



NARADA POWER SOURCE CO., LTD.

Add: Add: 2F, East Wing, No. 822 Wen'er Xi Road, Hangzhou, China, 310030

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Warranty Certificate for NARADA Battery

Document No. 202301004NPFCGadtech36SouthAfrica

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

Narada will provide

Full warranty up to three (3) years as follow for the offered battery type “48NPFC100” lithium-ion module and system against any manufacturing defects or deterioration of the battery performance due to any manufacturing defects. The battery is used in the telecom field.

The warranty is subjected to following terms & Conditions

- 1) The warranty is commenced from the date of delivery or manufacturing date +3 months, whichever is later.
- 2) Narada will provide the 3 years warranty to the customer. Specially we need take note that:

The temperature factor is as followed table:

Temperature Range	0~30 DegC	31~40 DegC	41~60 DegC
Temperature factor	100%	80%	50%
Accumulative Time in 3 years	T1	T2	T3

The total operating time is that:

$$total\ time = \frac{T1 * 100\% + T2 * 80\% + T3 * 50\%}{365}$$

- a) No more than 1 cycle per day. Depth of discharge no more than 70% per cycle.
 - b) Ambient temperature should be controlled at 15 DegC to 30 DegC, highest temperature should not exceed 40 DegC.
 - c) If the site ambient temperature is more than 60 DegC, Narada will not be held responsible.
 - d) Less than 80% Capacity will be regarded as battery failure.
- 3) Narada will not be held responsible to permanent damage to the module for any physical damage, ventilated equipment damaged, improper installation, system configuration unreasonable, rectifier parameter setting wrongly, handing and damage caused by any disaster.
 - 4) If there are special application scenarios, the terms of warranty shall be determined by negotiation between Narada and the customer.
 - 5) Any storage and maintenance of this battery shall in accordance with Narada's published operation manual. Specially we need take note that:



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- a) Battery shall be stored with 50% SOC condition
 - b) Ambient temperature shall be kept from 0 degC to 40 degC.
 - c) Fully charge and discharge, and then recharge back to 50%SOC with 6 months interval during storage
- 6) Narada will do necessary cell matching process. The float and equalizing charge voltage setting should be as under:
 - Float charge voltage: 51.5 V per 48V battery.
 - Equalize charge voltage: 51.6 V per 48V battery (regular boost charge is not required).
 - Full Charge voltage is 51.5 V.
 - Maximum charging current: 1C(25°C, standby, single module).
 - Maximum discharging current: 1C(25°C, standby, single module).
 - Recommend continuous charging current: $\leq 0.2C$;
 - Recommend continuous discharging current refer to the above application scenario details.
 - 7) User must keep and provide the following rectifier or telecom system log to keep the NOC log data:
 - The time of AC grid off.
 - The frequencies of AC grid off.
 - Site ambient temperature.
 - Historical alarm data.
 - 8) For critical warranty issue, Narada reserves right to invest battery operation conditions and make conclusion, buyer must support for site access, local engineer accompany and local transportation for Narada engineers.
 - 9) Narada reserves right to reclaim faulty battery/(s) back, and buyer must help to collect faulty battery/(s) to warehouse and keep it.
 - 10) 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.
 - 11) 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.
 - 12) Narada Power Source Co., Ltd. shall not have any liability for any incidental or consequential damages.
 - 13) This warranty is for **Gaddtech (Pty) Ltd in South Africa** only.

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Hangzhou, January 16th, 2023

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