



Applications and Key Benefits

- + Energy backup system, specifically designed for onboard backup power on rolling stock. Powers auxiliary service in case of interruption to the main overhead catenary supply
- + Constant performance and 20 years design life at -25° to +65°C / -13°F to 150°F operation
- + No cooling required
- + >3000 cycles at 80% DoD
- + IP65
- + 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 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

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
- Ready for remote diagnostics and monitoring
- Scalable with parallel operation
- Railways approved connectors for installation below the floor of each train set
- 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)
- External safety shutdown input






110RW80 Technical Data

Electrical Characteristics

Nominal Voltage	110 VDC
Open Circuit Voltage	113 V
Bus Voltage Range	120 to 140 V
Nominal Capacity	80 Ah at C/4 to 94 V
Nominal Capacity	8400 Wh at C/4 to 92 V
Gravimetric Energy Density	80 Wh / kg - 36 Wh / lb
Minimum voltage on discharge	80 VDC
Max Continuous Discharge Current	125 Amps
Faradic Charge Efficiency	100%

Operating Conditions

Operating Temperature Range	-25°C to +65°C / -13°F to 150°F continuous
Warm-up Time to be Operational	< 14 hours
Thermal Losses in Operation	<120W
Nr of Cycles	> 3000 Cycles at 80% DoD
IP Rating	IP65

Communication

Data Interface Protocol	CAN Open
Input	External Shut Down
Logic input	Emergency Load Disconnect

Connectors

Power	GlenAir ITS series
Data	Harting HAN series

Dimensions

Front	616 mm / 24.2 in.
Depth	526 mm / 20.7 in.
Height	388 mm / 15.3 in.
Weight	107 kg / 236 lb

Applicable Standards

- Designed to comply with:
- IEC 60571 / 61373 / 61571 / 61991 / 62236-3-1
 - EN 50121-1 / 51121-3-1 / 51121-3-2 / 50126 / 50128 / 50129 / 50155:2007
 - EN 60529 (IP65)
 - NFPA 130
 - UL-1973

FIAMM Manufacturing

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

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