CELL SPECIFICATION

TerraE INR 18650 48E

High-Energy Cell · 4.5 Ah · 16.2 Wh in 18650 format



KEY DATA

Nominal capacity	4,500 mAh @ 0.2C (900 mA)
Nominal voltage	3.60 V (4.20 V charge / 2.50 V cut-off)
Energy (typ.)	16.2 Wh
Energy density	approx. 325 Wh/kg (calculated, 16.2 Wh at ≤50 g)
Internal resistance (ACR)	≤19 mΩ (AC impedance, 1 kHz)
Standard charge	0.5C (2,250 mA) CC/CV 4.2 V, cut-off 0.02C (90 mA)
Max. continuous charge	1.0C (4,500 mA) @ 15–45 °C · 0.5C @ 5–15 °C and 45–60 °C · 0.1C @ 0–5 °C
Max. continuous discharge	2C (9,000 mA) @ 0–45 °C · 1C (4,500 mA) @ 45–70 °C and −20–0 °C
Operating temperature	Charge 0…+45 °C · Discharge −20…+60 °C
Cycle life	≥70% after 1,000 cycles (0.5C / 1C, 4.2–2.75 V)
Dimensions / weight	Ø 18.35 ± 0.15 × 65.05 ± 0.15 mm · ≤50 g

E-MOBILITY · DRIVE SYSTEMS · ENERGY STORAGE · POWER- AND GARDEN TOOLS · INDUSTRIAL · MEDICAL

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TerraE INR 18650 48E

Cylindrical Lithium Ion Cell

1. RATE DISCHARGE (TYPICAL)

0.2C (0.9 A)	4.500 Ah · 100%
0.5C (2.25 A)	≥4.275 Ah · ≥95%
1C (4.5 A)	≥4.140 Ah · ≥92%
2C (9.0 A)	≥4.050 Ah · ≥90%

2. DISCHARGE CURRENT vs. CELL TEMPERATURE

70 °C > T ≥ 45 °C	1C (4,500 mA)
45 °C > T ≥ 0 °C	2C (9,000 mA)
0 °C > T ≥ −20 °C	1C (4,500 mA)

3. DISCHARGE CAPACITY vs. TEMPERATURE (1C, TYP.)

25 °C · cut-off 2.5 V	100% (reference)
55 °C · cut-off 2.5 V	≥95%
−20 °C · cut-off 2.2 V	≥70%

4. PRODUCT HIGHLIGHTS

- 4.5 Ah in the standard 18650 format – currently the highest capacity available in this form factor.
- 12.5% more capacity than a 4.0 Ah 18650 and 50% more than legacy 3.0 Ah designs – fewer cells per pack at equal energy.
- Drop-in replacement for existing 18650 systems – unchanged Ø 18.35 × 65.05 mm envelope.
- Long service life: ≥70% residual capacity after 1,000 full cycles.
- Wide temperature window: discharge from −20 °C to +60 °C – suited to power and garden tools, outdoor and stationary applications.

5. STORAGE & SHIPPING STATE

−20…+40 °C for up to 3 months · −20…+20 °C for 3 to 12 months · dry (0–50% RH), non-corrosive atmosphere.

Cells are shipped in a 3.5–3.7 V charge window. For storage beyond 3 months keep the voltage within 3.5–3.7 V; cells below 3.5 V shall be recharged at 0.5C at three-month intervals.

6. SAFETY, CONFORMITY & QUALITY

Safety tests per manufacturer specification: overcharge, over-discharge, external short circuit, 1.0 m drop, 130 °C heating test, seawater immersion, low pressure (11.6 kPa) and temperature cycling (−40…+85 °C) – criteria: no fire, no explosion, no leakage.

UN 38.3 transport test documentation available on request. TerraE declaration of conformity and full manufacturer specification provided with qualification.

RoHS / REACH conformity per manufacturer specification. 100% EOL-tested to TerraE specification.

7. ORDERING & CONTACT

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Reference manufacturer document: 18650/48E (4,500 mAh), Spec A/00, 2026-05-28

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