INITIAL NiFe BATTERY CHARGE METHOD:

New NiFe batteries, and batteries stored for more than 6 months, should be **Condition Charged** at **0.2C5A** for 13 hours, then **Discharged** at **0.2C5A** to 1.0V per cell, for **3~5 cycles**. **0.2C5A Formula** is calculated by multiplying the Battery Cell **Ah** Rating by **0.2** (e.g. 600Ah x 0.2 =120A), the **5A** is 5 hour Charge duration of 120A or less. **NiFe Batteries like Hi-Ampage, Not High Voltage Charging during Charging.**

Condition Charging:

(1) It is important to **Condition Charge** each Cell in the bank to 1.85V DC, using a Charge Current of No more than 120A for 13 Hours, then the Battery Bank will be Condition Charged correctly.

(2) Before starting the **Conditioning Discharge Cycle**, Disconnect all Solar & State Grid Power input, so the batteries will NOT be Charged during the **Discharging the Battery Bank with the House &/or Equipment Load**, until the Bank of Batteries are fully Discharged to **1V per cell**.

Example: 38x Cells Battery Bank Discharged to 0% SOC, will have 38V in the Battery Bank.

Now **Repeat Steps 1~2 Three** to **Five times**, then the Batteries should be Condition Charge & Ready for normally operation. **Remember Don't Charge the Batteries using Solar & State Grid during the Discharge Conditioning** Step, as that defeats Discharging the batteries correctly !

NOTE: As 48V Hybrid Battery Inverters have Max. Battery Charge rating of 60V DC, you can only charge a Battery Bank to 60V (e.g. 38 x 1.57V = 60V DC). 38 NiFe cells Discharged to 0% SOC = 1V per Cell = 38V.

If the Battery System Discharge duration is Not less than 5 hours, and the battery Cell voltage is Not less than 1.0V per cell, the battery can be put into operation according to **Normal Charge** in the following table.

Charge Legend:

Charge Regime	Charge Current	**Charge Duration**	Reference Temperature
Normal Charge	**0.2 C5A**	**8 hours**	20℃ ±5℃
Fast charge	0.5 C5A	4 hours	
Overcharge	0.2 C5 A	12 hours	

Equalising Charge: is 1.60V~1.75V/Cell with Charge Current of 120A or less. (38cells x 1.57V =60V)

Float Charge: is 1.48V~1.50V/Cell with Charge current 120A or less. (38cells x 1.50V =57V)

The Initial Charge Rate for 600Ah Cell: 0.2 C5A = 0.2 x 600 = 120A current or less for 5 hours.

NOTES:

1. It is better to Charge NiFe batteries at 20℃ ±5℃ with Hi-Amps of 120A or less.

2. NiFe batteries can be charged by Constant Current (**CC**) method, and the method of Constant Voltage (**CV**) charging with current limit, can also be used according to equipment requirement.

   a) **Constant Current (CC) Charge method:** The charger should be set at 1.9V/cell×n in colder regions, the charge voltage can be set at 2.2V/cell×n in very cold conditions.

   b) **Constant Voltage (CV) with Current limit method:** The Charger should be set **1.60V/cell×n** ～ **1.75V/cell×n**, the current limit is set at 0.2 C5A, when the charge current decrease to 0.02 C5A, then changed into **Float Charge method**, the voltage range of the Float is **1.50V/cell×n**, the current limit is **1.48V/cell×n** ～4mA/Ah～6mA/Ah.

   With the change at normal temperature, the charge voltage should be adjusted properly, in general, if the temperature **exceeds** the normal temperature of 25℃, the charge voltage **decrease** by 0.003V per 1℃. (eg. 35℃ = 1.50V ×10 = -0.03V = 1.47V/cell×n).

   When the temperature is **less** than the normal temperature of 25 ℃, the charge voltage **increase** by 0.003V per 1℃. (eg. 10℃ = 1.50V x 15 = -0.045V = 1.54V/cell×n).

3. **C5 indicates** the output capacity of the battery discharged to the **cut-off voltage of 1.0v** with 5 hours rate at 20℃, namely, the nominal capacity.

4. Under normal circumstances, the battery should be charged by normal charge rate (0.2 C5A). In the case of emergency, the fast charge method (0.5 C5A) can be used. The battery must be charged at normal charge rate (0.2 C5A) for 12 hours **when overcharged.**