

Narada HELiON™ NPFC series 48V LiFePO<sub>4</sub> battery modules are ideally suited for telecom base station, OSP, and renewable energy applications.

NPFC series offer long cycle life, small size, reduced weight, and simplified installation as 19"/23" rack mountable modules.

NPFC chemistry makes it one of the safest technologies, suitable for high and low temperature operation and capable of 1C and higher discharge rates.

**HELiON**  
LI-ION ENERGY



#### Technical Features:

- Simple installation and load/charge system integration (Pos/Neg termination)
- Advanced intelligent lithium battery management technology
- Energy transfer patented technology provides high cell utilization efficiency for prolong system operational life.
- Configuration flexibility, support parallel connection expansion up to 16 modules

#### BMS - Alarming

- System monitoring of voltage, current, temperature of cells and module. Built in protection against; over-current on discharge and recharge, over-temperature, low temperature, low and high voltage, and short circuit.
- BMS maintenance and service communication via RS232 or RS485
- 2 levels of remote alarming through dry contacts

#### Compliance

UL1642, Standard for Lithium Batteries

UL2054, Standard for Household and Commercial Batteries

EN 61000-6-1:2007, Electromagnetic compatibility (EMC)

EN 61000-6-3:2007+A1:2011, Electromagnetic compatibility (EMC)

IEC 62133:2012, Battery Safety Testing

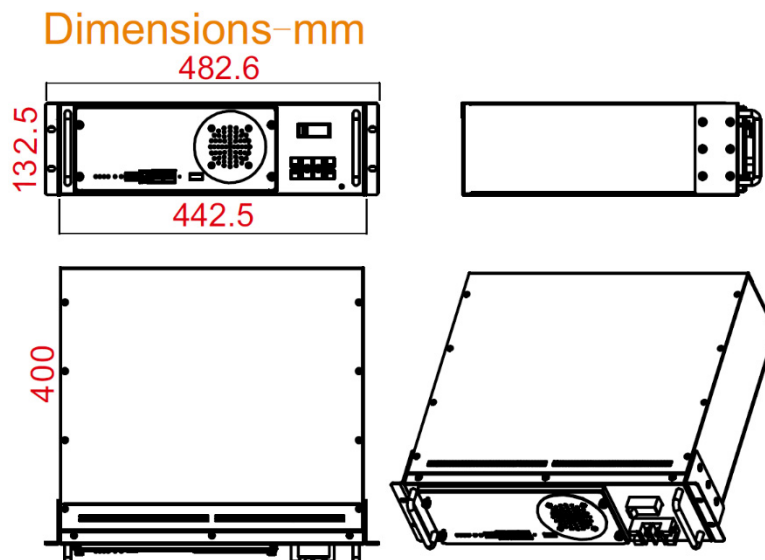
UL1973, Standard for -cells

NEBS Level 1 Certified GR-1089 / GR-63

UN3800

### Specifications

| Battery Specification      |           |                             |
|----------------------------|-----------|-----------------------------|
| Rated Voltage              |           | 48V                         |
| Rated Capacity             |           | 80Ah (0.5C to 40.5V @ 25 C) |
| Discharge Current (Max.)   |           | 80A                         |
| Discharge End Voltage      |           | 40.5V                       |
| Charge Current (Recomm.)   |           | 16A                         |
| Charge Current (Max.)      |           | 80A                         |
| Charge Voltage             |           | 54±0.5V                     |
| Dimensions                 | Width     | 442.5 mm                    |
|                            | Depth     | 400 mm                      |
|                            | Height    | 132.5 mm( 3U)               |
| Typical Weight             |           | 39.0Kg                      |
| Layout of Front Panel      |           |                             |
| Status Indicators          |           | SOC / ALM / RUN             |
| Communication Ports        |           | RS232 / RS485*2             |
| Communication in Parallel  |           | 8 modules in maximum        |
| Reset Key                  |           | Available                   |
| Terminal Size              |           | M6 (Screw size)             |
| LCD Screen                 |           | Optional                    |
| Breaker                    |           | Available                   |
| Dry Contact                |           | NC                          |
| Operation Environments     |           |                             |
| Temperature Range          | Discharge | -20 to + 60°C               |
|                            | Charge    | 0 to + 60°C                 |
|                            | Storage   | 0 to + 40°C                 |
| Temperature Recommendation | Discharge | +15 to + 35°C               |
|                            | Charge    | +15 to + 35°C               |
|                            | Storage   | +15 to + 30°C               |
| Humidity                   |           | 5% to 95%                   |



### Constant Current Discharge Rates @25C in Hours (Amps)

#### 48NFC80

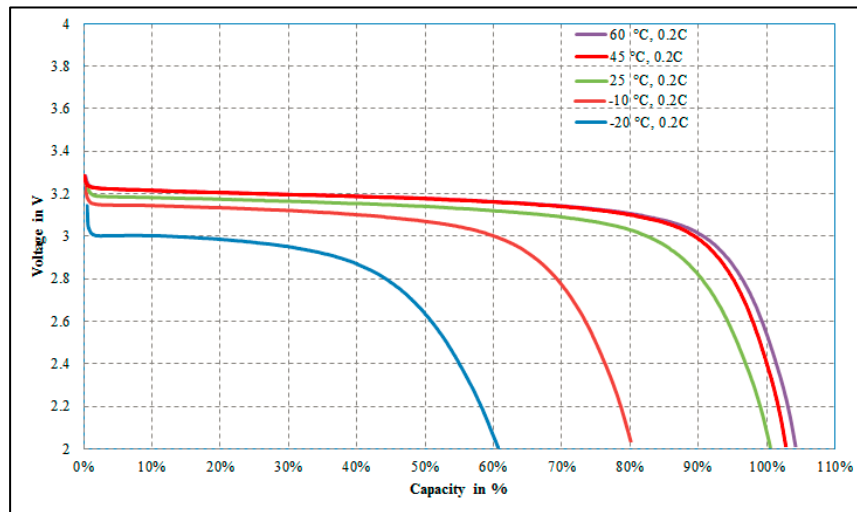
| End   | 10  | 8    | 5    | 4    | 3.5  | 2.5  | 2    | 1.5  | 1    |
|-------|-----|------|------|------|------|------|------|------|------|
| 46.5V | 7.6 | 9.5  | 15.2 | 17.7 | 19.0 | 28.2 | 33.5 | 44.3 | 55.1 |
| 45.0V | 7.6 | 9.8  | 15.5 | 18.1 | 19.4 | 30.6 | 37.6 | 53.9 | 70.2 |
| 44.1V | 7.7 | 9.8  | 15.7 | 18.3 | 19.7 | 31.0 | 38.3 | 55.3 | 72.2 |
| 43.5V | 7.9 | 9.9  | 15.8 | 18.5 | 19.9 | 31.3 | 38.9 | 56.6 | 74.3 |
| 42.0V | 7.9 | 10.0 | 15.9 | 18.6 | 19.9 | 31.7 | 39.4 | 57.7 | 76.0 |
| 40.5V | 8.0 | 10.0 | 16.0 | 18.7 | 20.0 | 32.0 | 39.8 | 58.5 | 77.1 |

### Constant Power Discharge Rates @25C in Hours (Watts)

#### 48NFC80

| End   | 10  | 8   | 5   | 4    | 3.5  | 2.5  | 2    | 1.5  | 1    |
|-------|-----|-----|-----|------|------|------|------|------|------|
| 46.5V | 392 | 480 | 768 | 976  | 1079 | 1049 | 1761 | 2262 | 3094 |
| 45.0V | 399 | 491 | 785 | 1000 | 1107 | 1091 | 1867 | 2454 | 3564 |
| 44.1V | 402 | 494 | 791 | 1007 | 1114 | 1098 | 1889 | 2478 | 3623 |
| 43.5V | 404 | 497 | 795 | 1012 | 1120 | 1104 | 1907 | 2497 | 3671 |
| 42.0V | 407 | 500 | 800 | 1020 | 1130 | 1116 | 1921 | 2540 | 3735 |
| 40.5V | 409 | 503 | 805 | 1024 | 1134 | 1122 | 1934 | 2561 | 3756 |

### Discharge - Temperature vs. Percent Capacity %



### Cycles - Temperature vs. Depth of Discharge

| Temp (°C) | Depth of Discharge (DoD) |      |      |       |       |
|-----------|--------------------------|------|------|-------|-------|
|           | 100%                     | 80%  | 60%  | 40%   | 20%   |
| 25        | 2000                     | 3500 | 6000 | 12000 | 24000 |
| 35        | 1600                     | 2800 | 4800 | 9600  | 19200 |
| 45        | 1200                     | 2100 | 3600 | 7200  | 14400 |

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