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 0.1C 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.

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CHARGING INSTRUCTIONS

Charging Series and/or Parallel Systems

When charging lithium iron phosphate batteries (LiFePO4) in series and/or parallel, it is best to use a multi-bank charger that charges each battery individually to ensure the cells remain balanced. If you charge batteries in series and/or parallel with one single bank charger (1 set of charger leads) for the entire system, please follow these instructions.

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	14V	28V	42V	56V

* Charge current must be 0.1C 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.

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