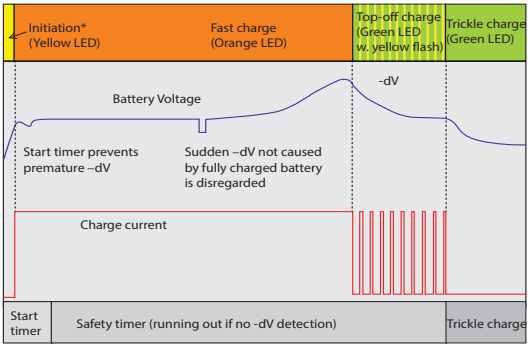
How to use the type A charger (CPM)



Start the charger by connecting the battery pack to the charger and then connecting the charger to the mains.

The LED (light emitting diode) will be yellow before the fast charge starts and the LED changes to orange. When the batteries are fully charged and the voltage drops because of the -dV signal from the batteries, the charger will go into a top-off charge mode before it goes over to trickle charge mode. During top-off charge the LED will be green with a short intermittent yellow light. When the top-off charge is completed, the charger will go into trickle charge mode and the LED will be green. The charge current is now reduced to a safe level, which allows the charger to stay connected to the battery without damaging the cells.

If the safety timer runs out before –dV is detected, the charger will go directly to trickle charge mode (no top-off charge) and LED will be continuously green. If the battery voltage is far below normal, the charger will stop the fast charge current and go to trickle charge mode. The LED will then indicate "error" by flickering green and orange light.

You may manually start a new charge cycle by disconnecting mains input and connecting it again.

To charge another/next battery pack, first pack must be disconnected for approx. 15 sec. When LED is yellow, you may connect the next battery.

LED indications

LED	MODE
YELLOW	Battery not connected
YELLOW	Battery initialisation and analysis
ORANGE	Fast charge
GREEN with intermittent YELLOW flash	Top-Off Charge
GREEN	Trickle Charge
Alternating ORANGE-GREEN	ERROR

When the mains is connected the LED will be orange for the first seconds and then turn to yellow when the initialisation and analysis starts. If a battery is connected, the actual charging will start a few seconds later when the LED changes to orange. After the start-timer period has run out (the first few minutes of the charge cycle when the –dV detection is disabled), the LED will be green for approx. 8 seconds. This is a signal for testing and service only. When -dV has been detected, the start of the top-off charge is indicated with a green LED with intermittent yellow flashes. The LED is green during trickle charge.

Temperature control (optional feature)

If the charger is used with a temperature sensor (NTC-resistor in the battery) it is possible to add temperature control to the battery charging process. If the battery temperature is too low (< 0°C) at the start of the charge cycle, the charger will charge with low current until the temperature level is safe. This is indicated by an intermittent orange flash while the LED is green. Charger will also enter low current wait mode if battery temperature is above 40 °C. The current will then remain low until the temperature is at a level where fast charge can start. If battery temperature exceeds max. charge temp. (60 °C) charger enters error mode. The LED will show "error" by intermittently flashing orange and green. By using the temperature increase control (+dT/dt), the charger will switch to top-off charge and later to trickle charge the same way as charging with -dV control.

NOTE. The charger may be programmed for other temperature parameters. See a separate user manual or contact supplier for additional information.

Zero dV feature (optional feature)

If zero dV has been activated, the charger will stop the fast charge when the voltage has not increased the last 5 minutes. This feature may be the only sensor, or it may be used in combination with -dV and/or +dT/dt