

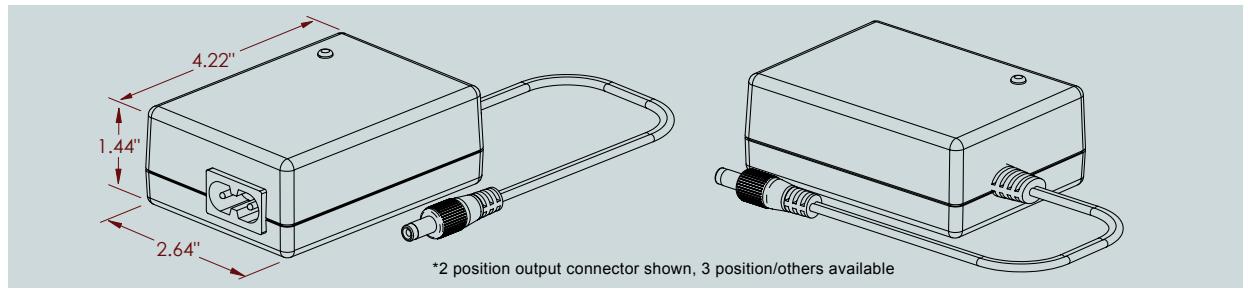
Cell-Con, Inc. nickel metal hydride / nickel cadmium smart chargers are designed to charge packs made of either rechargeable chemistry. Each model is capable of charging various quantities of cells. Chargers are based on a nominal, universal input of 90-264VAC/50-60Hz.



**NiMH/NiCd SMART CHARGER, 35W**

**Features:**

- Medically certified (UL60601)
- Multiple charge detection options  
-dV (typical), dT/dt, 0dV
- Safety timer termination
- Charges NiMH or NiCd battery packs
- 5 versions for 3-20 cell packs
- Integral start timer to prevent initial, false -dV detection
- Reverse polarity/short circuit protection
- LED status indicator



Category	Specification
Model number	452215 Series
Cell count	5 versions for 3-20 cells
Input rating	Nominal 90-264VAC/47-63Hz
Maximum output power	35W
Trickle charge current	100mA +/-50mA (10-20 cell: 50mA +/-25mA)
Leakage current (from battery with mains off)	<1mA
Start timer (no -dV detection)	3 minutes
Timer settings	Start, top off, & safety timer are factory programmed per application
Switch frequency	40 kHz
Temperature range	-20°C to +40°C
Efficiency (at 100% load)	ca 78%
Insulation class	II
Electrical safety	UL 60601-1, EN 60601-1, EN 60950, EN 60335-2-29
EMC standards	EN 60601-1-2 (Medical), EN 61000-6-3 (Emission), EN 61000-6-1 (Immunity)
Input connection	2 PIN IEC 320-C7 (input cordset not included)
Output connection	NiCd: 2.5 x 5.5 x 9.5mm barrel plug, NiMH: 3 PIN DIN (other options available)
Dimensions/weight	4.22" x 2.64" x 1.44" (107 x 67 x 36.5mm) / .55 lbs (250g)

\*other output connection options available upon request



## Functionality:

Charging begins when a battery pack is connected to the charger. The LED will be orange before the fast charge starts and the LED changes to red. When the cells are fully charged and the voltage drops (because of the -dV signal from the cells), the charger will go into a top-off charge mode before switching to trickle charge mode.

During the top-off charge session, the LED will be green with short, intermittent orange flashes. When the top-off charge is complete, the charger will go into trickle charge mode, changing the LED color to green. The charge current is now reduced to a safe level, permitting the charger to stay connected to a NiCd battery pack without damaging the cells. Depending upon the specific manufacturer of NiMH cells, trickle charging in excess of 24 hours may not be permitted.

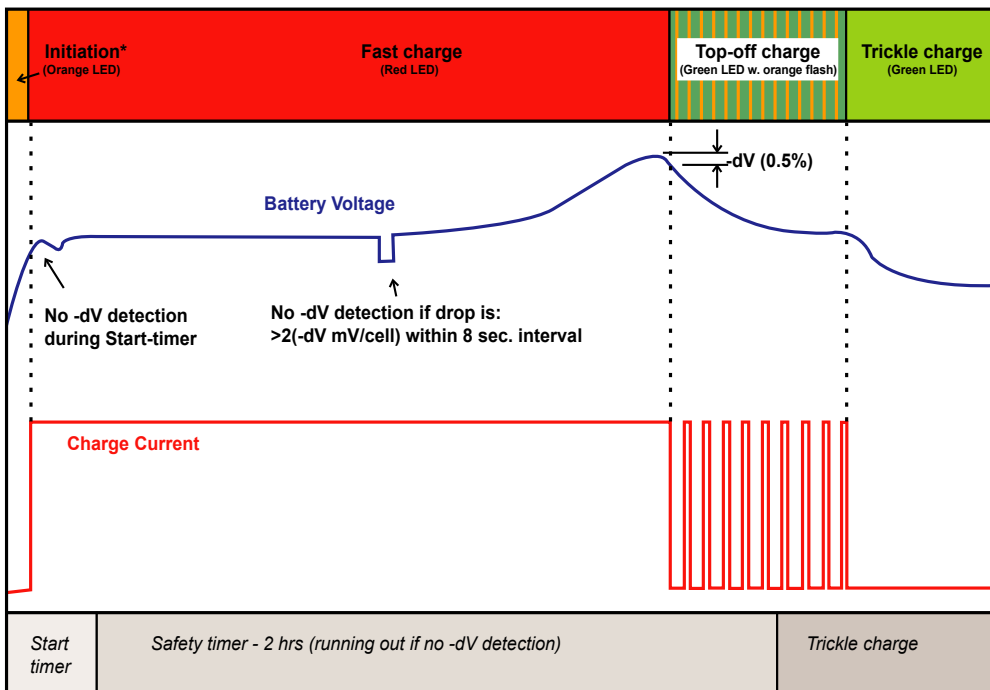
If the safety timer disconnects before -dV, the top-off charge will not be engaged. The charger will then go directly to trickle charge mode and the LED will be green in color. If the battery voltage is far below normal, the charger will stop the fast charge current and switch to trickle charge mode. The LED will then indicate "error" by flickering green and red.

If the mains are turned off, the charger will reset and start a new charge cycle if the mains are turned on again.

## Versions

Model number	Cell count	No-load voltage	Min. out. For -dV detection (min. 1.25V/cell)	Max. out. For -dV detection (max. 1.8V/cell)	-dV detection	Fast charge current	Top-off charge
452215-NA	3-6	12.8V +/- 0.7V	3.7V (3 cell min.)	10.8V (6 cell max.)	11mV/0.6%	3.0A +/- 250mA	390mA +/- 80mA
452215-NB	4-8	16.5V +/- 1.0V	5.0V (4 cell min.)	14.4V (8 cell max.)	8mV/0.5%	2.2A +/- 150mA	310mA +/- 80mA
452215-NC	5-10	21V +/- 1.2V	6.2V (5 cell min.)	18V (10 cell max.)	8mV/0.5%	1.8A +/- 150mA	270mA +/- 70mA
452215-ND	6-12	24.7V +/- 1.5V	7.5V (6 cell min.)	21.6V (12 cell max.)	8mV/0.5%	1.5A +/- 100mA	240mA +/- 60mA
452215-NE	10-20	41V +/- 2V	12.5V (10 cell min.)	36V (20 cell max.)	8mV/0.5%	0.9A +/- 70mA	130mA +/- 40mA

## Charging diagram and LED indication for -dV detection



\*When specifying product, please consult with Cell-Con to verify that the specifications identified on this data sheet are current.

