SolarEdge CSS-OD Built-in safety

Enhanced safety for your energy storage needs

SolarEdge's CSS-OD storage solution is protected by advanced safety technology, built on years of leadership in commercial PV safety.

Achieve reliability and peace of mind with the CSS-OD's integrated safety layers, cutting edge monitoring capabilities and durable build. Featuring a robust suite of hardware and software safety features, the CSS-OD delivers secure, stable and efficient PV storage.

Structured battery protection across multiple layers

Cell & module level

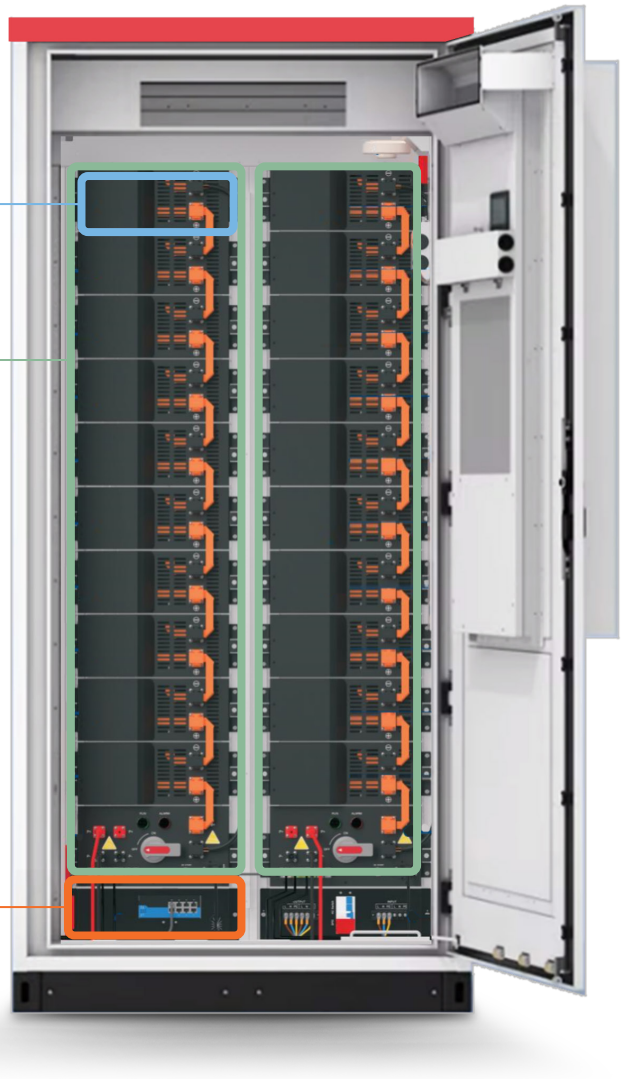
- 20X energy modules each with its own management unit (BMU) that continuously measures voltage and temperature for performance and safety optimization
- Real-time data is sent to the cluster management unit to enable centralized monitoring and control

Cluster level

- Each of the two clusters is managed and controlled by a dedicated management unit (SBMU)
- Includes fire, smoke, and water sensors, with dual-switch protection in high-voltage circuits

Cabinet level

- Each cabinet includes a cabinet management unit (MBMU), which aggregates the cluster data
- Controls DC relays and breakers, activates alarms and protections, stores historical performance data, and manages firmware upgrades



Applications and alerts

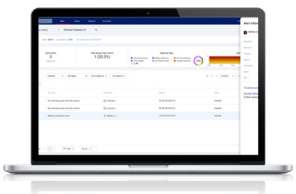
- Multiple interfaces and applications with built-in safety mechanisms to help ensure safe operation over the CSS-OD lifespan
- Seamless hardware integration, supporting cloud and local connectivity, enabling visibility into system alerts

CSS Local Interface

Touch screen, located on the battery, which displays real-time safety alerts during installation and commissioning, alerts prioritization and historical alerts.

SolarEdge Go

Site commissioning and configuration through a mobile app, presents operational status of the battery cabinet and the battery inverter.



SolarEdge ONE for C&I

Offers cloud-based O&M and monitoring, presents operational status and alerts from cell to cabinet level, and consolidates data and alerts for PV and CSS-OD.

Our multi-layer safety framework is designed to form a robust barrier against potential risks, by:

Thermal runaway prevention

Providing targeted protection against rising temperatures, preventing overheating and potential fire hazards.

1 Energy module fire suppression & cell passive balancing

2 Photoelectric smoke detector

3, 4 Aerosol fire extinguisher

5 Emergency Power Off (EPO) switch

Electrical safety protection

Managing safe electrical operation and prevention of overcurrent conditions.

6 Reverse polarity protection

7, 8 Dual DC electric protection (relay and MCCB breaker), DC busbar temp protection

9 AC Interface box – AC/DC SPD

10 Flood detector

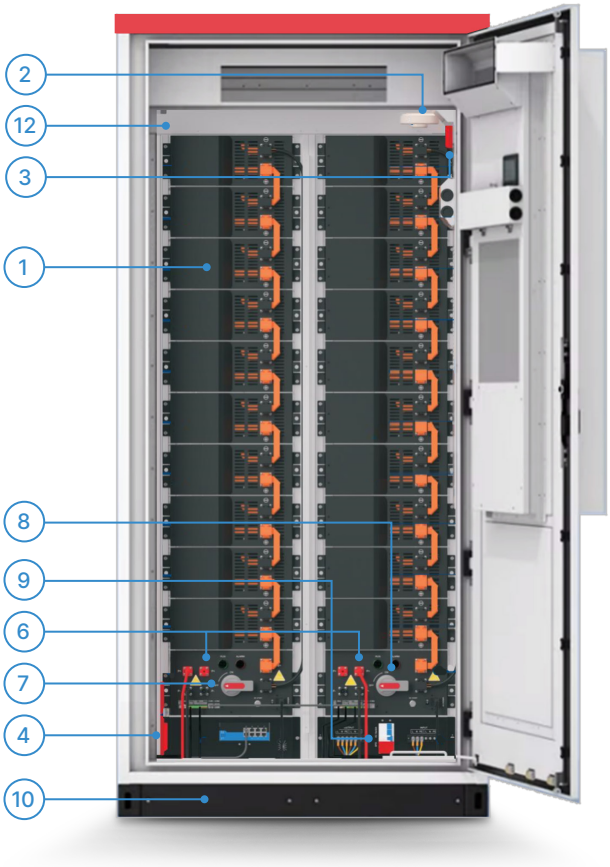
Enclosure protection

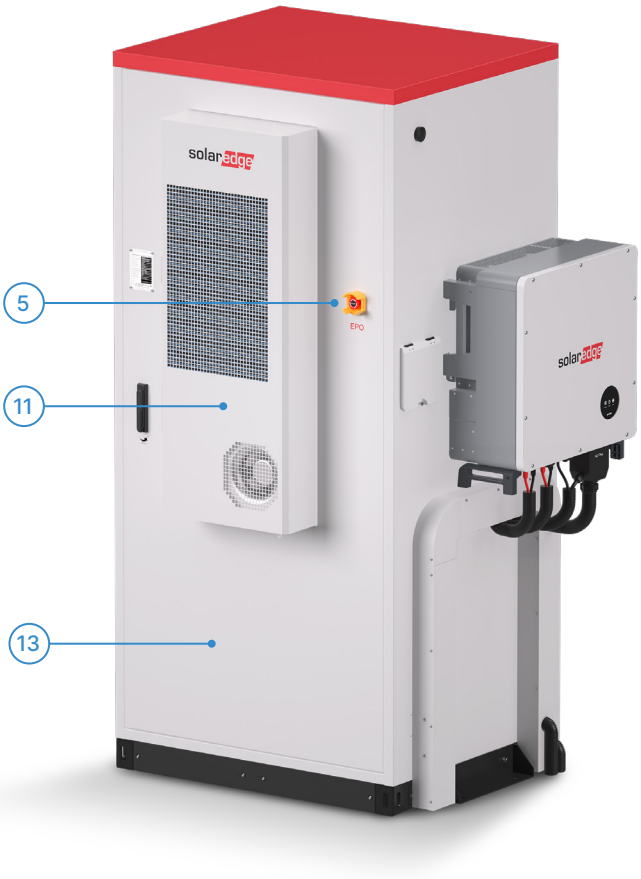
Safeguarding internal components from external environmental factors.

11 Battery cabinet HVAC

12 Door switch

13 IP code and corrosivity class level





CSS-OD main protection mechanisms

Battery cabinet safety

Fire suppression

At the module level

- **Module fire suppression isolates issues to a single energy module, avoiding extensive system replacements**

At the cabinet level

- Includes two aerosol fire extinguishers for rapid response, within seconds, controlling and extinguishing fires before they spread
- EPO button on the battery cabinet allows for immediate emergency power shutdown, preventing escalation and reducing risks of damage, fire, or injury

Electrical safeguards

- **Dual DC Relay and DC Breaker (MCCB) work to isolate faults in connected modules**
- AC/DC Surge Protection Devices to guard against over-voltage transients
- DC Busbar temperature sensing to prevent overheating
- Reverse Polarity Protection to detect incorrect DC connections during installation

Advanced environmental safety

- **Cabinet materials comply with C4 protection class, for installation in harsh environments**
- HVAC system for optimal battery cabinet conditions
- Door Contact Switch for safety and efficiency
- IP54 (battery cabinet) and IP65 (battery inverter), IEC 60529 compliant
- Flood Detector enabling prompt action to prevent significant damage

Battery inverter safety

Integral to the CSS-OD solution, the battery inverter is equipped with its own set of safety features that work in conjunction with the overall system to ensure secure operation. This includes:

- Insulation impedance detection
- Islanding protection
- Earth leakage protection

Learn more about the CSS-OD

SolarEdge CSS-OD Datasheet

SolarEdge CSS-OD Safety Datasheet

SolarEdge CSS-OD Video

SolarEdge CSS-OD Brochure