18.2 × 64.86 mm
45.3 g

# Nitecore NL1821

Nitecore · released 2017

18650 | LI-ION | MOOCH-TESTED · 38 A

Live page & updates

| 2,100 mAh | 38 A | 3.6 V | 7.56 Wh |
|---|---|---|---|
| CAPACITY | MOOCH CONTINUOUS | NOMINAL · 2.5 – 4.2 V | ENERGY · 166.89 WH/KG |

**REFERENCE ONLY — NOT AN OFFICIAL DOCUMENT**

This information is gathered from multiple sources, including manufacturer datasheets, independent third-party testing, and community contributions. Cell specifications vary between production batches and change over time, and no figure here is guaranteed to be correct or current. **Always consult the manufacturer's spec sheet directly.** Use this sheet for reference only — never as the sole basis for a safety-critical decision about charging, discharging, or assembling cells.

CAPACITY AMONG 18650S — #212 of 279

Lowest in database — Highest

Higher discharge than 96% of 18650 cells in our database. Great for high-drain builds.

VOLTAGE OPERATING WINDOW — 1.7 V usable

Cutoff 2.5 V — Nominal 3.6 V — Max 4.2 V

Below nominal the cell sags fast under load; above it, the last of the capacity fills slowly on the constant-voltage taper.

## APPLICATION SUITABILITY

Rule-of-thumb ratings from this cell's capacity and continuous discharge. Check your own load before committing.

| | |
|---|---|
| **Powerwalls** | Usable for powerwalls but lower capacity means you'll need more cells to hit your target kWh. |
| **Ebike packs** | Marginal. Check your motor's peak draw first. You might get voltage sag under load. |
| **Car audio** | Enough discharge to handle amplifier bursts without voltage sag. |
| **High-drain vaping** | Above the 25A Mooch CDR threshold. Suitable for regulated and mechanical mods. |
| **Flashlights** | Lower capacity means shorter runtime. Better cells are available for flashlight use. |
| **Power tools** | Sufficient discharge and capacity for most power tool packs. |

## IDENTITY

| | |
|---|---|
| Manufacturer | **Nitecore** |
| Model | **NL1821** |
| Format | **18650** |
| Chemistry | **Li-ion** |
| Year released | **2017** |
| Terminal | **Flat top** |
| Protection | **Unprotected** |

## OPERATING TEMPERATURE

| | |
|---|---|
| Charging | **0°C to 50°C** |
| Discharging | **-20°C to 75°C** |

## ENERGY & POWER DENSITY

| | |
|---|---|
| Energy | **7.56 Wh** |
| Specific energy | **166.89 Wh/kg** |
| Volumetric density | **448.04 Wh/L** |
| Power density (mass) | **3,020 W/kg** |
| Power density (volume) | **8,107 W/L** |
| Capacity ranking | **#212 of 279 18650s** |

## PHYSICAL

| | |
|---|---|
| Diameter | **18.2 mm** |
| Length | **64.86 mm** |
| Weight | **45.3 g** |

## ELECTRICAL

| | |
|---|---|
| Rated capacity | **2,100 mAh** |
| Nominal voltage | **3.6 V** |
| Max charge voltage | **4.2 V** |
| Discharge cutoff | **2.5 V** |
| Energy | **7.56 Wh** |
| Internal resistance | **12 mΩ** |
| Max continuous discharge | **38 A (mooch)** |
| Discharge C-rate | **18.1C** |
| Standard charge current | **2,000 mA** |
| Typical charge time | **1.1 h** |

## C-RATE CONVERSION · 2,100 MAH

| C-RATE | CURRENT | THEORETICAL RUNTIME |
|---|---|---|
| **0.2C** | 0.42 A | 5h 00m |
| **0.5C** | 1.05 A | 2h 00m |
| **1C** | 2.1 A | 1h 00m |
| **2C** | 4.2 A | 30m |
| **3C** | 6.3 A | 20m |
| **5C** | 10.5 A | 12m |
| **8C** | 16.8 A | 7m 30s |

| | | |
|---|---|---|
| **10C** | 21 A | 6m |
| **15C** | 31.5 A | 4m |

Highlighted row is closest to the rated 38 A continuous discharge.

## CHARGING

| RATE | CURRENT | ESTIMATED TIME TO FULL |
|---|---|---|
| **0.5C** | 1,050 mA | ~2h 00m |
| **Standard** | 2,000 mA | ~1h 03m |
| **1C** | 2,100 mA | ~1h 00m |

Constant-current phase only. Real charge time runs longer because of the constant-voltage taper at the end.

## SERIES PACK CONFIGURATIONS

Voltages calculated from this cell's own nominal and maximum charge voltage. The 3P columns show one common parallel count as a worked example — scale the parallel group to the capacity you need.

| SERIES | NOMINAL | FULLY CHARGED | CELLS AT 3P | CAPACITY | ENERGY |
|---|---|---|---|---|---|
| **3S** | 10.8 V | 12.6 V | 9 | 6.3 Ah | 68 Wh |
| **7S** | 25.2 V | 29.4 V | 21 | 6.3 Ah | 159 Wh |
| **10S** | 36 V | 42 V | 30 | 6.3 Ah | 227 Wh |
| **13S** | 46.8 V | 54.6 V | 39 | 6.3 Ah | 295 Wh |
| **14S** | 50.4 V | 58.8 V | 42 | 6.3 Ah | 318 Wh |

## EXAMPLE PACKS

### 7S2P
24V ebike / small pack

14 cells · 25.2 V

4,200 mAh · 106 Wh

76 A max · ≈0.63 kg cells

### 13S4P
48V ebike standard

52 cells · 46.8 V

8,400 mAh · 393 Wh

152 A max · ≈2.36 kg cells

### 16S4P
DIY powerwall

64 cells · 57.6 V

8,400 mAh · 484 Wh

152 A max · ≈2.9 kg cells

### 4S6P
Power tool replacement

24 cells · 14.4 V

12,600 mAh · 181 Wh

228 A max · ≈1.09 kg cells

## SIMILAR CELLS

Same format and chemistry, within ±500 mAh.

| CELL | MAH | CONTINUOUS | WH | WEIGHT | WH/KG |
|---|---|---|---|---|---|
| **Nitecore NL1821 (this cell)** | **2,100** | **38 A** | **7.56** | **45.3 g** | **167** |
| Nitecore NL1825R | 2,500 | 35 A | 9 | 47 g | 191 |
| FP 18650-1800mAh | 1,800 | — | 6.5 | 46 g | 141 |

## HANDLING & SAFETY

- Never charge above 4.2V or discharge below 2.5V.
- Store cells at around 3.6-3.8V (roughly 40-60% charge) for long-term storage.
- Don't mix cells with different capacities, chemistries, or states of charge in a pack.
- Inspect wraps before use. A torn wrap can cause a short circuit.
- Always use a BMS or balance charger appropriate for your pack configuration.
- Keep cells away from metal objects, keys, and coins. A short across the terminals can cause fire.

## SOURCES & FURTHER READING

| | |
|---|---|
| Cell Saviors page | cellsaviors.com/cell-database/nitecore-nl1821 |
| Manufacturer datasheet | https://www.powerstream.com/p/us18650vtc4.pdf |
| Independent test (Mooch) | https://www.e-cigarette-forum.com/threads/nitecore-38a-2100mah... |
| Full cell database | cellsaviors.com/cell-database |