



# TL range

## Sodium Nickel 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 300°C / 572°F, with external surface temperature only few degrees above ambient
- > Made with 2.58 Volt cells with 140 Wh/kg or 310Wh/lb and 280 Wh/liter specific density
- > Proven technology for energy storage and clean powering of electric vehicles



## Applications and Key Benefits

- > 48V Sodium Nickel Chloride energy backup system, 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 and 20 years design life at -20°C to +60°C / -4°F to 140°F operation
- > No cooling required
- > Over 3000 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

## 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

## 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



## General Characteristics

Nominal Voltage	48 VDC
Open Circuit Voltage	51.6 V
Bus Voltage Range	54 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		Gravimetric Energy Density	Volumetric Energy Density	Max Continuous Discharge Current	Warm-up Time to be Operational	Interface
	at C4 to 42V						

### TL range - application with stable or unstable grid connection

Model	Nominal Capacity	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

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

Model	Nominal Capacity	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.	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

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