

CVTR2: IPCS and CTP Features

IPCS and Fast charging

The BLUESHAPE CVTR2 charger features the highest charging current for a Li-Ion charger in the broadcasting sector. This results in currently the shortest possible battery charging time.

BLUESHAPE Li-Ion BV battery series allow fast charging due to several intrinsic features such as pre-charge protection and cell balancing; avoiding cell damage and life-cycle shortening, as demonstrated by the life-cycle performances.

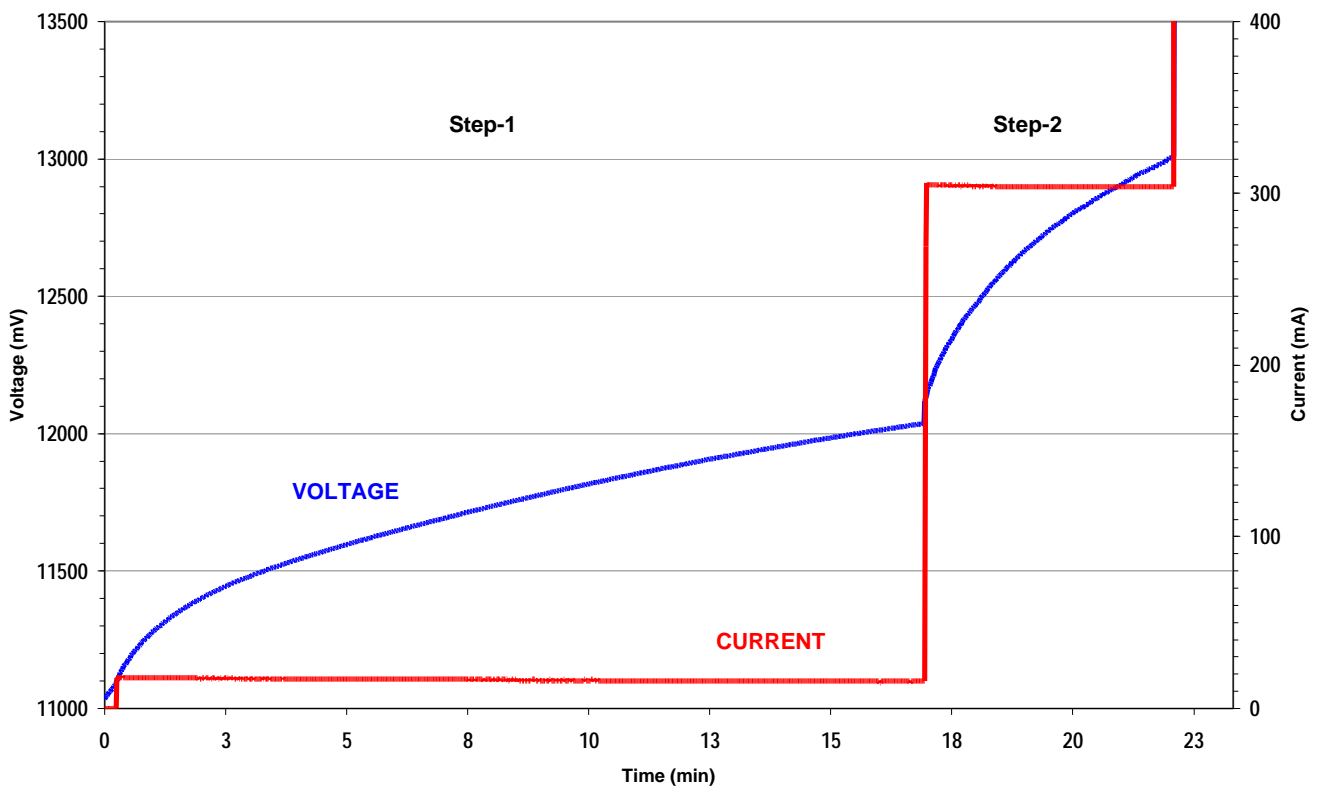
Additionally, the new CVTR2 charger supports and enhances these features with **IPCS**, a 2-step Intelligent Pre-Charge System.

Since fast charging can damage cells if not properly applied, especially with low voltage (discharged) cells, appropriate care must be taken. The 2-step procedure implemented by IPCS, initially boosts very low voltage cells to a state where charge can be applied with a medium-low current without damage, then starts to charge with a 300mA current for a while. Finally, when the pack reaches a reasonable voltage state, it speed-up the charge process by going to full throttle.

The operation implemented by IPCS is only applied if the prevailing cells-state need it, and normally takes a few minutes, depending on the state of discharge of the cells.

The operation implemented by IPCS is outlined in the chart below.

IPCS 2-step Intelligent Pre-charge System



CTP: flexibility of operation and charger reliability

Due to the high charging currents developed by the CVTR2 charger, heat control is an issue for a travel charger, especially if the travel charger is used in potentially hot environments such as inside a car or a van.

To improve the reliability of the device without compromising its usage flexibility, BLUESHAPE has developed an innovative feature; **CTP** (Charger Thermal Protection) that allows the electronics to work out the best possible charge profiles without causing damage, even in adverse temperature conditions.

In case of the charger internal temperature reaching a high level, the charging current is automatically reduced to avoid possible damage caused by internal overheating. When the charging speed is reduced, the internal temperature starts to descend. As soon as the temperature reaches a safe level, normal charging speed is resumed.

Through indoor usage, CTP features do not normally intervene (unless the air convection flow path is obstructed or the internal cooling fan is damaged).

The operation implemented by CTP is outlined in the chart below.

CTP - Charger Thermal Protection

