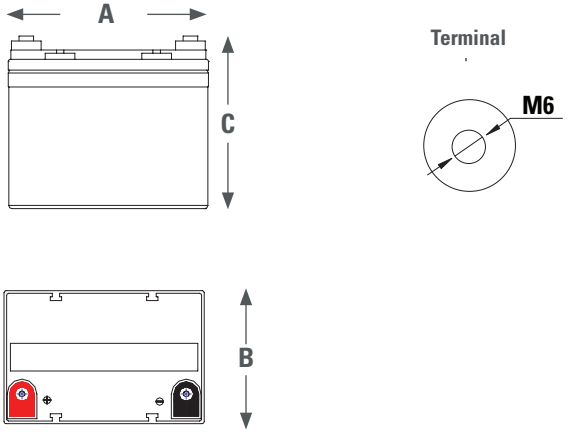
Discover®
Innovative Battery Solutions

# DL12-450
DATASHEET
BCI U1

## 12V Lithium Battery

Discover DL12 Lithium Ion batteries deliver performance and safety without compromise. DL12 models are made using robust lithium cell chemistries and mechanical designs. Steel Lithium Iron Phosphate cylindrical cells are durable, safe, and powerful and are tested and certified to the highest international (UN, UL and IEC) over charge, over temperature, short circuit and cell penetration standards.

## MECHANICAL DRAWINGS




## MECHANICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Industry Reference** | BCI U1 | |
| **Length (A)** | 197 mm | 7.8 in |
| **Width (B)** | 132 mm | 5.2 in |
| **Height (C)** | 183 mm | 7.2 in |
| **Weight** | 5.5 kg | 12.1 lb |
| **Terminal** | M6 | |
| **Terminal Torque** | 11 Nm | 8 ft-lb |
| **Case Material** | ABS | |

## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Nominal Voltage** | 12.8 V |
| **Charge Voltage** | 14 V - 14.6 V |
| **Maximum Voltage** | 14.6 V |
| **Minimum Voltage** | 10 V |
| **Recommended Low Voltage Disconnect** | 11 V |
| **Nominal Capacity (1C)** | 35 Ah |
| **Nominal Energy (1C)** | 448 Wh |
| **Max Continuous Current** | 35 A |
| **Peak Current** | 70 A (10 s) |

## ELECTRICAL SPECIFICATIONS

| | | |
|---|---|---|
| **Cell Chemistry** | $LiFePO_4$ | |
| **Cell Modules** | 4S7P | |
| **Charge Temperature** | 0°C / 45°C | 32°F / 113°F |
| **Discharge Temperature** | -20°C / 50°C | -4°F / 122°F |
| **Storage Temperature** | -20°C / 45°C | -4°F / 113°F |
| **Self-Discharge 25°C / 77°F** | < 3% per month | |

**CAUTION:** Extra considerations must be given to depths of discharge, operating voltages and currents when designing systems for use at maximum temperatures.

## PCS SPECIFICATIONS

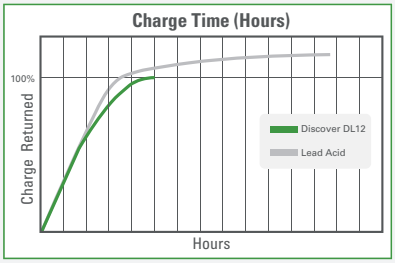
| | |
|---|---|
| **Current Cut-Out** | 70 A (10 s +/- 3 s) |
| **Low Voltage Cut-Out** | 8 V +/- 0.4 V |
| **Low Voltage Reconnect** | 9.2 V +/- 0.4 V |
| **High Voltage Cut-Out** | 15.6 V +/- 0.2 V |
| **High Voltage Reconnect** | 15.2 V +/- 0.2 V |
| **Balancing Voltage** | 14.4 V |

**This battery is not intended for starting applications.**

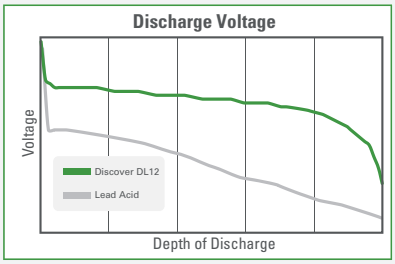
*Powered by*
**OptimumNano®**

## BENEFITS & FEATURES

**Efficient & Fast Charging**
Discover DL12 batteries are 15% more efficient than lead acid batteries, allowing for reduced charge times and greater utilization of renewable energy sources.




**Efficient and Stable Discharge**
Delivers > 95% of capacity at high and stable voltages, increasing equipment performance and reducing motor fatigue.




**Partial State of Charge (SOC)**
Discover batteries will not suffer negative effects from partial SOC.

**Weight Efficient**
Systems are 1/3 the weight of their lead acid equivalents.

**Battery Management System**
Integrated BMS to prevent abuse outside of safety operation limits.

## SAFETY AND PERFORMANCE CERTIFIED

- CE (Battery)
- UN 38.3 (Battery)
- UL1642 & IEC2133 (cells)

## SHIPPING CLASSIFICATION

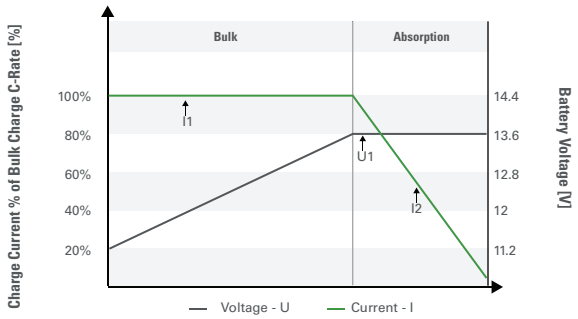
- UN 3480, Class 9 (Lithium ion batteries)

**UN38.3 PASSED**
TRANSPORT SAFETY CERTIFIED

Do not mix with lead acid batteries when recycling.

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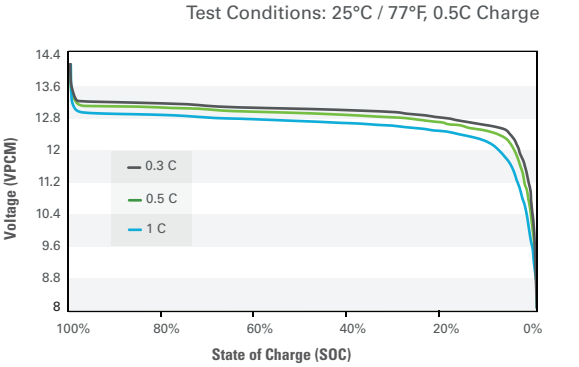
## VOLTAGE REGULATED IU CURVE



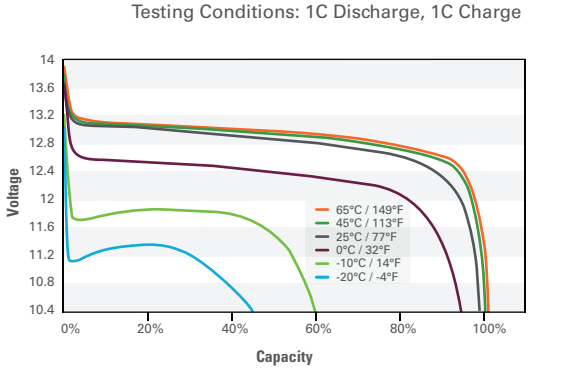

## VOLTAGE REGULATED IU CHARGING CURVE PARAMETERS

| | |
|---|---|
| **Nominal Voltage** | 12 V |
| **Bulk Current (I1)** | < 0.5 C |
| **Absorption Voltage (U1)** | 14 V - 14.6 V |
| **Termination Charge Current** | < 1 A |

## VOLTAGE IN RELATION TO THE STATE OF CHARGE (SOC)




## DISCHARGE VOLTAGE IN RELATION TO THE TEMPERATURE




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