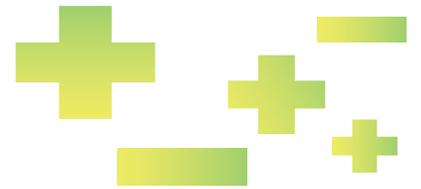


FIAMM

Industrial Batteries

SO|NICK

48TL120



Applications and Key Benefits

- + 48V sodium nickel chloride battery, specifically designed for telecom application Suitable for:
 - Hybrid or off-grid installation
 - Installation in remote location
 - Use with renewable energy (Wind / Solar)
 - Frequent power outages
 - Extreme temperature conditions
 - Installation with very compact space availability
- + Constant performance at -20° to +60°C / -4°F to 140°F
- + No cooling required
- + >2000 cycles at 80% DoD
- + 100% maintenance free in operation
- + Allows remote monitoring
- + Specific energy 70% lighter and 30% smaller than conventional batteries
- + Very low total cost of ownership (TCO) compared to other battery technologies
- + Very long shelf life without maintenance
- + Capacity to store energy indefinitely when not connected
- + No outgassing and zero ambient emission

Sodium Nickel Chloride Technology

- Use of sodium and nickel as active materials, with solid ceramic electrolyte
- Active materials contained in sealed steel sheet cells
- "hot battery" - internal operating temperature around 300°C / 572°F
- Made with 2.58 Volt cells with 140 Wh/kg / 310 Wh/lb and 280 Wh/liter specific density
- Proven technology for energy storage and clean powering of electric vehicles

Environment

- Zero ambient emission: can be installed in a sealed environment
- Battery outside temperature only few degrees above the ambient temperature
- Efficient material usage and 100% recyclable: stainless steel, nickel, iron, salt, ceramic
- Free of toxic materials: no lead or cadmium
- RoHs compliant

Technical Features

- Steel cell case and double stainless steel battery case
- Integrated battery monitoring system (BMS) for monitoring, diagnostics and data logging
- User interface on front panel
- Ready for remote diagnostics and monitoring
- Compatible with any DC power supply and standard telecom rectifiers
- Scalable with parallel operation
- No memory effect
- Typical failure mode (internal short) does not develop violent energy release - batteries remain in operation with slight loss of performance
- BMS diagnostics alert on anomalies and disconnect the battery in case of serious failure
- Supplementary protection with an independent circuitry in the event of BMS failure
- Integrated low voltage disconnect (LVD)



48TL120 Technical Data

Electrical Characteristics

Nominal Voltage	48 VDC
Open Circuit Voltage	51.6V
Bus Voltage Range	53 to 59 V
Nominal Capacity	120 Ah at C4 to 42V
Nominal Energy	5700 Wh at C4 to 42V
Gravimetric Energy Density	74 Wh / Kg - 33 Wh / lb
Volumetric Energy Density	64 Wh / liter
Max Continuous Discharge Current	90 Amps
Faradic Charge Efficiency	100%

Operating Conditions

Operating Temperature Range	-20°C to + 60°C / -4°F to 140°F continuous
Warm-up Time to be Operational	< 14 hours
Thermal Losses in Operation	105 W
Nr of Cycles	> 2000 Cycles at 80% DoD
IP Rating	IP-55

Communication

Data Interface Protocol	RS 485 / USB / Ethernet / CAN-bus
Alarm Dry Contact NO / NC	230 Vac / 2 A

Dimensions

Front	496 mm / 19.5 in.
Depth	558 mm / 21.9 in.
Height	320 mm / 12.6 in.
Weight	77 kg / 169 lb

Applicable Standards

EN 61000-6-1
 CE
 CAS Nr 7440-02-0 - Nickel specification

FIAMM Manufacturing

- Made in Switzerland
- Over 10 years experience with sodium nickel chloride technology and application in electric vehicles
- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System

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