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# 48V vs 51.2V Battery-Inverter Compatibility

What the label does not tell you about cell count, operating voltage and inverter matching.

**The fast answer** 48 V and 51.2 V are labels, not complete operating specifications. The inverter must accept the battery's actual voltage window and BMS controls.

Use this sheet when a customer asks whether a 48 V inverter can work with a 51.2 V LFP battery.

## Voltage and cell-count reference

| Label | Common battery structure | What to compare |
|---|---|---|
| **48 V class** | Often used for low-voltage battery systems; exact cell count and chemistry vary | Minimum/maximum operating voltage and inverter battery window |
| **51.2 V LFP** | Commonly 16 x 3.2 V nominal LFP cells | Operating window, charge voltage, discharge cut-off and BMS limits |
| **Inverter side** | Battery input range and maximum charge/discharge current | The range must cover the battery at full and low SOC |
| **Communication side** | CAN or RS485 profile | Voltage matching without correct BMS data is incomplete |
| **System side** | Cable, fuse, breaker and connector | Current and protection must match the inverter duty |

Use the exact model, document and supply route for the final quotation.

## Practical current example

Use the minimum project voltage for a conservative check. Nominal voltage is not the only value used by the inverter.

**5 kW low-voltage system** 5,000 W / 51.2 V / 0.95 = about 103 A. Compare this with the battery continuous BMS discharge current and the inverter limit.

## Before you call it compatible

- Read the battery operating range and the inverter permitted range.
- Confirm the battery continuous current and inverter charge/discharge limits.
- Confirm cell count, BMS profile, connector pinout and firmware.
- Confirm whether the inverter maker lists the exact battery model or only the battery brand.

**Need a product match?** CVC can help match product models, technical parameters and supply routes to the project requirement.

Website: www.cvcenergy.com
WhatsApp phone / account: +86 156 2933 2657
WhatsApp chat: wa.me/8615629332657

Prepared as a concise sourcing reference. Confirm exact model, certificate scope, compatibility and warranty responsibility for the final quotation.