



Applications and Key Benefits

- + 48V sodium nickel chloride battery, specifically designed for telecom application
Ideal for:
 - Telecom central office sites with stringent energy density requirement
 - Telecom outdoor cabinets in locations with elevated or extreme temperature
 - Installation with poor grid connection and frequent power outages
 - Installation in locations where regular on-site maintenance is costly or not possible
- + Constant performance at -20° to +60°C / -4°F to 140°F
- + No cooling required
- + >3000 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
- + No outgassing and zero ambient emission
- + Very long shelf life without maintenance: stores energy indefinitely when not connected

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 / 310Wh/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
- 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
- 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)
- **48TL-H models:** optimized insulation to guarantee lowest thermal loss and maximize the battery energy efficiency
Ideal for applications that require medium to very long discharge



48TL80



48TL160H



48TL200





General Characteristics

Nominal Voltage	48 VDC
Open Circuit Voltage	51.6V
Bus Voltage Range	53 to 59 V
Faradic Charge Efficiency	100%
Cycles	> 3000 Cycles at 80% DoD
Operating Temperature Range	-20°C / + 60°C - -4°F / 140°F continuous

Model	Nominal Capacity	Nominal Energy	Gravimetric Energy Density	Volumetric Energy Density	Max Continuous Discharge Current	Warm-up Time to be Operational	Interface
	at C4 to 42V						

48TL range - application with stable or unstable grid connection

Model	Nominal Capacity	Nominal Energy	Gravimetric Energy Density	Volumetric Energy Density	Max Continuous Discharge Current	Warm-up Time to be Operational	Interface
48TL80	80 Ah	3650 Wh	81 Wh / Kg 37 Wh / lb	80 Wh / liter	50 Amps	< 20 hours	RS 232 (option RS 485)
48TL120	120 Ah	5700 Wh	74 Wh / Kg 34 Wh / lb	64 Wh / liter	90 Amps	< 14 hours	RS 485 / USB Ethernet / CAN-bus
48TL160	160 Ah	7700 Wh	85 Wh / Kg 38 Wh / lb	86 Wh / liter	120 Amps	< 14 hours	RS 485 / USB Ethernet / CAN-bus
48TL200	200 Ah	9600 Wh	91 Wh / Kg 42 Wh / lb	108 Wh / liter	150 Amps	< 14 hours	RS 485 / USB Ethernet / CAN-bus

48TL-H range - optimized for hybrid application with renewable energy and/or gen-set

Model	Nominal Capacity	Nominal Energy	Gravimetric Energy Density	Volumetric Energy Density	Max Continuous Discharge Current	Warm-up Time to be Operational	Interface
48TL160H	160 Ah	7700 Wh	86 Wh / Kg 39 Wh / lb	83 Wh / liter	65 Amps	< 13 hours	RS 485 / USB Ethernet / CAN-bus

Dimensions

Model	Front	Depth	Height	Weight
48TL80	260 mm / 10.24 in.	550 mm / 21.65 in.	320 mm / 12.60 in.	45 Kg / 99 lb
48TL120	496 mm / 19.53 in.	558 mm / 21.97 in.	320 mm / 12.60 in.	77 Kg / 170 lb
48TL160	496 mm / 19.53 in.	558 mm / 21.97 in.	320 mm / 12.60 in.	91 Kg / 201 lb
48TL160H	496 mm / 19.53 in.	578 mm / 22.76 in.	325 mm / 12.80 in.	90 Kg / 198 lb
48TL200	496 mm / 19.53 in.	558 mm / 21.97 in.	320 mm / 12.60 in.	105 Kg / 231 lb

Applicable Standards

- EN 61000-6-1
- CE
- CAS Nr 7440-02-0 - Nickel specification
- NEBS Level-1 DA-1976
- 48TL200: certified
- 48TL120 - 48TL160 – 48TL160H: designed to comply

FIAMM Manufacturing

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