Deye Low-Voltage vs High-Voltage Battery Architecture

Quick guide for distributors and installers

Direct answer

For a 5 kW home backup project, start with a Deye low-voltage battery route when the selected inverter uses a 40-60 V battery input. For an 8-12 kW heavy-load project or a high-voltage Deye inverter, use the battery family and module configuration specified for that inverter.

A three-phase inverter is not automatically a high-voltage system. Some Deye three-phase families still use a 48 V battery input. Read the inverter's Battery Voltage Range before choosing the battery.

Same output power, different battery current

Required battery current ≈ inverter output power / battery voltage / efficiency

The table uses 95% efficiency and a 51.2 V versus 200 V calculation reference.

Inverter output	51.2 V reference	200 V reference
5 kW	103 A	26 A
8 kW	165 A	42 A
12 kW	247 A	63 A

The 51.2 V result must be compared with the battery BMS continuous discharge current, fuse, cable, connector and parallel-unit limit. The 200 V column is a calculation reference; use the exact high-voltage operating range in the selected Deye datasheet for the quotation.

Deye architecture reference points

Deye route	Battery-side reading point	Buyer action
SUN-3/3.6/5/6K-SG04LP1-EU and similar LV families	40-60 V class; the exact model defines the charge/discharge current	Match a 48 V/51.2 V battery and check BMS current plus communication profile
SUN-5/6/8/10/12K-SG04LP3-EU or similar three-phase LV families	48 V low-voltage battery architecture	Check three-phase wiring, battery current, parallel quantity and Deye battery list
Deye HP3 and BOS-G high-voltage routes	High-voltage battery system with a defined module series count and control box	Match the permitted battery family, voltage window, module count and country version

The exact model and regional suffix remain part of the quotation record. Do not write only “Deye compatible” on a battery quotation.

Three project checks

5 kW family backup. Keep the backup circuit focused on lights, routers, refrigeration, television and computers. At 5 kW and 51.2 V, the battery side is about 103 A at the calculation condition above. Use the battery's continuous current rating to decide whether one unit is enough or whether parallel units are needed.

8-12 kW heavy-load home. Air conditioners, pumps, induction cooking, water heating and workshop loads push the battery current higher. A low-voltage design must carry that current through its BMS, fuses, cables and parallel battery bank. A high-voltage Deye route reduces current, but only when the chosen inverter and battery family are designed to work together.

Three-phase home. Record the AC phase configuration and the DC battery architecture as two separate fields. A three-phase Deye inverter can still use a low-voltage battery. Confirm the exact model, voltage window, current limit, battery list and communication profile.

Before sending a quotation

Field	Record
1	Full Deye inverter model and regional suffix
2	Single-phase or three-phase output
3	Battery Voltage Range
4	Maximum charge and discharge current
5	Battery nominal and operating voltage
6	Series or parallel module arrangement
7	CAN/RS485 profile, firmware and approved battery record

Source documents
Deye Residential Energy Storage Solution:
deyeess.com/wp-content/uploads/2026/02/Deye-RW-LSUN-3.6-6-12K-Energy-Storage-Solution-EN-1.pdf
Deye BOS-G product specifications: deyeess.com/product/bos-g/
Deye three-phase low-voltage inverter reference:
deyeess.com/intersolar-2023-deye-powering-for-its-europes-energy-transition-in-germany/

CVC sourcing support
CVC can help match the Deye inverter model, battery voltage architecture, BMS communication route and available Chinese battery supply before quotation.

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