

Charging Overnight at -20°C Ambient Temperature

L.Pack Lithium-ion Battery 48VDC – 42Ah – 2kWh

Optimized charging even in freezing environments

This test confirms L.Pack's ability to deliver **optimal charging and power availability**—even in extreme cold. How? Calogy's **proprietary thermal management technology** automatically warms the battery to start charge when it is most efficient, ensuring unmatched **reliability** and **extended battery life** even in the harshest conditions. Built for **performance** in cold climates, L.Pack can also maintain your battery at 15°C when not in use, so your **industrial or vocational vehicles** are **always ready when you need them**.



Objective

- Investigate the thermo-electrical behavior of the module under charging overnight at low ambient temperature

Test conditions

- Initial and ambient temperature: -20°C
- Initial SOC: 5%
- Charging voltage target: 53V
- Charge profile: Constant Current – Constant Voltage (CC-CV)
- C/2: $0^{\circ}\text{C} < \text{Temperature} < 15^{\circ}\text{C}$
- 1C: $15^{\circ}\text{C} < \text{Temperature} < 35^{\circ}\text{C}$
- Heater: Activated during charging under 15°C

Results and conclusions

- Active temperature control to maintain temperature above 15°C overnight
- The module is fully charged and warm in the morning, ready to operate.

