NOT working at all. After the initial mode, the balancer will automatically enter Disconnection mode. At this time, the Status LED should turn ON. Then, the balancer should start to measure the voltages of all cells in the pack to check and see if they are balanced or unbalanced.

-- If the voltages are already balanced, the balancer should flash the cell count again, then all LEDs should turn off, and the balancer go to Power Down mode.

-- If the voltages are unbalanced, one or more of the battery condition LEDs should start flashing rapidly to indicate the cell has higher voltage than the pack as a whole, and so the balancer is discharging that cell until the pack is balanced to within 5mV.

-- When Over voltage error happens, the Status LED should be indicated as two flashes. At the same time, the LED of that cell which has the over voltage should flash once slowly.

If the balancer is left, when any one cell reaches 2.75V, the balancer should stop discharging. The draw on the pack is very small (490uA), so the balancer could be left for several days, however, we recommend that the pack should be disconnected as soon as balancing is completed.

Balancer in Connection mode with a charger

Connect the balancer to the charger through by the 4mm male gold connectors.

Set the proper voltages and charge current in the charger to match the voltage of the battery pack.

Set the selectable switch to " Master ", and Connect the battery and proper harness to the balancer , it enters " Initial mode " and the balancer should immediately start checking battery connection, network cable, and the Mater selection for 12 seconds. During this time, the status LED should flash every one second.

After this initial mode, it moves to Disconnection mode, and the Status LED should be ON.

The balancer should automatically start discharge balance for the cells in the pack by itself if the cells are unbalanced. Or, the balancer should go directly to the Power Down mode if the cells are already balanced.

Press the MODE button once at this time to enter Connection Mode. After a brief pause, the Status LED should flash to indicate that the Connection Mode is now activated.

Now, press the Start button on your charger.

If the balancer is connected with a charger without connecting the interface cable, when your charger indicates the charge is finished, press the Mode button to move to the disconnection mode.

Disconnect the balancer from the charger.

Disconnect the balanced lithium pack from the balancer.

If the balancer is connected with a charger via interface cable, when the charger indicates the charge is finished, it automatically moves to the disconnection mode.

-- If the voltages are already balanced, the balancer should flash the cell count five times again, then all LEDs should turn off, and the balancer go to Power Down mode.

-- If the voltages are unbalanced, one or more of the battery condition LEDs should start flashing rapidly to indicate the cell has higher voltage than the pack as a whole, and so the balancer is discharging that cell until the pack is balanced to within 5mV.

Balancer in Connection mode with a discharger

Connect the balancer to the discharger through by the 4mm male gold connectors.

Set the proper voltages and discharge cutoff voltage in the discharger to match the voltage of the battery pack.

Set the selectable switch to " Master ", and Connect the battery and proper harness to the balancer. , it enters " Initial mode " and the balancer should immediately start checking battery connection, network cable, and the Mater selection for 12 seconds. During this time, the status LED should flash every one second.

After this initial mode, it moves to Disconnection mode, and the Status LED should be ON.

The balancer should automatically start discharge balance for the cells in the pack by itself if the cells are unbalanced. Or, the balancer should go directly to the Power Down mode if the cells are already balanced.

Press the MODE button once at this time to enter Connection Mode. After a brief pause, the Status LED should flash to indicate that the Connection Mode is now activated.

Now, press the Start button on your discharger.

If the balancer is connected with a discharger without connecting the interface cable,

when your discharger indicates the discharge is finished, press the Mode button to move to the disconnection mode. Disconnect the balancer from the discharger. Disconnect the balanced lithium pack from the balancer.

If the balancer is connected with a discharger via interface cable, when the discharger indicates the discharge is finished, it automatically moves to the disconnection mode.

-- If the voltages are already balanced, the balancer should flash the cell count five times again, then all LEDs should turn off, and the balancer go to Power Down mode.

-- If the voltages are unbalanced, one or more of the battery condition LEDs should start flashing rapidly to indicate the cell has higher voltage than the pack as a whole, and so the balancer is discharging that cell until the pack is balanced to within 5mV.

Balancer in Disconnection mode without a charger or discharger

When the balancer is disconnected from a charger or discharger, the balancer should function in Disconnection mode.

Set the selectable switch to " Master ", and Connect the battery and proper harness to the balancer. , it enters " Initial mode " and the balancer should immediately start checking battery connection, network cable, and the Mater selection for 12 seconds. During this time, the status LED should flash every one second.

After this initial mode, it moves to Disconnection mode, and the Status LED should be ON. The balancer should automatically start balancing the cells.

-- If the voltages are already balanced, the balancer should flash the cell count again, then all LEDs should turn off, and the balancer go to Power Down mode.

-- If the voltages are unbalanced, one or more of the battery condition LEDs should start flashing rapidly to indicate the cell has higher voltage than the pack as a whole, and so the balancer is discharging that cell until the pack is balanced to within 5mV.

POWER DOWN mode

The control circuit will shut down to prevent the battery from being discharged.

Once the button is pressed, the balancer resets.

Current consumption is 490uA in power down mode.

Once the button is pressed the power down is cleared, it should revert to the previous operating status.

ERROR mode

Error will be indicated by the STATUS LED. The error indication will show for 10 seconds, then the balancer will go to POWER DOWN. Pressing the button while an error is being indicated will activate the connection mode.

When an error is displayed, the error will be cleared and the connector's status will be cleared once the button is pressed.

