TEPLORE | Tensorpack

# Distributed Commercial & Industrial Energy Storage System


High Performance

Long Lifespan

Maximum Safety

Advanced Control

Flexible Deployment


# Introduction

## Company

Teplore’s vision is to accelerate the world's transition to sustainable energy, based on this vision, Teplore focuses on developing innovative and sustainable distributed energy storage products and services, offering safe and efficient distributed energy storage systems to market, and providing energy storage-based solutions for commercial and industrial scenarios.

## Partner

CATL Schneider Electric PHOENIX CONTACT

## Functionality

### Time of Use

Reduce costs by leveraging the price difference between peak and off-peak tariffs.

### Peak Shaving

Control the maximum load power and reduce the demand charges.

### Capacity Expansion

Increase electrical generation capacity without changing the transformer.

### Renewable

Use more energy from renewable sources and minimise feed-in.

### Microgrid

Create a small utility grid with or without a connection to a public utility grid.

### Market Participation

Provide energy support to the grid in response to system operator alerts.

## Application

### Factory

Factory normally suffers high electrical bills, Tensorpack with multi-use capabilities that can run several storage applications in parallel of time of use, peak shaving, renewable self-consumption and microgird, where high storage capacity with many guaranteed cycles for sustainable power delivery.

### Charging Station

The grid power connection easily reaches its limits when constructing large EV chargers.Deploying Tensorpack can avoid transformer expansion costs since Tensorpack regulates the load peaks to protest against overload and reduce electrical bills.

### Microgrid

Distributed energy storage combined with photovoltaic, diesel generators and other power sources to provide a stable power system in remote areas or areas with unstable power grids.

# Features

## High Performance

Tensorpack's rack batteries are connected in series to avoid circulating current and ensure PCS operates at the highest efficiency range, thermal management system automatically adjusts the cooling strategy to maintain the best operating conditions of batteries.

- **Tensorpack T** (0.5P)
  Maximum round-trip efficiency **91%**
- **Tensorpack A** (1P)
  Maximum round-trip efficiency **90%**

## High Safety

Tensorpack cooperates with all front-line suppliers, including CATL, Schneider, Phoenix Contact and Delta, to guarantee the best quality, security, and performance.
Thermal runaway warning algorithm combined with multi-level electrical protection devices and fire protection systems together ensure safety. Battery early warning technology accurately predicts the battery SOC and SOH, diagnoses and monitors the internal short circuit risks in advance.


### System Safety

- Battery safety diagnosis in advance
- Electrical safety and real-time protection

### Software Safety

- State of the art battery health state assessment
- Advanced thermal management control strategy

### Fire Fighting Safety

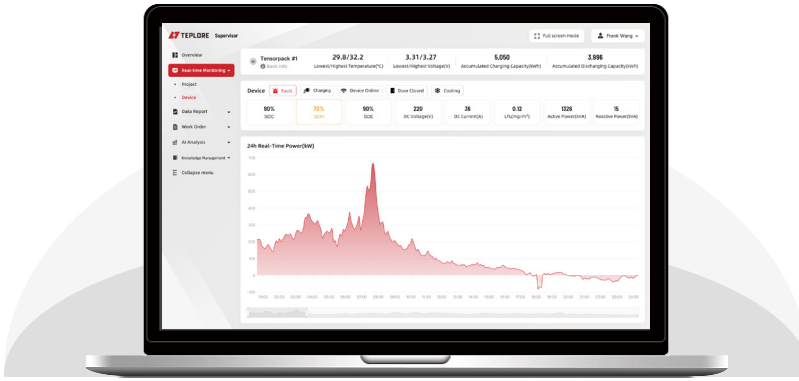
- Thermal runaway early protection
- Fire-fighting system protection

## Long Lifespan

The thermal management system ensures all batteries running in best temperature ranage with temperature difference of 5°C, combining with the DoD control algorithm, it greatly improves the lifespan of the battery system.

- **Entire life cycle exceeds 8,000 cycles**
- **System service life exceeds 15 years**

## Advanced Control




### Cloud Remote O&M

Constantly upgrade the control strategy through OTA.

### Guarantee the System Security

24/7 real-time monitoring critical parts to prevent risks in advance.

### Improve Economic Return

Based on load forecasting and electrical market to maximum the return.

## Flexible Deployment

### Pre-integrated System:

All pre-installation and debugging are completed before delivery, ensuring transportation of the entire cabinet.

### Low Construction Cost:

The system is ready for immediate connection and use upon arrival at the site, eliminating the need for extensive on-site wiring and debugging associated with traditional energy storage equipment.

### Low Maintenance Cost:

The system requires no manual on-site maintenance, reducing costs by more than 40%.

### Flexible Expansion:

Each unit occupies less than 2m² of space and supports parallel operation of up to 200 devices.

# Tensorpack T 100kW/215kWh

## Product Characteristics

**91** % Efficiency

**15** y Lifespan

**2** m² Footprint

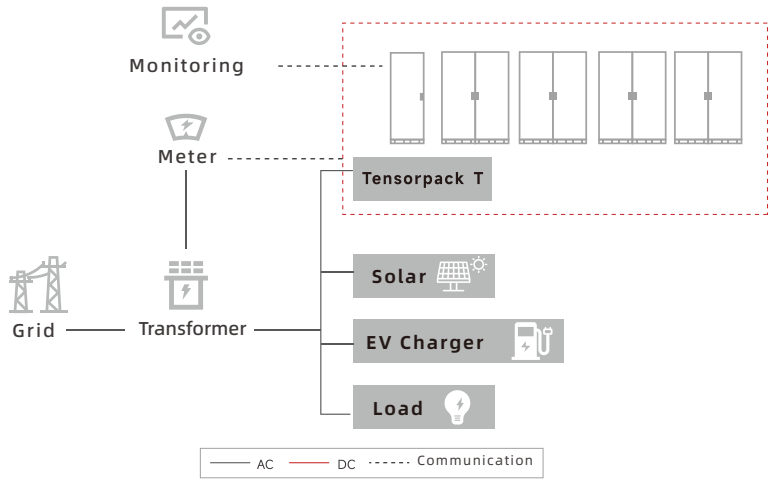

## Product Certification

IEC 62619
IEC 63056
IEC 60730
IEC 61000
IEC 62477

Tensorpack T integrates a 215 kWh lithium-ion battery, a battery management system, an energy management system, a 100 kW bidirectional DC/AC converter, thermal management, and a firefighting system, all of which occupy less than 2m². Tensorpack T is rated for 8000 cycle times and boasts a 91% round-trip efficiency. It can be extended to 215 MWh in parallel connections.making it a widely applicable solution for EV charging stations, commercial buildings, manufacturing, and more.

**Markets: Asia, Africa, Europe, Australia, South America**

## Electrical Block Diagram




## Specification

| AC Parameters | |
|---|---|
| Power Rating | 100 kW |
| Maximum Power | 110 kVA |
| Grid Type | 3W+PE |
| Rated Grid Voltage | 400 V |
| Grid Voltage Range | 340~440 V |
| Maximum Current | 158 A |
| Grid Frequency | 50/60 Hz |
| Power Factor Range | -1~1 |
| **DC Parameters** | |
| Battery Type | LFP 280Ah CATL |
| Energy | 215 kWh |
| Voltage Range | 672~864 V |
| Cycles expected @ 100% DoD \| 70% EoL \| 25°C +/-5°C 0.5C/0.5C | 8000 Times |

| System Parameters | |
|---|---|
| Highest Round-trip Efficiency | 91 % |
| Operating Temperature | -30 ~ 55 °C |
| Relative Humidity | 0 ~ 100% RH, No Condensation |
| Operating Altitude | ≤2000 m |
| Communication Interface | LAN /RS 485/CAN /4G |
| Communication Protocol | ModBus TCP/ModBus IEC104/CAN |
| Protection Class | IP55 |
| Thermal Management | Forced Air Cooling |
| Noise Rating | ≤65dB |
| Battery Rack Dimension(WDH) | 1600×1250×2200 mm |
| Control Rack Dimension (WDH) | 800×1100×2200 mm |
| Battery Rack Weight | Approx. 2600 kg |

# Tensorpack A&R 250kW/279kWh & 125kW/279kWh

## Product Characteristics

**90%** Efficiency

**15y** Lifespan

**3m²** Footprint

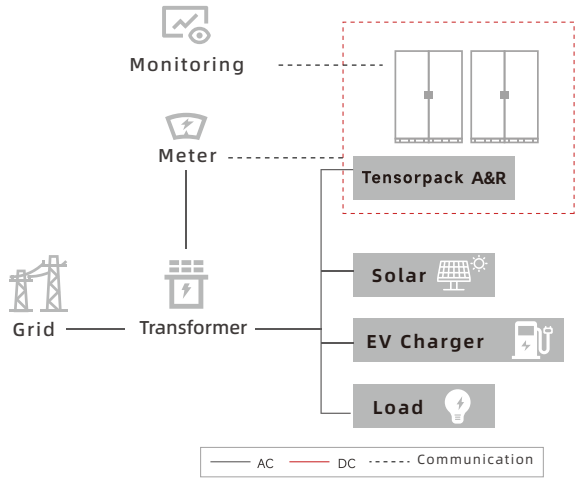

## Product Certification

UL9540A
UL1741
UL9540

Targeted for the North American market, Tensorpack A&R comes with standard output ports that allow direct connection to customer loads. Through slow charging and fast discharging, it facilitates flexible expansion of transformers and effectively reduces demand charges.

**Markets: North America**

## Electrical Block Diagram




## Specification

| AC Parameters | |
|---|---|
| Rated Power | 250/125 kW |
| Wiring Configuration | 3P3W |
| Rated Grid Voltage | 480 V |
| Grid Voltage Range | 422.4 - 528 V |
| Max. Continuous AC Current | 302/151 A |
| Rated Grid Frequency | 60 Hz |
| Power Factor | -1~1 |
| **DC Parameters** | |
| Cell Type | LFP 280Ah CATL |
| Rated Energy | 279 kWh |
| Voltage Range | 873 ~ 1123 V |
| Cycles expected @ 100% DoD \| 70% EoL \| 25°C +/-5°C | 8000 Times |

| System Parameters | |
|---|---|
| Maximum Efficiency | 90 % |
| Operating Temperature | -30~50 °C |
| Relative Humidity | 0 to 95% RH, non-condensing |
| Altitude | ≤2000 m |
| Communication Interface | LAN/RS485/CAN/4G |
| Communication Protocol | Ethernet/Modbus TCP/ RS-485/Modbus RTU |
| IP Level | Type 3R |
| Cooling Method | Liquid Cool |
| Noise Rating | ≤72dB |
| Battery Rack Dimension (W*D*H) | 1300*1300*2280 mm |
| Control Cabinet Dimension (W*D*H) | 1600x1200x2280 mm |
| Battery Rack Weight | 3040 kg |

Technology Explore

To accelerate the world's transition to sustainable energy

**Teplore Co., Ltd.**

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