CONNECTING THE BATTERY TO THE INVERTER

GSIKE 11kW 48V WiFi + Humsienk 51.2V 100Ah 5.12kWh 3U rack

Connecting the Humsienk 51.2V 100Ah 5.12kWh 3U rack battery to the GSIKE 11kW 48V WiFi inverter



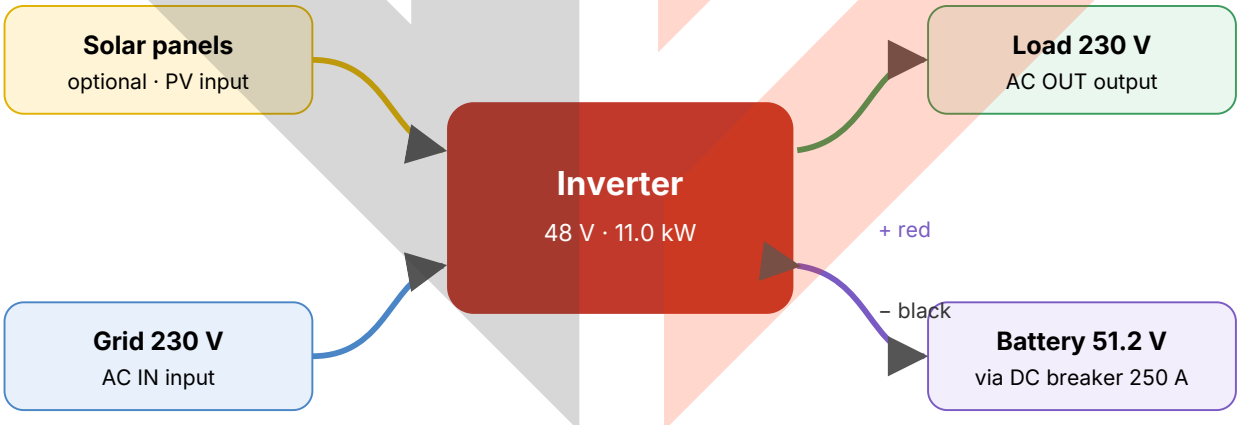
What is included in the system

- **Inverter GSIKE 11kW 48V WiFi**
- **Battery Humsienk 51.2V 100Ah 5.12kWh 3U rack**

What else you will need

- Battery–inverter power cables 50 mm² (or 2×35 mm²), M8 lugs
- DC breaker / fuse 250 A
- 63 A breaker, 16 mm² cable to the grid input
- Screwdriver, 13 mm wrench, multimeter

Wiring diagram



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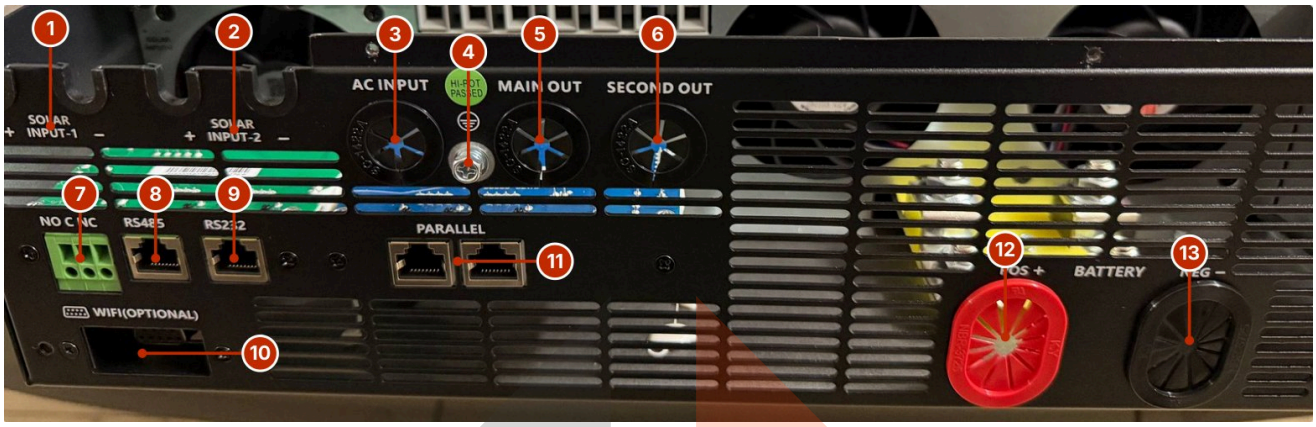
Inverter connectors: bottom panel



№	Connector	What it is	What connects where
1	**PV1 input**	First solar panel input (SOLAR INPUT-1, + and –). The PV connectors are under the cover.	Panel string via a separate DC switch. Up to 500 V open-circuit, MPPT 60–500 V, up to 18 A.
2	**PV2 input**	Second solar panel input (SOLAR INPUT-2, + and –), separate MPPT tracker.	Second panel string, likewise up to 500 V and 18 A.
3	**AC grid input**	Cable entry to the AC INPUT terminals: ⏚, L, N (under the cover).	Grid or generator via a separate 63 A breaker. 16 mm² cable.
4	**Grounding**	Case earthing point.	Earth wire (PE). The inverter must be connected to a permanent earthing system.
5	**Main output**	Cable entry to the MAIN OUT terminals: L, N (OP1).	Main load panel. Cut-off: F2-07.
6	**Second output**	Cable entry to the SECOND OUT terminals: L, N (OP2), up to 5.5 kW. Only in a single-inverter system.	Panel for loads that can be disconnected earlier. Enable: F1-11, cut-off: F2-08, schedule: F1-13/14.
7	**Dry contact**	NO · C · NC terminals, 3 A / 250 V AC.	Signal to an external device or earthing unit (mode: F0-16).
8	**RS485 (BMS)**	Port for communication with the lithium battery BMS (RJ45). Pins: 1 — RS485-B, 2 — RS485-A, 7 — RS485-A, 8 — RS485-B.	Communication cable from the BMS RS485 port (“pin to pin”, included). Battery type: F2-01.
9	**RS232 (RJ45)**	RS232 communication port.	Cannot be used at the same time as port 10.
10	**RS232 (DB9)**	RS232 communication port; labelled “WIFI (OPTIONAL)” on the case.	Cannot be used at the same time as port 9. The manual does not describe the Wi-Fi connection.
11	**Parallel**	Two parallel communication ports.	Parallel communication cable between inverters (only in a parallel system).
12	**Battery +**	Entry for the battery “plus” cable (POS +).	Battery plus 48 V via a separate 250 A / 60 V DC breaker. Cable 2 × 35 mm².

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№	Connector	What it is	What connects where
13	**Battery –**	Entry for the battery “minus” cable (NEG –).	Battery minus 48 V.

Photo with the terminal compartment cover removed; the ON/OFF switch is to the right of the battery entries (not in the photo).

Key values for this pair

56.8 V charge voltage (F2-03)	**54.4 V** float voltage (F2-04)	**48.0 V** output cut-off (F2-07)
USE battery type (F2-01)	**50 A** max. total charge current (F2-09)	**30 A** grid charging (F2-10)

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 switched off: inverter button OFF, battery switch/button OFF, DC breaker off, 230 V grid not connected.
3. Install a **250 A** DC breaker or fuse between the battery and the inverter in the positive (red) wire.
4. Connect the power cables (cross-section at least **50 mm² (or 2×35 mm²),** M8 lugs): **red** from the battery “+” to the inverter “+ BAT”, **black** from the battery “–” to “– BAT”. Check the polarity twice: swapped “+” and “–” will damage the inverter.
5. Tighten the terminal bolts firmly (without stripping the thread) and fit the protective caps. A loose contact heats up and melts the terminals.
6. Switch on the battery (button or switch on the case, if any), then the DC breaker.
7. Switch on the inverter with the ON button. The battery voltage should appear on the display. Enter the settings from the table below.
8. Switch off the inverter and connect the 230 V grid to the **AC IN** terminals (L, N, PE) through a separate 63 A breaker.
9. 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.
10. 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.
11. 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.

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Important: power from the battery. The battery BMS is usually rated for 100 A continuous current (the exact value is on the battery label). That is ≈ **4.6 kW** of continuous load from the battery. The inverter delivers its full 11.0 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.

Manufacturer’s data

- LiFePO4 51.2 V, 100 Ah (5.12 kWh), 100 A BMS with active balancing, built-in 125 A breaker, over 15 000 cycles at 60% depth of discharge.
- CAN, RS485, RS232 ports and two RS485 ports for linking batteries; Bluetooth 5.0. The BMS communication protocol is not stated in the materials provided by the manufacturer, so the inverter is set up **without a communication cable** (USE type, by voltage).
- Up to 16 batteries in parallel, ADS switch: automatic master/slave detection.
- 3U case, without handles 44.0 × 50.0 × 13.3 cm, 43.7 kg.

The full battery manual is a separate file on the battery’s product page.

Inverter settings

Entering the menu: hold the **ENTER** button for 3 seconds, use **UP / DOWN** to choose a group (F0 general, F1 output, F2 battery), **ENTER;** then choose the program and value, **ENTER** to save, **ESC** to go back.

№	Parameter	Value	Why
F2-01	Battery type	**USE**	User-defined: the charge and cut-off voltages are set manually below. AGM / FLd are for lead-acid batteries only.
F1-01	Output source priority	**SUb (**no panels) or **SbU (** with panels)	SUb: solar, then the grid; the battery is kept full for power cuts. SbU: solar, then the battery, the grid when the battery has dropped to F2-05.
F2-02	Charging source priority	**SNU** (solar + grid)	Charging from both solar and grid. oSo: solar only.
F2-09	Maximum charging current (total)	**50 A**	Solar + grid together. The inverter allows 10–160 A; do not set more than the battery allows.
F2-10	Maximum grid charging current	**30 A**	Inverter range 5–120 A; must be lower than F2-09.
F0-01	Input voltage range	**APL (**grid) / **GNt** (generator)	APL: household appliances, 90–280 V. UPS: computers. GNt: running on a generator.
F0-04	Auto restart after overload	**LtE (**on)	The inverter resumes operation by itself.

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F0-05	Auto restart after overheating	**ttE (**on)	The inverter resumes operation by itself.
F1-04	Output frequency	**50 Hz**	Standard for Ukraine and Europe.
F2-03	Charge voltage (C.V)	**56.8 V**	Standard for LiFePO4 16S (51.2 V).
F2-04	Float voltage	**54.4 V**	The battery is not overcharged when it stays on the grid for a long time.
F2-05	Switch to grid (SbU)	**50.0 V**	When discharged to this voltage, the load switches to the grid.
F2-06	Return to battery (SbU)	**54.0 V**	After recharging to this voltage, the inverter runs from the battery again.
F2-07	Output cut-off	**48.0 V**	The inverter cuts the output before the battery reaches BMS protection.
F2-17	Equalization charge	**EdS (**off)	Not used for LiFePO4.

Programs as in the GSIKE GSK-11KP menu (groups F0–F4) according to the manufacturer's manual. Numbers such as "05" or "26" from standard menus do not apply here. After entering the settings, switch the inverter off and on again.

Which mode to choose

- **Backup during power cuts only (no panels):** F1-01 = SUb, F2-02 = 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:** F1-01 = SbU, F2-02 = SNU (or oSo — solar only). Solar power by day, battery at night, the grid only when the battery has dropped to 50.0 V.
- **Running on a generator:** F0-01 = GNt, F2-10 = 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	**≈ 41.5 h**
200 W	fridge + lights	**≈ 20.7 h**
300 W	fridge + lights + TV	**≈ 13.8 h**
500 W	fridge, laptop, pump	**≈ 8.3 h**
1000 W	boiler, kettle briefly, several appliances	**≈ 4.1 h**
2000 W	air conditioner, water heater, electric stove	**≈ 2.1 h**
4000 W	whole house, pump, power tools	**≈ 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: ≈ 54.4–56.8 V when full, ≈ 50.0 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 46.4 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 are tight and the ventilation openings are clean.
- 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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