



 **PowerLiC**

Lithium Ion Capacitor Module 57V 306F

PowerLiC™ offers high energy, ultra-long lifetime in a reliable embedded integration for rolling-stock

The module designed by Centum Adetel Transportation Solution is based on the latest **hybrid supercapacitor** technology, with **Lithium Ion Capacitor** cells.

Using PowerLiC™ allows the integrator certifying the energy box according to EN 45545 & EN 50126.

PowerLiC-57-306 belongs to the PowerLiC™ range addressing embedded storage application. Applied to embedded energy offering high energy density, it allows **catenary free** & **catenary less** operation as well as downsizing diesel electric traction package.

It can be used in natural or forced-air cooling environment for higher energy cycles.

Functions

- Redundant voltage monitoring functions for all cells
- Simultaneous cell balancing operation
- Temperature monitoring of the module
- Safety discrete fault signal
- Alarm signal output functions for
 - ✓ Over discharge
 - ✓ Over charging
 - ✓ Temperature
- Isolated external RS485 link for ETAM (Energy Tank Manager) under Modbus® protocol



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PowerLiC 57V 306F Lithium Ion Capacitor Module



Application

- Energy module for rolling stock
- Lithium Ion Capacitor technology

Environment

- Standard Operational temperature: [-25 to +45 °C]
- Extended Operational temperature: [-25 to +50 °C]
- Storage temperature: [-40 to +70 °C]



Standards

- EN 529 IP21 / IP55
- EN 61373 Rolling stock cat1 class B
- EN 45545 3,3kVAC 60s
- EN 50124
- EN 50126
- EN 50155 SIL 2

Technical features*

*Based on 2300F cells

- Dimensions 695 x 188 x 130mm
- Weight 19 kg
- Optimized air cooling 2 m/s
- Temperature rise 5 °C @ 2 m/s and 80A RMS
- Nominal capacitance 306.7 F +/-10 %
- Maximum voltage 57 VDC @ max cell voltage
- Minimum voltage 33 VDC @ min cell voltage
- DC series resistance 5.25 mOhms @ 100 A constant current 25 °C
- Nominal RMS current 140 A
- Repetitive peak current 450 A @ 5s every 60s and 140A RMS
- Nominal energy 92 Wh from min to max voltage
- Maximum current 2000A
- Electronics Balancing, voltage & temperature monitoring
Digital alarm and Isolated RS485 link with Modbus® Protocol
- Floating lifetime 4 000h @ 70 °C/57 V
- Cycle lifetime 2 000 000 @ 400A charge/discharge,
57 V – 33 V no rest time, 25 °C
- Maximum modules 16 in series



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