

CHARGING INSTRUCTIONS

RELiON LITHIUM IRON PHOSPHATE BATTERIES

When charging lithium iron phosphate batteries (LiFePO4) ensure that you are not using a charger meant for other lithium ion chemistries, which are typically set to a higher voltage than required by LiFePO4 batteries. A lead-acid battery charger can be used if the voltage settings are within the parameters of LiFePO4 batteries.

LiFePO4 can be charged with either a 1-step constant current (CC) profile or a 2-step constant current, constant voltage (CC-CV) profile. The 1-step profile will charge the battery ~95% and the 2-step profile will charge the battery 100%. The 1-step profile is sufficient since LiFePO4 batteries do not need to be fully charged; this will not reduce life as it does with lead-acid.

CC Charge Profile - 1 Step

| 1-STEP CHARGE DESCRIPTION | STEPS | | CHARGE PARAMETERS | | | |
|--|-------|-----------------------------|--|---------------|---------------|---------------|
| Step 1 - Charge at a constant current until the battery reaches termination voltage. | 1 | *Recommended Charge Current | ≤0.5C | | | |
| | | **Maximum Charge Current | 1C or 100A (the lower of the two values) | | | |
| | | SYSTEM VOLTAGE | 12V | 24V | 36V | 48V |
| Stop | | Termination Voltage | 14.2V - 14.6V | 28.4V - 29.2V | 42.6V - 43.8V | 56.8V - 58.4V |

CC-CV Charge Profile - 2 Step

| 2-STEP CHARGE DESCRIPTION | STEPS | | CHARGE PARAMETERS | | | |
|--|-------|-----------------------------|--|---------------|---------------|---------------|
| Step 1 - Charge at a constant current until the battery reaches termination voltage. | 1 | *Recommended Charge Current | ≤0.5C | | | |
| | | **Maximum Charge Current | 1C or 100A (the lower of the two values) | | | |
| | | SYSTEM VOLTAGE | 12V | 24V | 36V | 48V |
| Step 2 - Hold absorption voltage until charge reduces to termination current. | 2 | Absorption Voltage | 14.2V - 14.6V | 28.4V - 29.2V | 42.6V - 43.8V | 56.8V - 58.4V |
| | Stop | Termination Current | ≤0.05C | | | |

* Charge current must be 0.1°C at temperatures <0°C (32°F) until the battery temperature is >0°C (32°F).

** For optimum life, charge at recommended rate. Some models are specially designed to allow for higher current.

For more information please contact Relion technical support.

