

# SINETECH OVERVIEW

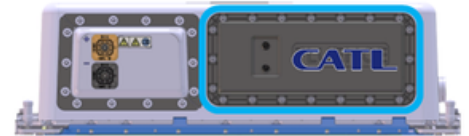
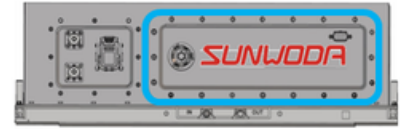
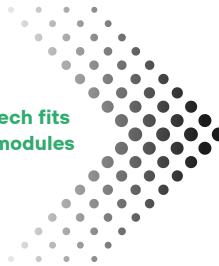
## A new generation of power conversion and battery management

SineTech integrates the power conversion system into the module BMS, eliminating the separate (string or central) inverter

- Replaces the conventional module BMS and includes all AC power conversion incl. direct ~400VAC LV grid connection
- Compatible with a wide range of off-the-shelf battery modules from various suppliers
- The distributed inverter architecture provides industry leading granularity of control and efficiency



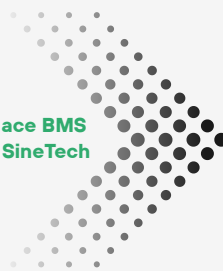
SineTech fits most modules



### Sample C&I DC System



Replace BMS with SineTech



### SineTech AC System



#### 0 Footprint AC System

Full AC system with direct LV grid connection

#### +15% Energy Extraction

SoC + SoH based active balancing

#### Native Redundancy

Bypass faulty component to continue operations

#### 99% Efficiency

leading nominal PCS on-way efficiency

#### +1500 Cycle Life

SoH tracking and management

#### Western BMS + PCS

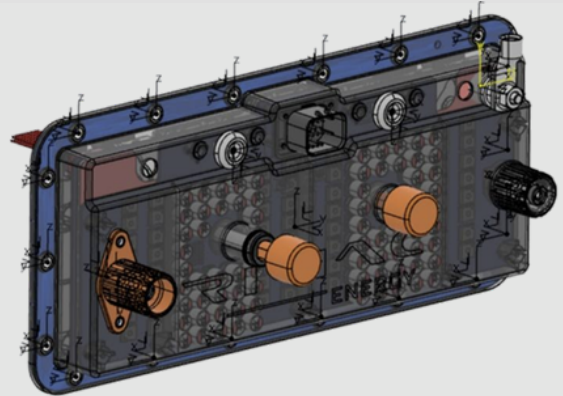
Developed in Europe, produced in US & Europe

## The AC Cassette directly integrates the BMS & modular multi-level inverter into the battery module

- 2x full-bridge inverters capable of supporting 4-hour BESS products
- In-built BMS monitoring up to 52 series (2x 26S groups) and 2 parallel cells
- In-built protections for current, voltage and temperature
- Enables independent battery pack power control and automated balancing

AC Cassette

Max. Continuous Power Output	<b>33 kVA</b>
Nominal AC Voltage	<b>92 Vac</b>
Max. Continuous AC Current	<b>335 Arms</b>
Max. Transient AC Current	<b>670 Arms</b>
Nominal AC Current	<b>265 Arms</b>
Efficiency at Nominal Load	<b>99.0 %</b>
Nominal DC Voltage	<b>166 Vdc</b>
Cell Temperature Sensors	<b>Up to 36</b>
IP Rating (mounted to module)	<b>IP67</b>



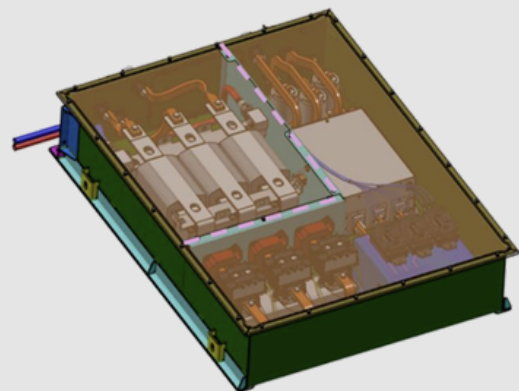
380mm x 170mm x 73mm (not including rear pins)

## The SineTech Power Distribution Unit couples each AC battery rack to the grid

- Key components: Rack controller, 3-Phase contactor, line fuses, L-L voltage measurement, phase current measurement, grid filter, auxiliary power supplies.
- The rack controller is responsible for central BMS and PCS controls, sending commands and receiving feedback from the AC Cassettes over RS-485 and CAN network
- The rack controller also communicates with the site or array controller over Ethernet

Rack PDU

Max. Continuous Power Output	<b>400 kVA</b>
Nominal AC Voltage	<b>690 Vac</b>
Max. Continuous AC Current	<b>335 Arms</b>
Max. Transient AC Current	<b>670 Arms</b>
Nominal AC Current	<b>265 Arms</b>
Efficiency at Nominal Load	<b>99.8 %</b>
Filter Topology	<b>L + EMI</b>
Cooling	<b>Liquid Cooled</b>
IP Rating	<b>IP55</b>



740mm x 1100mm x 220mm



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ENERGY

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