

# System Layout Guide

ST255CS-2H



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## 1 Introduction

This document introduces the rules of layout arrangement for the PowerStack energy storage system ST255CS-2H.

This document serves as a guide only. The specific layout design must adhere to local standards. If the layout design is undertaken by the customer, ensure the requirements specified in this document are met.

## 2 Product Diagram

The energy storage system consists of components including the batteries, DC/AC power converter unit, liquid cooling unit, and power distribution box. The system adopts an integrated design, with all components housed within an outdoor cabinet.

For ease of illustration, the energy storage system will hereinafter be referred to as the "outdoor cabinet" and presented in a top-down view.

Note 1: The clearances specified below refer to the clearances between cabinets, not foundations.

Note 2: The product is intended for outdoor installation. When installing them indoors, ensure a minimum clearance of 800 mm above the outdoor cabinets. Additionally, maintain a ventilation rate of at least 2500 m<sup>3</sup>/h and a cooling capacity of at least 8 kW at the rear air outlets of each cabinet.

Note 3: Outdoor installations, where any parts of the product's top surface, side surfaces, or air outlet ducts are obstructed or blocked, are considered indoor installations. In such cases, the installation clearances must comply with the requirements specified in Note 2.

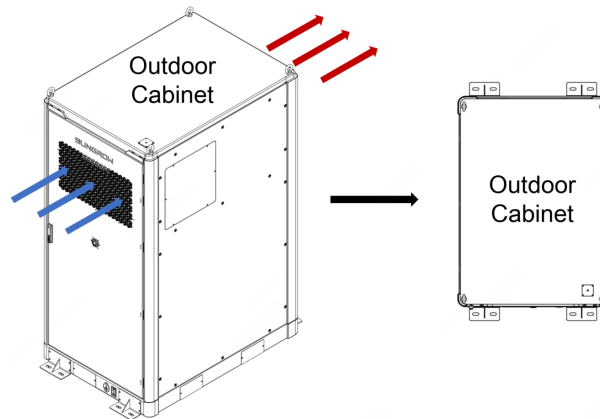


Fig.2-1 Top-down View of the Outdoor Cabinet

### 3 Clearance Requirements

#### 3.1 Single Outdoor Cabinet

When installing only one outdoor cabinet, the required clearances on the front, back, left, and right sides of the cabinet are shown below.

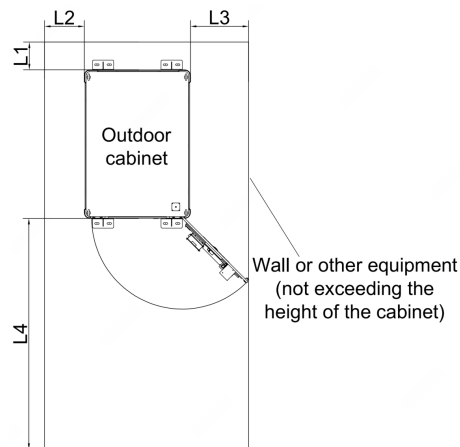


Fig.3-1 Clearance Requirements

If automatic liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 300$  mm,  $L2 \geq 430$  mm,  $L3 \geq 630$  mm, and  $L4 \geq 2500$  mm.

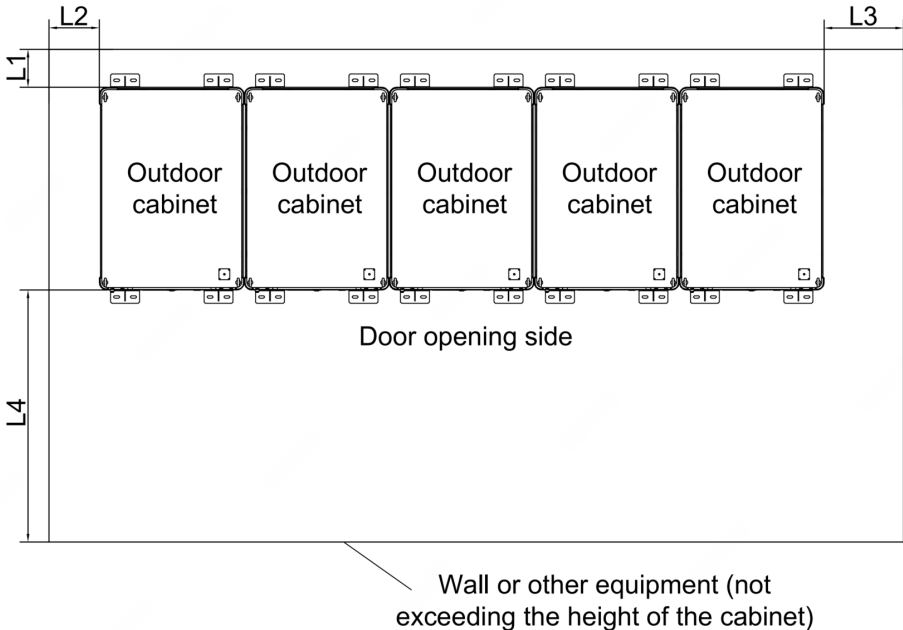
If manual liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 300$  mm,  $L2 \geq 430$  mm,  $L3 \geq 630$  mm, and  $L4 \geq 2000$  mm.

### 3.2 Multiple Outdoor Cabinets

Multiple outdoor cabinets can be arranged in one row or in two rows. The bases of cabinets in the same row can be positioned shoulder by shoulder, with no clearance between them.

#### 3.2.1 Outdoor Cabinets Installed in One Row

When installing 5–10 outdoor cabinets in one row, the required clearances on the front, back, left, and right sides of the cabinets are shown below. The figure uses a five-outdoor cabinet configuration as an example.



**Fig.3-2 Clearance Requirements**

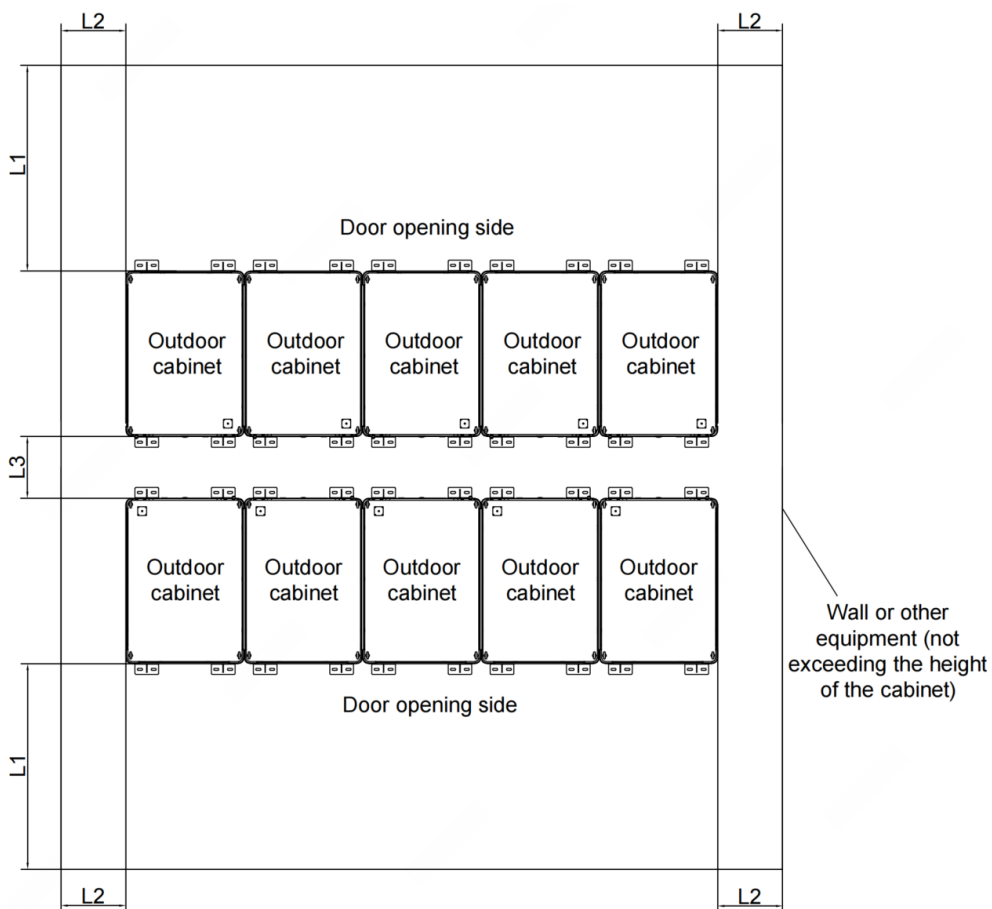
If automatic liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 300$  mm,  $L2 \geq 430$  mm,  $L3 \geq 630$  mm, and  $L4 \geq 2500$  mm.

If manual liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 300$  mm,  $L2 \geq 430$  mm,  $L3 \geq 630$  mm, and  $L4 \geq 2000$  mm.

### 3.2.2 Outdoor Cabinets Installed in Two Rows

#### ■ Back-to-Back Arrangement

When installing 10–20 outdoor cabinets back-to-back in two rows, the required clearances on the front, back, left, and right sides of the cabinets are shown below. The figure uses a 10-outdoor cabinet configuration as an example.



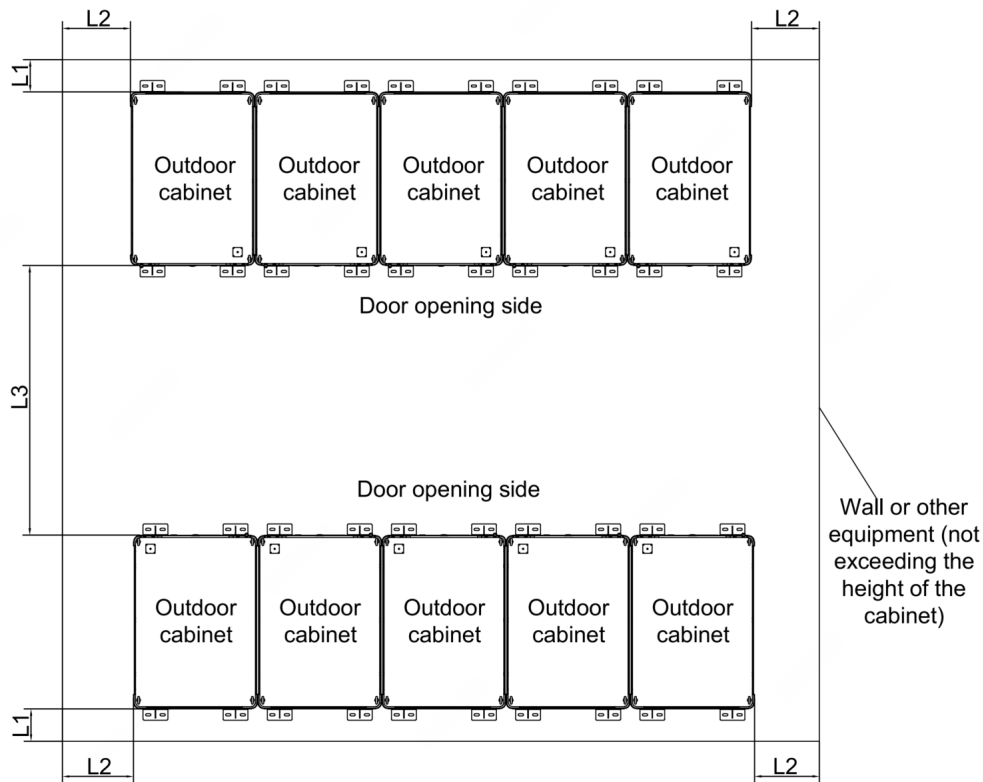
**Fig.3-3 Clearance Requirements**

If automatic liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 2500$  mm,  $L2 \geq 630$  mm, and  $L3 \geq 600$  mm.

If manual liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 2000$  mm,  $L2 \geq 630$  mm, and  $L3 \geq 600$  mm.

■ **Face-to-Face Arrangement**

When installing 10–20 outdoor cabinets face-to-face in two rows, the required clearances on the front, back, left, and right sides of the cabinets are shown below. The figure uses a 10-outdoor cabinet configuration as an example.



**Fig.3-4 Clearance Requirements**

If automatic liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 300$  mm,  $L2 \geq 630$  mm, and  $L3 \geq 2500$  mm.

If manual liquid cooling maintenance tooling is used in the project, ensure the following requirements are met:  $L1 \geq 300$  mm,  $L2 \geq 630$  mm, and  $L3 \geq 2000$  mm.

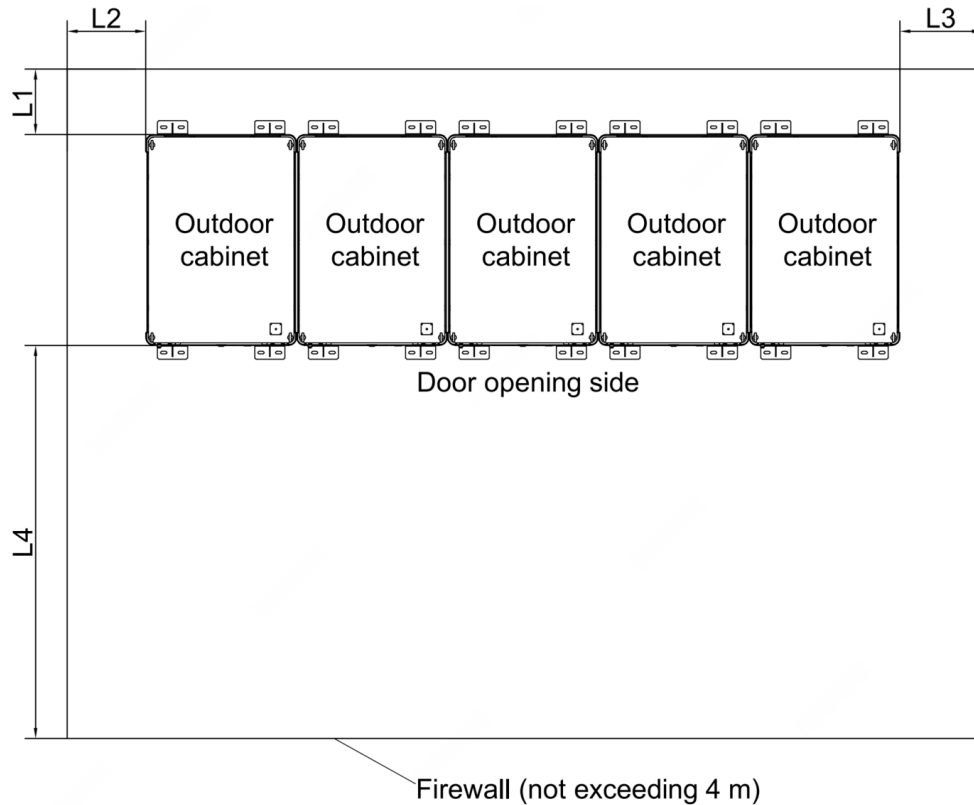
**3.3 Installation Scenario with Firewalls**

When firewalls taller than the outdoor cabinet are present on the front, back, left, and right sides, the space above the cabinet must remain open and free of obstructions. The height of the surrounding walls (especially the front and back ones) must not

exceed 4 meters. Requirements for such layouts are demonstrated using 5-, 10-, and 15-cabinet configurations.

### 3.3.1 5 Cabinets

When five outdoor cabinets are arranged in one row, the required clearances on the front, back, left, and right sides of the cabinets are shown below.



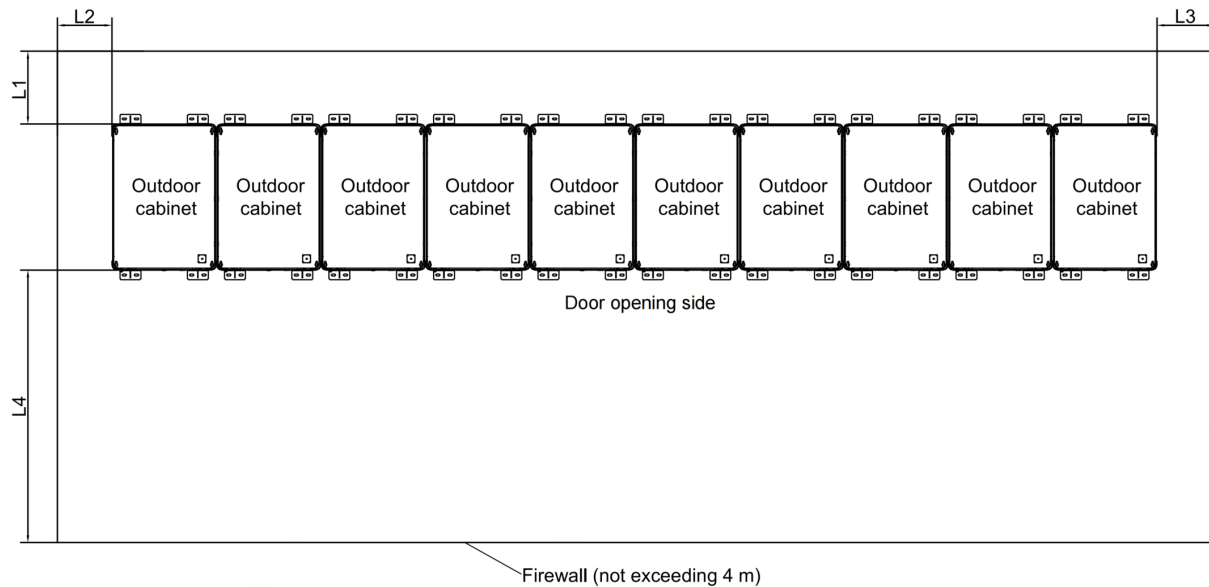
**Fig.3-5 Clearance Requirements**

If firewalls are present on the front, back, left, and right sides of the cabinets, ensure the following requirements are met:  $L1 \geq 500 \text{ mm}$ ,  $L2 \geq 600 \text{ mm}$ ,  $L3 \geq 630 \text{ mm}$ , and  $L4 \geq 3000 \text{ mm}$ .

Note: If a firewall is present only on the back side of the cabinets,  $L1 \geq 300 \text{ mm}$  is sufficient. If firewalls are present only on the left and right sides,  $L2 \geq 430 \text{ mm}$  and  $L3 \geq 630 \text{ mm}$  are sufficient. If firewalls are present only on the front and back sides,  $L1 \geq 500 \text{ mm}$  and  $L4 \geq 2800 \text{ mm}$  are sufficient.

### 3.3.2 10 Cabinets

When 10 outdoor cabinets are arranged in one row, the required clearances on the front, back, left, and right sides of the cabinets are shown below.



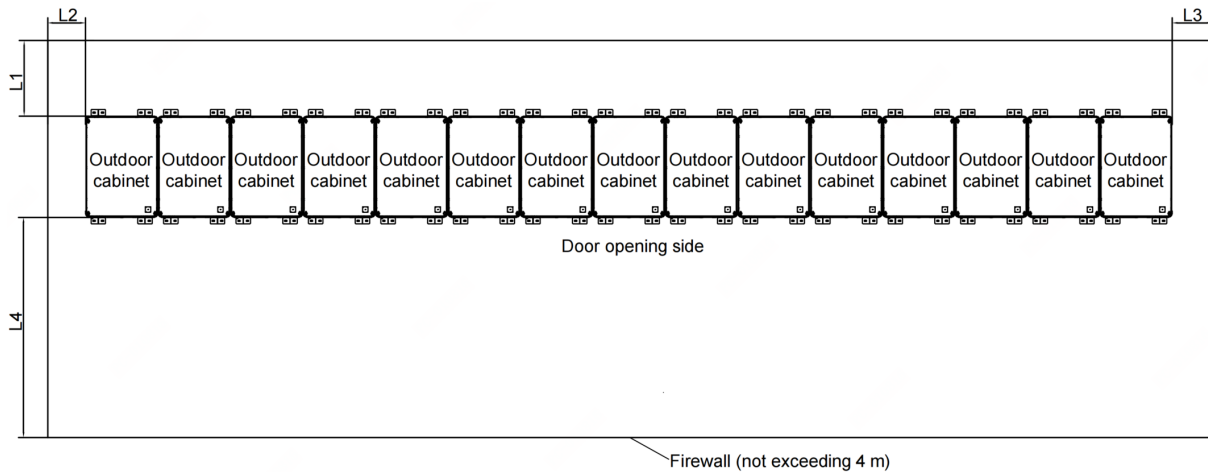
**Fig.3-6 Clearance Requirements**

If firewalls are present on the front, back, left, and right sides of the cabinets, ensure the following requirements are met:  $L1 \geq 800$  mm,  $L2 \geq 600$  mm,  $L3 \geq 630$  mm, and  $L4 \geq 3000$  mm.

Note: If a firewall is present only on the back side of the cabinets,  $L1 \geq 600$  mm is sufficient. If firewalls are present only on the left and right sides,  $L2 \geq 430$  mm and  $L3 \geq 630$  mm are sufficient. If firewalls are present only on the front and back sides,  $L1 \geq 600$  mm and  $L4 \geq 3000$  mm are sufficient.

### 3.3.3 15 Cabinets

When 15 outdoor cabinets are arranged in one row, the required clearances on the front, back, left, and right sides of the cabinets are shown below.



**Fig.3-7 Clearance Requirements**

If firewalls are present on the front, back, left, and right sides of the cabinets, ensure the following requirements are met:  $L1 \geq 1200$  mm,  $L2 \geq 600$  mm,  $L3 \geq 630$  mm, and  $L4 \geq 3500$  mm.

Note: If a firewall is present only on the back side of the cabinets,  $L1 \geq 1000$  mm is sufficient. If firewalls are present only on the left and right sides,  $L2 \geq 430$  mm and  $L3 \geq 630$  mm are sufficient. If firewalls are present only on the front and back sides,  $L1 \geq 1200$  mm and  $L4 \geq 3500$  mm are sufficient.