N1C LR-Series Battery Module User Guide

N1C LR-Series Battery Module

Contents

Receipt of your battery

1. Your N1C LR-Series lithium battery leaves the factory with approximately 30% State of Charge (SOC).

2. Your N1C LR-Series battery module should be installed within 30 days of receipt. If unable to install in this time period, please follow the charge procedure in the following pages within 30 days of receipt.
3. The SOC of your battery can be viewed without installing the battery or connecting it to your N1C UPS. To view your battery SOC simply open the box to expose the battery breaker on the rear of the module, turn on the breaker (flip up), and press and hold the button on the front of the battery module for 4-5 seconds. The Fault light should blink red, and there should be 1-4 green status lights lit. Each lit light represents approximately 25% SOC.
   NOTE: If your battery has one solid red light and one solid green light it is in Low Voltage Protection Mode and will need to be returned to and N1C Service Center for recharging.
4. **NOTE: To discharge the battery module connect to UPS with load or use integrated solution in 5.1.**

Battery Storage

N1C battery modules should be stored at a SOC greater than 60%. Any time not connected to an N1C UPS is considered storage.

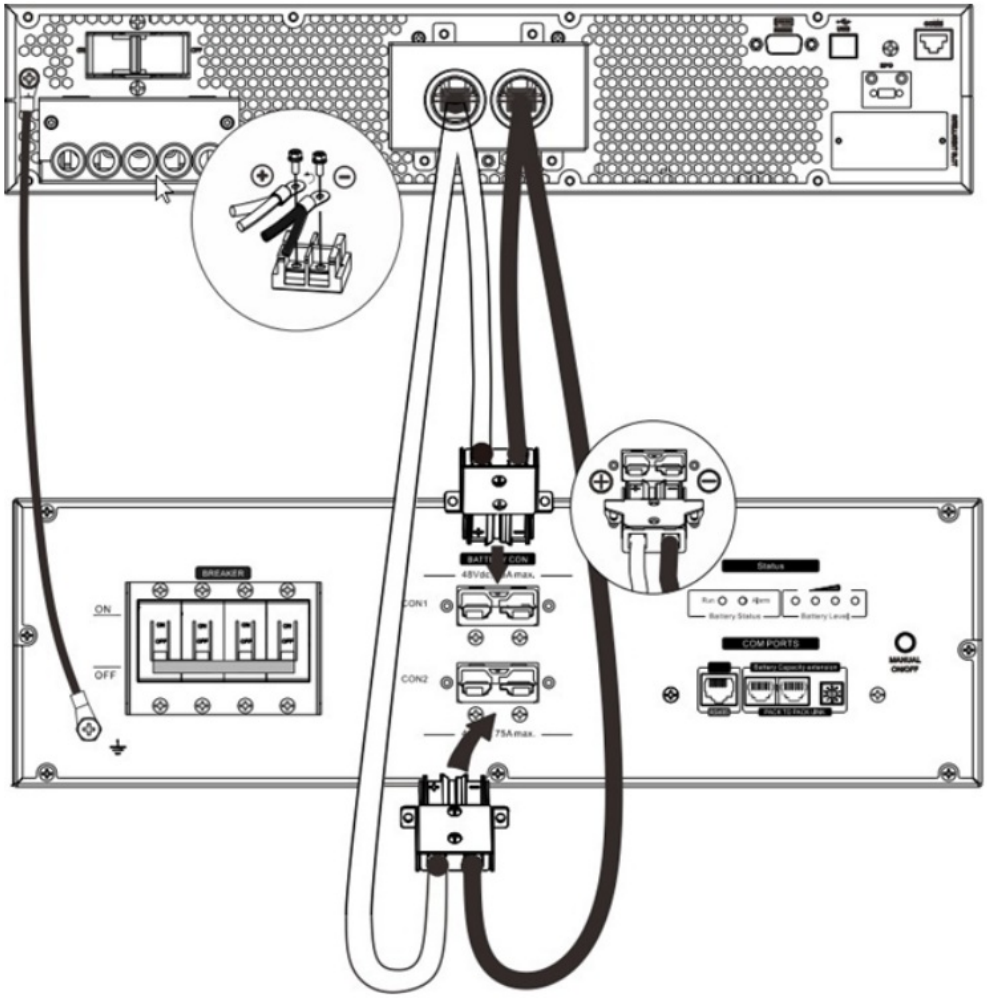
Storage time, temperature, and hu midity when stored at 60% SOC	**32F~77F 12 months**	**Max. 95%RH**
	77F~110F 3 months	**Max. 95%RH**
	110F~120F 1 month	**Max. 95%RH**
	32F~77F is the recommended storage temperature	

Charge Procedure using N1C UPS

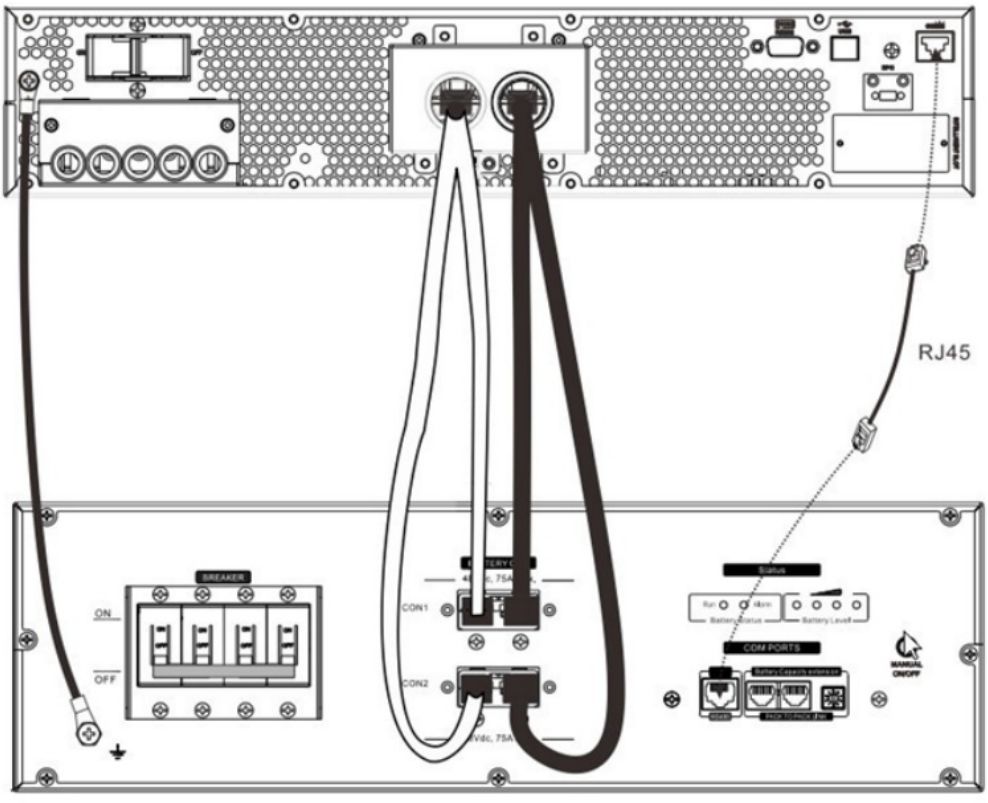
N1C LR-Series battery modules should only be connected to LR-Series N1C UPS systems. Connection to any other equipment will void warranty and may be hazardous.

Connection Steps

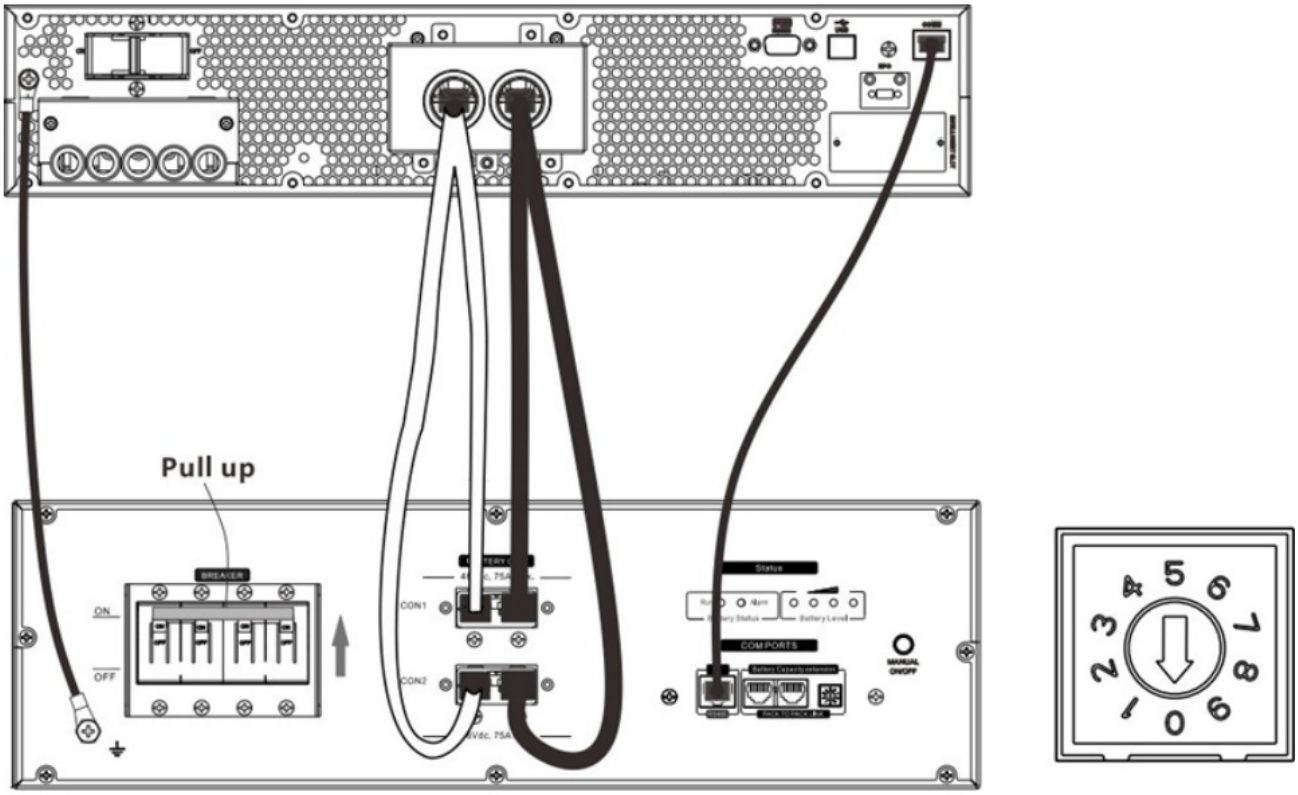
1. Connect UPS to the battery module (CON 1 or CON 2) with supplied battery cable.



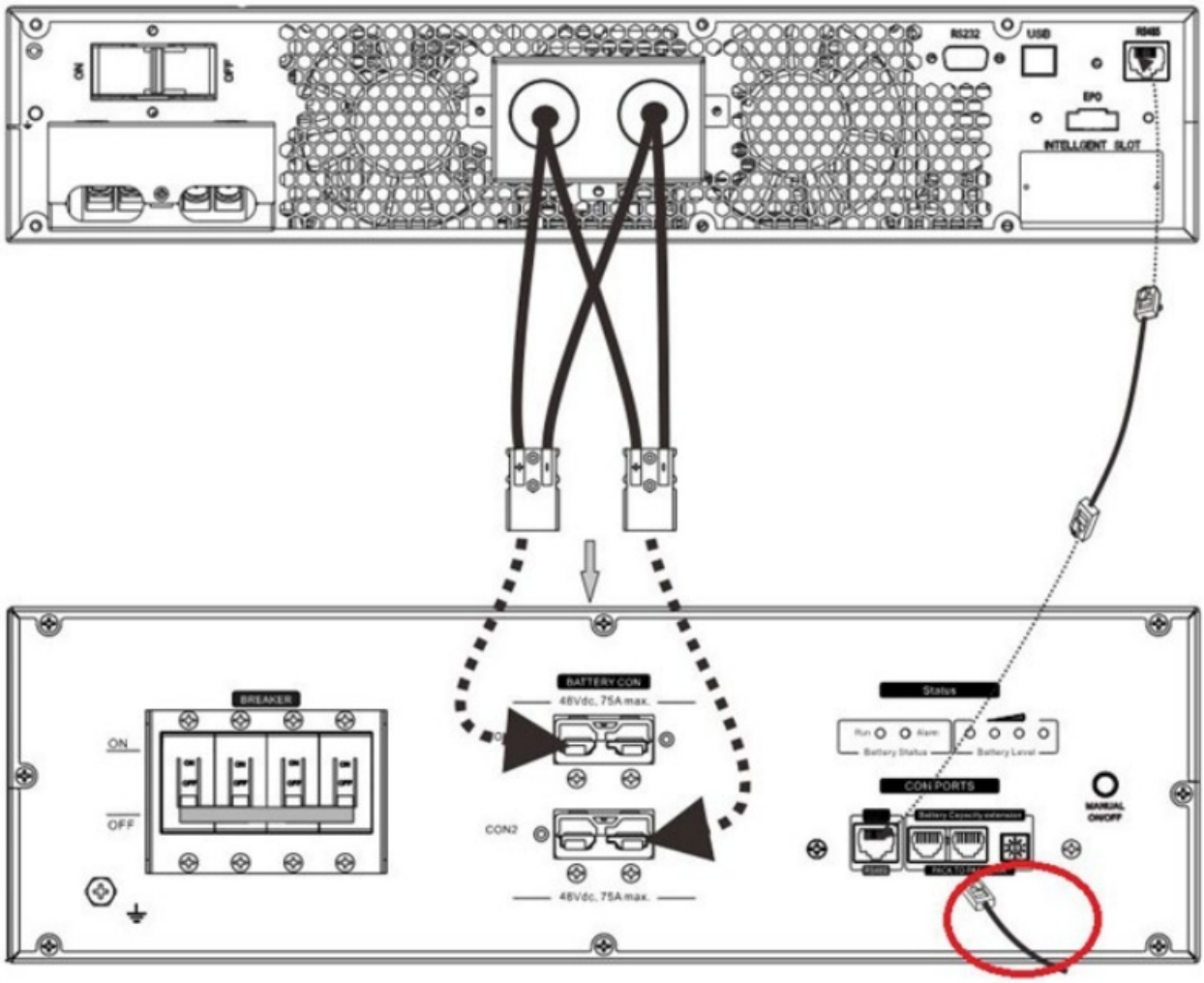
2. Insert the COM Cable (RJ45 cable supplied in packaging) into the BMS COM port on the battery module. The other end connects to the BMS communication port of the UPS. (This cable is not used on the N1C.LR10000)
3. Set the ID switch dial to the “0” position.



4. Turn the battery breaker from OFF to ON (lift up).

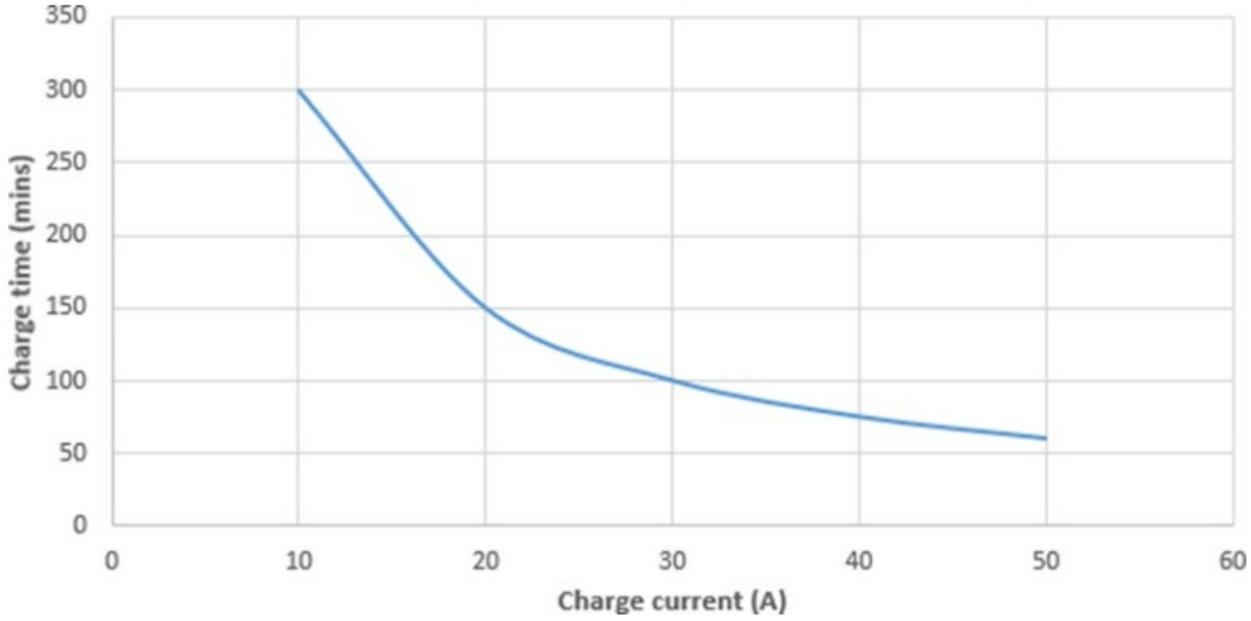


5. Press the button on the front of the battery module for 5s to wake up the battery.
6. Insert the supplied Termination Cable in to either Extension Port on the battery.

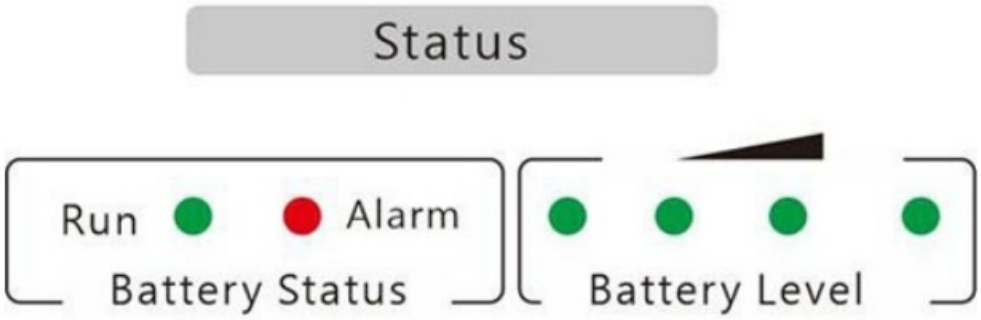


Charging Procedure

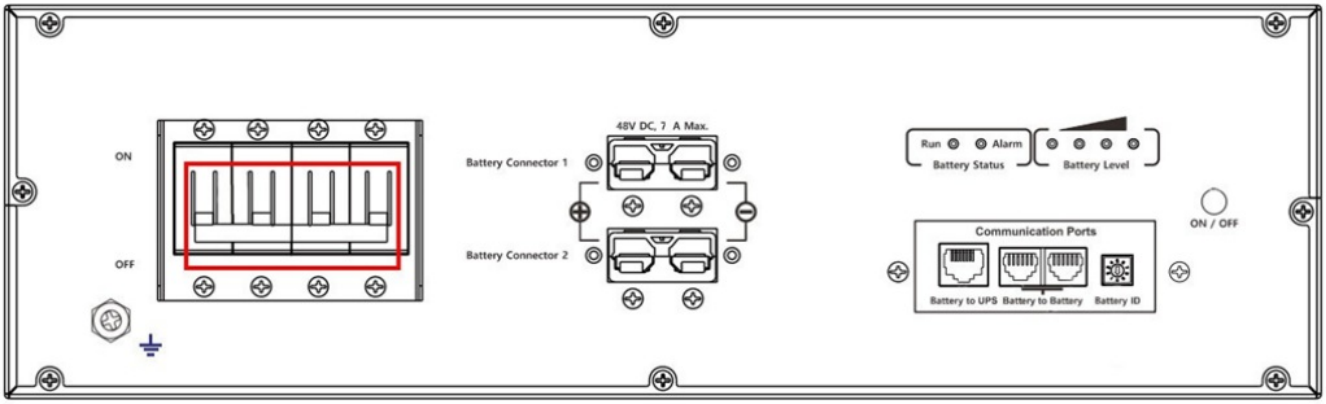
1. Start Charging: After the battery module is connected as above to the UPS, connect AC power to the UPS to start charging.
2. Check if battery is charging properly: Check the Battery Level LED on the front or back of the battery module. If any one of the four green Battery Level LED is flashing it means the battery is charging successfully. The charging duration should follow the below curve with relation to charging amp setting.



3. If there is not a green Battery Level LED flashing check the UPS to be sure it is connected properly and indicating that it is charging via the LCD. If the red Fault light is flashing check to be sure the Termination cable is installed properly. If the Fault light is solid red and there is more than one green light lit, check that the COM BMS cable is connected properly and/or the ID dial is set to “0”.
   NOTE: If your battery has one solid red light and one solid green light it is in Low Voltage Protection Mode and will need to be returned to and N1C Service Center for recharging.



4. Once the battery has reached the desired charging level, turn off (push down) the breaker on the back of the battery module. Disconnect the DC cables from the UPS, remove the Termination and COM BMS cable, and turn off the UPS.



Charge Procedure using External DC Power Source

1. Equipment List:

Equipment	**Type / Rating Requirement**	**Comments**
DC Source	**60V/30A**	**For example, KIKUSUI PWR800L 80V/50A.** **As long as charging voltage range is over 60V and charging current range is over 30A, these can be applied to charge the battery.**
Termination Cable	RJ11 shorting plug	

2. Install the short RJ11 Termination Cable in to one of the Extension Ports on the back of the battery module.
3. Set the DC source with a constant current (CC): 15A; Constant voltage (CV): 52.5; then turn off the DC source output.
4. Connect the DC source +/- outputs to the CON 1 port on the back of the battery module.
5. Turn the breaker on the battery module ON (lift up).
6. Press and hold the button on the front of the battery module for 5s to wake the battery module.
7. Turn ON the DC power source, then charge the battery to the desired SOC.
8. Disconnect the battery and DC source and turn off the breaker on the battery module

Charge and discharge with Integrated Equipment

1. Equipment List:

Equipment	Type / Rating requirement	Comments
Charge/Discharge Integrated Equipment	**CE-6008n-60V50A-H**	
Termination Cable	**RJ11 shorting plug**	

2. When in charge stage, set constant current (CC): 25A; Constant voltage (CV): 52.5V, termination current: 2.5A, charge the battery pack, then let rest 15 minutes.
3. When in discharge state, set constant current (CC): 25A; discharge the battery pack with the termination voltage set to 34.5V, then let rest 15 minutes.
   NOTE: SOC 30% is approximately 48.5VDC.
4. To recharge to 80%SOC, set constant current (CC): 50A; Constant voltage (CV): 52.5V, termination current: 5A. Charge time to 80% SOC for N1C.L4850EBM2U: approx. 95 minutes. Charge time to 80% SOC for N1C.L48100EBM3U: approx. 190 minutes.

Documents / Resources

	N1C LR-Series Battery Module [pdf] User Guide N1C.LR10000, N1C.LR20000, N1C.LR30000, LR-Series, LR-Series Battery Module, Battery Module, Module

References

- User Manual