

# 48TL Battery Range

## Sodium Nickel Chloride Batteries

### Applications, Key Benefits and Characteristics



#### Applications and Key Benefits

- + 48V Sodium Nickel Chloride energy backup system, specifically designed for many applications

Ideal for:

- Central office sites with stringent energy density requirement
  - Outdoor cabinets in locations with elevated or extreme temperatures
  - Installations with poor grid connection and frequent power outages
  - Installations in locations where regular on-site maintenance is costly or not possible
- + Constant performance and 20 years design life at -20°C to +60°C / -4°F to 140°F operation
  - + No cooling required
  - + >3000 – >4500 cycles at 80% DoD
  - + 100% maintenance free in operation
  - + Allows remote monitoring
  - + Specific energy: 70% lighter and 30% smaller than conventional backup systems
  - + Very low total cost of ownership (TCO) compared to other backup 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
- Cells with hermetically sealed steel case,
- packed in double-thick mica to insulate each cell and prevent electrical shorting
- Internal operating temperature around (~270°C inside, with external surface temperature only few degrees above ambient
- Made with 2.58 Volt cells with 140 Wh/kg or 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
- System 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 device case
- Integrated 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 device 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 system energy efficiency Ideal for applications that require medium to very long discharge



## General Characteristic

Nominal Voltage	48 VDC
Open Circuit Voltage	51.6V
Bus Voltage Range	53 to 59 V
Faradic Charge Efficiency	100%
Cycles	> 3000 - >4500 Cycles at 80% DoD
Operating Temperature Range	-20°C / + 60°C - -4°F / 140°F continuous

Model	Nominal Capacity	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

48TL80	80Ah	3650Wh	81Wh/Kg 37Wh/lb	80Wh/liter	50 Amps	<20 hours	RS 232 (option RS 485)
48TL120	120Ah	5700Wh	74Wh/Kg 34Wh/lb	64Wh/liter	90 Amps	<14 hours	RS485/USB Ethernet / CAN-bus
48TL160	160Ah	7700Wh	85Wh/Kg 38Wh/lb	86Wh/liter	120 Amps	<14 hours	RS485/USB Ethernet / CAN-bus
48TL200	200Ah	9600Wh	91Wh/Kg 42Wh/lb	108Wh/liter	150 Amps	<14 hours	RS485/USB Ethernet / CAN-bus

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

48TL160H	160Ah	7700Wh	86Wh/Kg 39Wh/lb	83Wh/liter	65 Amps	<13 hours	RS485/USB Ethernet / CAN-bus
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## 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.	104 kg / 229 lb

### Applicable Standards

- EN 61000-6-1
  - CE
  - NEBS DA1976 Level 1 and Level 3
- 48TL120 - 48TL160 - 48TL160H - 48TL200: certified

### FIAMM Manufacturing

- Made in Switzerland
- ISO 9001 - Quality Management System
- ISO 14001 - Environmental Management System
- Over 10 years experience with Sodium Nickel Chloride technology