

## Temperature Effects on Battery Performance & Life

Different temperatures affect the internal chemical reaction rates, and internal resistance and efficiency of all types of batteries.

Run times will vary as temperatures change:

- Batteries are significantly less efficient under heavy discharges at lower temperatures.
- Increasing as the temperature rises above 25°C / 77° F
- Decreasing as the temperature drops below 25°C / 77° F

Charge times will vary as temperatures change:

- Batteries are significantly less efficient when being charged at lower temperatures.
- Increasing as the temperature drops below 25°C / 77° F
- Decreasing as the temperature rises above 25°C / 77° F

Battery life will vary when operated at different temperatures:

- Continued operation at higher temperatures will shorten battery life.
- Increasing as the temperature drops below 25°C / 77° F
- Decreasing as the temperature rises above 25°C / 77° F



Definitions and things to know:

Data provided as representative only. Battery voltage, capacity and life will vary with actual environmental conditions and operator driving habits. Operation above 50°C / 122° F and below -10°C / 14° F is not recommended. **Temperature:** C: Celsius, F: Fahrenheit. **Capacity:** Operation or available "run time" as a % of base-line capacity established using industry standard testing at 25°C / 77° F. **Battery Life:** Expected battery life as a % of base-line life established using industry standard testing at 25°C / 77° F. **Voltage:** For Discover<sup>®</sup> Batteries, multiply the voltages shown by 3 for 6-volt batteries, by 4 for 8-volt batteries, and by 6 for 12-volt batteries.

