

## Warranty Certificate for NARADA Batteries

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Zhejiang Narada Power Source Co. Ltd. is one of the largest manufacturers of Lithium-Ion Phosphate Batteries specially designed for Telecom & Industrial application.

### **Warranty period and conditions**

Narada is pleased to offer warranty that the batteries are free of manufacturing and designing defect. Full warranty up to **3 years' warranty**, with Battery Management system against any manufacturing defects or deterioration of the battery performance due to any manufacturing defects.

1. The Battery models/Series under warranty are as follows:

NPFC series, type: , 48NPFC50, 48NPFC100

2. Storage Environment:

Any storage and maintenance of this battery shall be in accordance with Narada published operation manual, and should also follow

- a. The battery should be stored in the temperature range of 0 deg C -40 deg C;
- b. The battery needs to be recharged regularly in case of longer term storage, recharge interval shall be according to Narada's operation manual.
- c. Air intake / exhaust must be cleaned of dust / dirt every 6 months
- d. Do not use liquids for cleaning, especially NO Alcohol or Ammonia extracts.
- e. Handling, including moving / carrying of the modules must be with the use of the provided handles.
- f. Prevention of any liquid splashing onto the battery must be observed at all times.
- g. Turn off the charging input if system is not in use for long time
- h. Turn off the breaker if system is not in using.

3. Operation Scenario:

Daily discharged up to 80% of it's full capacity and charged up to full capacity.

The charge voltage setting must be:

- a. Charge Voltage(Bulk): 51.6V at 25 deg.C
- b. Charge Voltage (Float): 51.5V
- c. Minimum discharged voltage is 46V
- d. Maximum Charging & Discharge Current: 40Amps
- e. To ensure warranty valid, ambient temperature should be controlled to 25-35 deg C.
- f. It is allowed that battery ambient temperature be maximum to 45 degC for 300 hours per year
- g. The warranty will become invalid if operating temperature exceeds -20 to 60 deg. C during operation.

4. BMS information:

BMS contains monthly log of the following information in internal memory, which, at the time of warranty claims can be extracted jointly by defined Customer and Narada. This information is mainly as blew:

- a. Number of charge / discharge cycles performed each month;
- b. Depth of discharge (DOD) of each cycle;
  - a. Time duration of each charge / discharge cycle, capacity drawn per cycle, charging & discharging current per cycle;
  - b. Ambient temperature of each module during the charge / discharge cycle and still time, the four internal cell temperatures of each module

**5. Exemption statement:**

The warranty does not cover any physical damage, improper installation, handling and damage caused by any natural disaster or manual mishandling which include but not limited to:

- a. Any visible physical damage
- b. Battery / module immersed in water
- c. Usage/Storage of battery / module near hot surfaces, fire or heater or under direct solar irradiance
- d. Reversing the +ve and -ve power terminals
- e. Connecting the battery / module directly to AC outlet
- f. Short circuiting the battery / module by directly connecting the +ve and -ve power terminals accidentally or on purpose.
- g. Transporting the battery / module with metal objects that may short the +ve and -ve power terminals (tools, necklace, ring etc.)
- h. Disassembling the battery / module
- i. Installed in to environments without 20CFM or 0.6m\*m / min of airflow on both sides of the module and without a minimum 10mm open space on both sides
- j. If not operated with the RS-485 and power cables connected to the CBMS at all time
- k. Charge / discharge currents is above 50A or voltages exceed 54.7V or drop below 42V at 25 deg C
- l. If the earth / GND is not connected
- m. Continue using the battery / modules during critical alarm conditions
- n. Any faulty caused by Force Majeure, "Force Majeure" means an event beyond the control of the supplier or purchaser and not involving the supplier's or purchaser's fault or negligence. Such events may include, but are not restricted to, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

**General Terms and Conditions:**

- 1) The warranty period commences from the date of dispatch or manufacturing date +2 months, whichever is later.
- 2) Warranty claims must be complained to Narada within three (3) months from failure by buyer.
- 3) Any storage and maintenance of this battery shall in accordance with Narada's published operation manual.
- 4) For warranty claim, Narada only provide brand new battery/(s) on ex-works basis for replacement.
- 5) All claim/(s) shall be dealt between Narada and buyer directly, Narada can support buyer for investigation if needed.
- 6) Battery backup performance test is the unique method to judge if battery faulty. If any other judgment method is used by buyer, it must be approved by Narada in advance.
- 7) Buyer need to provide sufficient battery performance information to Narada for claim, Narada shall claim faulty battery/(s) accordingly if the complaint is verified.
- 8) Narada will arrange replacement of faulty battery/(s) on ex-works basis. All claim/(s) will be dealt between Narada and buyer directly.
- 9) Narada will be not held response if the battery ambient temperature rises above certain Degree Celsius, which specified in **item 3**.
- 10) Narada **suggest** user to keep and provide the following monthly log if possible
  - History of A.C. power outage alarm.
  - Battery ambient temperature.



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- Narada will also take actual environment and power conditions for reference if needed.
- 11) For critical warranty issue, Narada reserve right to invest battery operation conditions and make conclusion, buyer must support for site access, local engineer accompany and local transportation for Narada engineers.
- 12) Narada reserve right to reclaim faulty battery/(s) back, and buyer must help to collect faulty battery/(s) to warehouse and keep it.
- 13) If upon initial inspection and installation the battery fails to meet the published performance rating per the latest Narada catalog data at the time of shipment or the user identifies defective in material or workmanship that would impair life or product performance the user will be instructed to hold the battery/(s) pending inspection by a Narada representative, Narada will verify and will repair or replace any defective battery at Narada's option.
- 14) If Seller determines that a Product for which warranty service is claimed is not defective or nonconforming, buyer shall pay or reimburse Seller for all costs of handling, inspecting, testing, disposal, and transportation, and, if applicable, traveling and related expenses.
- 15) Narada Power Source Co., Ltd. shall not have any liability for any incidental or consequential damages.

Hangzhou, June 14<sup>th</sup>, 2020

Narada Power Source Co., Ltd.

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General Manager

Overseas Market&EPC Projects BU