CONNECTION AND SETUP GUIDE

Kit DATOU BOSS 3.3kW 24V + 2× POWINVER mini 12.8V 100Ah

Inverter DATOU BOSS 3.3kW 24V + 2 POWINVER mini 12.8V 100Ah batteries in series: 25.6 V 100Ah 2560Wh



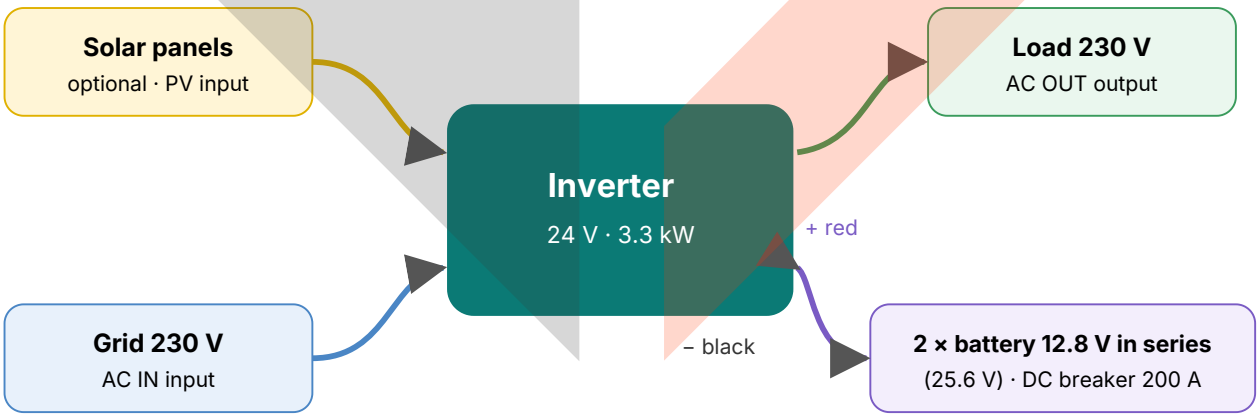
Kit contents

- **Inverter DATOU BOSS 3.3kW 24V**
- **Battery POWINVER mini 12.8V 100Ah 1280Wh ×** 2

What else you will need

- Battery–inverter power cables 35 mm², M8 lugs
- DC breaker / fuse 200 A
- 32 A breaker, 4–6 mm² cable to the grid input
- Jumper between batteries: 35 mm² cable, M8 lugs
- LiFePO4 12.8 V charger, to charge each battery separately before connecting them
- Screwdriver, 13 mm wrench, multimeter

Wiring diagram



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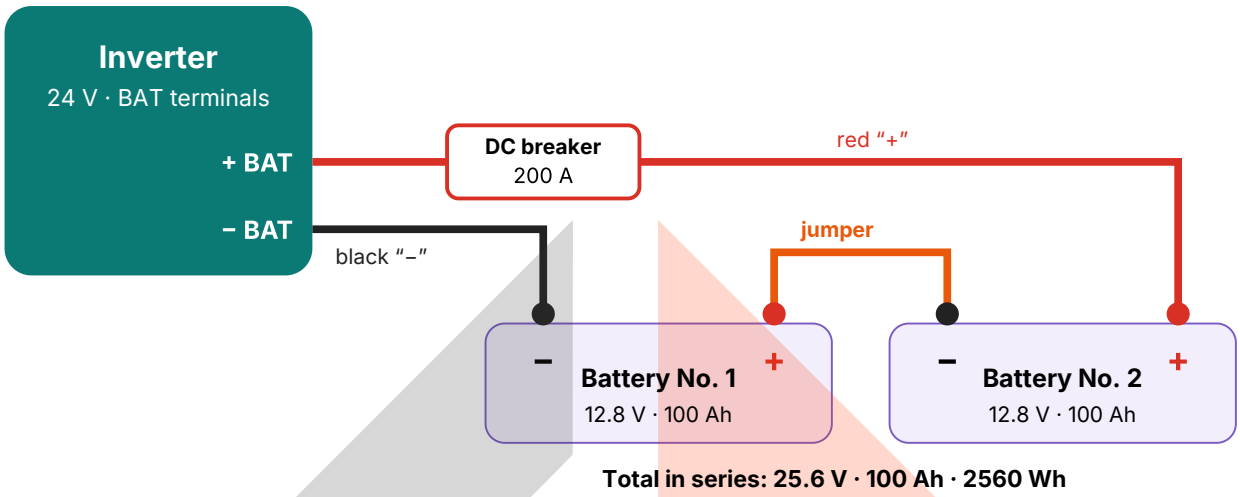
Two 12.8 V batteries in series = 25.6 V



Total in series: 25.6 V · 100 Ah · 2560 Wh

- The inverter is rated for 24 V, and each battery has 12.8 V. So the two batteries are connected **in series**: the voltages add up (12.8 + 12.8 = **25.6 V**), the capacity stays **100 Ah**, and the bank energy is 2 × 1280 = **2560 Wh**.
- **Jumper**: a cable of the same cross-section as the one to the inverter (**35 mm²**), with M8 lugs, as short as possible. It connects the "+" of **battery No. 1** to the "–" of **battery No. 2**.
- **Inverter "–"** (– BAT, black cable) → "–" of **battery No. 1**. **Inverter "+"** (+ BAT, red cable) via the DC breaker **200 A → "+" of battery No. 2**.
- Before connecting to the inverter, measure the voltage between the "–" of battery No. 1 and the "+" of battery No. 2 with a multimeter: it should be ≈ **26–27 V**. If it is ≈ 13 V, the jumper is in the wrong place; 0 V means a break or a battery that is switched off.

Never connect these batteries in parallel ("+" to "+", "–" to "–") for a 24 V inverter: you would get only 12.8 V, and the inverter will not start or will show a low-voltage error. Do not connect the "+" and "–" of the same battery: that is a short circuit.

Before connecting the batteries

- Both batteries must be **the same model and the same capacity**, preferably from the same batch. Do not connect a new battery with an old one: the weaker one will be overcharged and discharged more deeply than the other.
- **Charge each battery separately to 100%** with a LiFePO4 12.8 V charger (charge voltage 14.2–14.6 V).
- 1–2 hours after charging, measure the voltage of each battery: the difference should be **no more than 0.05 V**. If it is larger, top up the one with the lower voltage. Only then connect the batteries to each other.
- Bank charging current: **no more than 50 A** in total (solar + grid), from the grid **30 A**. Discharge is limited by each battery's BMS: **100 A**, which is ≈ 2.3 kW of continuous load from the bank.

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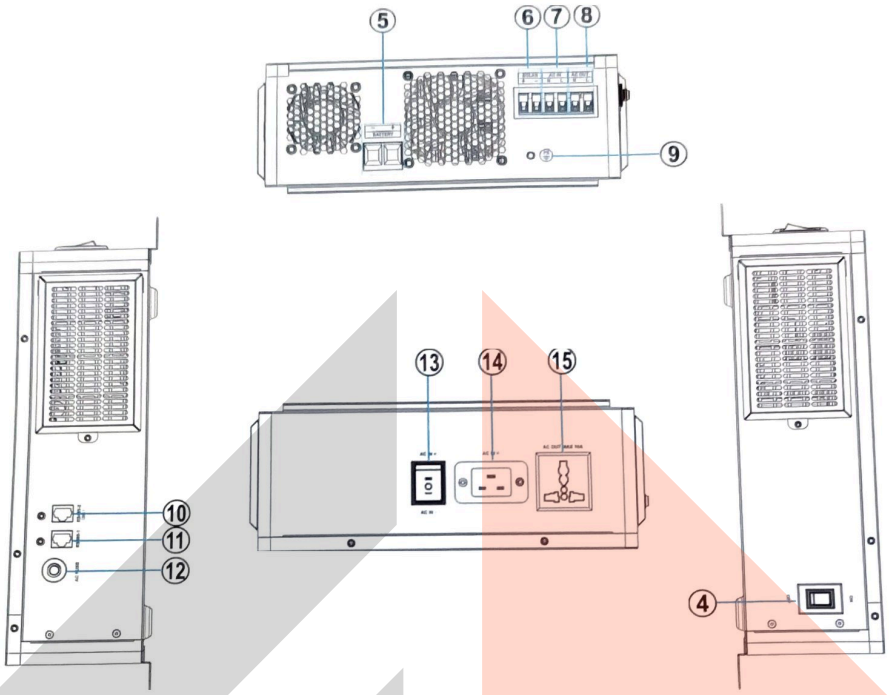
Inverter connectors: bottom panel, side walls and top



№	Connector	What it is	What connects where
4	**Switch**	Inverter power switch (on the side panel)	Switch on after connecting the battery and its DC breaker
5	**BATTERY**	Battery terminals 24 V (“+” and “–”)	35 mm² Cu cable via a 200– 250 A DC breaker; strip 6 mm, check the polarity
6	**SOLAR**	Solar panel input terminals (“+” and “–”)	4–6 mm² PV1-F cable via a DC breaker rated 500 V or more, 25 A; Voc up to 500 V, current up to 18 A
7	**AC IN (INPUT)**	Grid / generator input terminal block (L, N, PE)	4–6 mm² Cu cable via a separate 32 A AC breaker; PE first, strip 10 mm
8	**AC OUT (OUTPUT)**	Uninterruptible output terminal block 230 V (L, N, PE)	2.5–4 mm² Cu cable via a 20– 25 A AC breaker to the load panel; do not confuse with the input
9	**PE**	Case earthing bolt	Earth cable from 4–6 mm² Cu, connect before first switch-on
10	**RS485-2**	RJ45 port for communication with the lithium battery BMS	Battery communication cable; pinout: 1 — RS485- B, 2 — RS485-A, others not connected; protocol in A17, address in A18
11	**RS485-1**	RJ45 port for external communication / WiFi module	WiFi module (optional); pinout: 1 — RS485- B, 2 — RS485-A, 4 — +5 V, 8 — GND
12	**AC FUSE**	AC input fuse	The fuse rating is not given in the manual
13	**Input selector switch**	Grid input selection: INPUT terminal block or input socket (14)	Switch to the input the grid is connected to

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№	Connector	What it is	What connects where
14	**AC input socket**	Grid input via a cable with a plug	Alternative to the INPUT terminal block; selected with switch 13
15	**Output socket**	230 V output for a plug-in load	Plug-in load; total load power less than 3300 W

Items 1–3 (display, indicators, buttons) are on the front panel and are not shown here.

Key values for this kit

28.4 V charge voltage (A1)	**27.2 V** float voltage (A2)	**23.5 V** cut-off (A3)
Pb battery type (A17)	**50 A** max. total charge current (A13)	**30 A** grid charging (A12)

Connection procedure

1. Mount the inverter vertically on a non-combustible wall in a dry place. Leave at least 20 cm of free space above and below for cooling.
2. Make sure everything is off: inverter button OFF, switches/buttons on **both** batteries OFF, DC breaker off, 230 V grid not connected.
3. Place the batteries side by side and connect them **in series** with the jumper: “+” of battery No. 1 → “−” of battery No. 2 (see “Two 12.8 V batteries in series”). A multimeter between the “−” of battery No. 1 and the “+” of battery No. 2 should read ≈ 26–27 V.
4. Install a DC breaker or fuse rated **200 A** in the positive (red) wire between the “+” of battery No. 2 and the inverter “+ BAT”.
5. Connect the power cables (cross-section at least **35 mm²**, M8 lugs): **red** from the “+” of battery No. 2 (via the DC breaker) to the inverter “+ BAT”, **black** from the “−” of battery No. 1 to “− BAT”. Check the polarity twice: swapping “+” and “−” is guaranteed to damage the inverter.
6. Tighten the terminal bolts firmly (without stripping the thread), together with the jumper lugs, and fit the protective caps. A loose contact heats up and melts the terminals.
7. Switch on both batteries (buttons or switches on the cases, if present), then the DC breaker.
8. Switch on the inverter with the ON button. The battery voltage should appear on the display. Enter the settings from the table below.
9. Grid input selector on top of the inverter: “**AC –”,** if the grid is wired to the INPUT terminal block at the bottom; “ **AC =”,** if the grid comes via a cable with a plug into the input socket on top. Switch only with the grid off, and never feed the grid to the terminal block and the socket at the same time.
10. Switch off the inverter and connect the 230 V grid to the **AC IN** terminals (L, N, PE) through a separate 32 A breaker.

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11. Connect the load (your socket/distribution board) to the **AC OUT** terminals (L, N, PE). Never mix up AC IN and AC OUT: feeding grid power into the output damages the inverter.
12. If you have solar panels, connect them to the **PV** input last, observing polarity. The open-circuit voltage of the panels (Voc) rises in frosty weather: do not exceed the PV maximum on the inverter label.
13. Switch on the inverter and check: 230 V at the output, the battery charges from the grid (charging icon on the display), the lights stay on when the grid is off.

Important: power from the battery. The BMS of each 12.8 V battery is rated for 100 A continuous current (the exact value is on the label). In a series connection the same current flows through both batteries, so the limit for the 25.6 V bank is also 100 A. That is ≈ **2.3 kW** of continuous load from the battery. The inverter delivers its full 3.3 kW when grid or solar power is available. If the battery "trips" during a power cut, reduce the number of powerful appliances switched on at the same time.

Inverter settings

Entering the menu: hold the **ENTER** button for 2 seconds; the parameter name (A0, A1...) flashes. Use **UP / DOWN** to choose a parameter, short **ENTER,** change the value, short **ENTER.** Exit with saving: hold ENTER for more than 2 seconds; **ESC** exits without saving. Battery type and voltages and charge currents (A1–A7, A12, A13, A17) can only be changed while the inverter is running on the battery: switch off the grid breaker during setup.

№	Parameter	Value	Why
A17	Battery type	**Pb**	Without a BMS communication cable, the inverter works by voltage (A1–A7). Set this first.
A1	Charge voltage	**28.4 V**	Standard for LiFePO4 8S (25.6 V); maximum 28.8 V.
A2	Float voltage	**27.2 V**	The battery is not overcharged when it stays on the grid for a long time.
A6	Switch grid → battery (in PbG)	**26.4 V**	After recharging to this voltage, the inverter runs from the battery again.
A5	Return after shutdown	**26.0 V**	After a cut-off, the output resumes when the battery has recharged to this voltage.
A7	Switch battery → grid (in PbG)	**24.5 V**	When discharged to this voltage, the load switches to the grid.
A4	Low voltage alarm	**24.0 V**	Warning that the battery is almost empty.
A3	Low voltage shutdown	**23.5 V**	Above the BMS protection: the batteries do not "fall asleep".

A0	Output priority	**Grd** (no panels) or **PbG** (with panels)	Grd: from the grid, battery kept full for power cuts. PbG: solar and battery, the grid when the battery has dropped to A7.
A10	Charging priority	**SNU** (solar + grid)	Charging from both solar and grid. OSO: solar only.
A12	Grid charging current	**30 A**	Moderate grid charging; no higher than A13.
A13	Maximum charging current (total)	**50 A**	Solar + grid together, ≈0.5C for 100Ah. Do not set more.
A14	Grid voltage range	**UPS (**grid) / **APL** (generator)	UPS: fast switchover. APL: generator or weak grid.
A15	Operating mode	**dIS (**off-grid)	No export to the grid.
A24	Restart after low battery voltage	**bRE**	The inverter resumes operation by itself after recharging.
A8 / A9	Output frequency / voltage	**50 Hz** / **230 V**	Standard for Ukraine and Europe.

Parameters A0–A30 as in the DATOU BOSS DT-2433M menu according to the manufacturer's manual. Enter the voltages in the order A1 → A2 → A6 → A5 → A7 → A4 → A3: A1 > A2 > A6 > A5 > A7 ≥ A4 > A3 must hold, otherwise the setting will not be saved and code 42 will appear. If code 42 is already shown, reset to factory settings (A30 = rES) and enter the table again, starting with A17. After entering the settings, switch the inverter off and on again.

Which mode to choose

- **Backup during power cuts only (no panels):** A0 = Grd, A10 = SNU. The inverter runs from the grid and the battery is always full; when the power goes out it switches to the battery automatically.
- **You have solar panels and want to save:** A0 = PbG, A10 = SNU (or OSO — solar only). Solar power by day, battery at night, the grid only when the battery has dropped to 24.5 V.
- **Running on a generator:** A14 = APL, A12 = 30 A or less, so as not to overload the generator.

How long it runs on battery

Load	Example	Runtime
100 W	router, lights, chargers	**≈ 20.7 h**
200 W	fridge + lights	**≈ 10.4 h**
300 W	fridge + lights + TV	**≈ 6.9 h**
500 W	fridge, laptop, pump	**≈ 4.1 h**
1000 W	boiler, kettle briefly, several appliances	**≈ 2.1 h**
2000 W	air conditioner, water heater, electric stove	**≈ 1.0 h**

Approximate: 90% of battery capacity and inverter efficiency ≈90%. A fridge runs in cycles, so the real runtime is longer.

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Check after start-up

- Battery voltage on the display: ≈ 27.2–28.4 V when full, ≈ 24.5 V when discharged.
- Switch off the grid breaker: the load must keep running without interruption.
- After 10–15 min of operation, touch the terminals and cables: they must not be hot. If they heat up, a connection is loose or the cable is too thin.
- A battery below 23.2 V may have gone into BMS protection: charge it from the grid through the inverter.

Safety. Make all connections only with the battery, inverter and grid switched off. Do not short-circuit the battery terminals: the short-circuit current of LiFePO4 is very high. Do not install the inverter in a bathroom, outdoors in the rain or near flammable materials. If in doubt, contact an electrician.

Shutdown and maintenance

- Switch off in reverse order: load → grid → panels → inverter → DC breaker → battery.

- Every 3 months, check that the terminals (and the jumper between the batteries) are tight and that the ventilation openings are clean.
- Every few months (every 3 months is convenient), check the voltage of **each battery separately** with a multimeter, at rest (≈1 h without charging or load). If the difference is more than **0.2 V**, switch the system off, remove the jumper, charge each battery separately to 100% and only then connect them again.
- If one battery fails, replace it with the same model and capacity and equalise the charge before connecting (see “Before connecting the batteries”).
- If you do not use the kit for a long time, charge the battery to 50–70% and switch it off.

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