

Lithium Iron Phosphate (LFP)



MPINarada MPL series 48V LFP battery modules are ideally suited for telecom, OSP, and renewable energy applications with a max charge voltage of 54.5V. MPL series offer long cycle life, small size, reduced weight, and simplified installation as 19" rack mountable modules.

MPL LFP chemistry makes it one of the safest technologies, suitable for high and low temperature operation and capable of 1C and higher discharge rates. These LFP batteries are ideal for telecom growth and as direct replacement for VRLA.

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

Compliance

- UL1642, Standard for Lithium Batteries
- UL2054, Standard for Household and Commercial Batteries
- UL1973 Certified
- UL9540A tested – No Thermal Runaway
- EN 61000-6-1:2007, Electromagnetic compatibility (EMC)
- EN 61000-6-3:2007+A1:2011, Electromagnetic compatibility (EMC)
- IEC 62133:2012, Battery Safety Testing
- UN 38.3

BMS – Alarming - Communication

- 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 RS485 or RS485
- 2 levels of remote alarming through dry contacts

Dimensions and Specifications

| V | Ah 8hr to 40.5 V 25C | Ah 1hr to 40.5 V 25CV | Max Discharge Current (A) |
|----|----------------------|-----------------------|---------------------------|
| 48 | 6.3 | 48.2 | 100 |

| Width | | Depth | | Height | |
|-------|-------|-------|-------|--------|-------|
| (mm) | (in.) | (mm) | (in.) | (mm) | (in.) |
| 442.5 | 17.42 | 390 | 15.35 | 132.5 | 5.24 |

| Rack Units | Weight | | Terminal |
|------------|--------|--------|----------|
| | (kg) | (lbs.) | |
| 3U | 28.5 | 62.8 | M6 |

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Parallel Operation/ Discharge Rate

| | | | |
|-----------|----------------------|------------------------|------------------|
| 48MPLhE50 | 0.5C to 1C 4 Strings | 0.5C to 0.2C 6 Strings | 0.2C < 8 Strings |
|-----------|----------------------|------------------------|------------------|

BMS/Battery Operating Parameters

| Parameters | Units | Value |
|--|-------|----------|
| Charge voltage | V | 54 ± 0.5 |
| Equalization charge voltage | V | NA |
| Nominal charge current | A | 0.2C |
| Charge current limitation | A | 1.0C |
| Equalization charge interval | day | NA |
| Equalization charge duration | H | NA |
| Equalization charge | A | NA |
| Condition to float charge | A | 0.05C |
| LVBD (Low voltage battery disconnect) | V | > 40.5 |

Operating Environment Limits

| | | |
|--|-----------|-----------|
| Maximum Recommended Temperature Range (°C) | Discharge | -20 ~ +60 |
| | Charge | 0 ~ +60 |
| | Storage | 0 ~ +40 |
| Recommended Temperature (°C) | Discharge | +15 ~ +35 |
| | Charge | +15 ~ +35 |
| | Storage | +15 ~ +30 |
| Humidity | 5% ~ 95% | |

| | | |
|-----------------------------|---------------------------|---------|
| Over Temperature Protection | High temp. - charge | 70±3°C |
| | Recover temp. - charge | 60±3°C |
| | High temp. - discharge | 70±3°C |
| | Recover temp. discharge | 60±3°C |
| | Low temp. - charge | 0±3°C |
| | Recover temp. - charge | 5±3°C |
| | Low temp. - discharge | -10±3°C |
| | Recover temp. - discharge | 0±3°C |

Constant Current Rates @25C in Hours (Amps)

| End | 10 | 8 | 5 | 4 | 3.5 | 2.5 | 2 | 1.5 | 1 |
|------|-----|-----|------|------|------|------|------|------|------|
| 46.5 | 4.8 | 6.0 | 9.5 | 11.1 | 11.9 | 17.8 | 21.0 | 27.7 | 34.4 |
| 45.0 | 4.9 | 6.1 | 9.7 | 11.3 | 12.1 | 19.1 | 23.5 | 33.7 | 43.9 |
| 44.1 | 4.9 | 6.1 | 9.8 | 11.5 | 12.3 | 19.4 | 23.9 | 34.6 | 45.2 |
| 43.5 | 5.0 | 6.2 | 9.9 | 11.6 | 12.4 | 19.6 | 24.3 | 35.4 | 46.4 |
| 42.0 | 5.0 | 6.2 | 9.9 | 11.6 | 12.4 | 19.8 | 24.6 | 36.1 | 47.5 |
| 40.5 | 5.0 | 6.3 | 10.0 | 11.7 | 12.5 | 20.0 | 24.9 | 36.6 | 48.2 |

Constant Current Rates@25C in Hours (Watts)

| End | 10 | 8 | 5 | 4 | 3.5 | 2.5 | 2 | 1.5 | 1 |
|------|-----|-----|-----|-----|-----|-----|------|------|------|
| 46.5 | 245 | 300 | 480 | 610 | 675 | 655 | 1100 | 1414 | 1934 |
| 45.0 | 250 | 307 | 491 | 625 | 692 | 682 | 1167 | 1534 | 2227 |
| 44.1 | 251 | 309 | 494 | 629 | 696 | 686 | 1181 | 1549 | 2264 |
| 43.5 | 252 | 311 | 497 | 633 | 700 | 690 | 1192 | 1561 | 2294 |
| 42.0 | 254 | 313 | 500 | 637 | 706 | 697 | 1200 | 1587 | 2334 |
| 40.5 | 255 | 314 | 503 | 640 | 709 | 701 | 1209 | 1601 | 2348 |

Cycles - Temperature vs. Depth of Discharge

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

Accessories

| NPFC Cables | Description |
|----------------|------------------------------------|
| NPFC-CBL-U-RJ | Communication Cable - USB to RJ45 |
| NPFC-COM-RS485 | Communication Cable – RS485 to USB |

| | |
|----------|---|
| Brackets | There are no additional brackets required. This battery is self supporting with the built-in wings. |
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