USER MANUAL · ENGLISH

JSDsolar J12000HC 12kW 48V WiFi inverter

Hybrid solar inverter 12 kW / 48 V with built-in Wi-Fi: two solar inputs, two outputs, wiring, menu, LiFePO4 settings, codes



This manual was prepared by the seller. Specifications are from the manufacturer's description of the J12000HC-48. The menu and codes are the same across the JSDsolar HC inverter series (same display and buttons). For exact values for your inverter, see the rating plate on the case.

1. What this device is

Hybrid (off-grid) 12 kW inverter for a 48 V system: pure sine wave inverter, two MPPT solar controllers and a mains charger in one case. Runs the whole house during outages: boiler, water heater, pumps, air conditioner, kitchen appliances.

- Grid or generator input 230 V
- Two solar inputs PV1 and PV2: two panel groups, e.g. on two roof slopes
- Battery 48 V (LiFePO4 51.2 V, 16S)
- Two outputs: OUT1 (main loads) and OUT2 (secondary loads, switched off by settings when the battery runs low)
- Built-in Wi-Fi for monitoring from a phone

2. Technical specifications

Model	**J12000HC-48**
Rated power	**12 000 W**
Output	220–240 V AC (230 V default), 50/60 Hz, pure sine wave; two outputs
Battery	**48 V DC** (LiFePO4 51.2 V, 16S; lead-acid too)
Solar inputs	2 × MPPT; open-circuit voltage (Voc) up to **500 V;** MPPT range 60–450 V
Panel power	**2 × 7500 W** (total 15 000 W), up to 22.5 A per input; one input up to 9000 W / 27 A
Max. battery charge current	**160 A** (solar + grid)
Grid input	230 V; limits: items 22, 23 (90–280 V)
Battery comms	RS485 / CAN (protocol: item 44)
Monitoring	built-in Wi-Fi
Battery current at 12 kW	about 250 A (hence heavy-gauge cables)

The rating plate is on the right side panel. Operating temperature and protection rating are on the plate; the inverter is for indoor installation only.

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3. Connectors on the bottom panel

Connector	What to connect
AC IN	Grid or generator (L, N, PE). Do not confuse with the outputs
OUT1	Main loads: boiler, pumps, fridge, lighting (L, N, PE)
OUT2	Secondary loads: water heater, air conditioner. The inverter switches this output off when the battery runs low (items 38–40) to keep charge for OUT1
PV1, PV2	Two solar panel groups, each through its own DC breaker
BAT+ / BAT−	48 V battery power cables
BMS	Lithium battery comms cable (RS485 / CAN)
COM / WIFI	Comms port (USB-type connector); Wi-Fi is built into this inverter
ON / OFF	Inverter power switch: on the right side panel, below the rating plate

Connector names are marked on the case next to each inlet.

4. Wiring sequence

1. All breakers off, inverter switch OFF.
2. **Battery.** 70 mm² cables (or two 35 mm² per pole) with lugs, through a 300 A DC breaker: red "+" to BAT+, black "−" to BAT−. Reversed polarity damages the inverter. Keep cables as short as possible and equal for "+" and "−".
3. **BMS comms cable** (if the battery has an RS485/CAN port): into the BMS port; in the menu set item 17 = FEL and item 44 = battery protocol (section 6).
4. **Main loads:** to OUT1 via a 63 A breaker, 10 mm² cable (12 kW at 230 V is 52 A).
5. **Secondary loads:** to OUT2 via their own breaker.
6. **Grid:** to AC IN via a 63–80 A breaker, 16 mm² cable. If the house supply is weaker, reduce grid charging with item 06.
7. **Solar panels:** two groups to PV1 and PV2, each through its own DC breaker. String Voc including frost: no more than 500 V; string operating voltage 60–450 V; current up to 22.5 A per input. Up to 15 000 W of panels in total (up to 9000 W if only one input is used).
8. **Earthing** of the case is mandatory.
9. Switch on the battery and DC breaker, then the inverter switch, set up the menu (section 6), then the grid, PV and loads.

Safety. Make all connections with the battery, grid and PV switched off. Battery short-circuit current is very high. Installation is best left to an electrician.

Power and battery BMS. 12 kW from a 48 V battery is about 250 A. A single 51.2 V 100Ah battery (BMS 100 A) gives only ~5 kW: for full power, connect several batteries in parallel or a large battery with a BMS of 200 A or more, and limit discharge current to the BMS value with item 61.

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5. How to change settings

On the front panel: display, four LEDs (AC, INV, CHG, FAULT) and four buttons **ESC** **UP** **DOWN** **ENTER**.

1. Press and hold **ENTER** for 2 seconds: the menu opens, the item number shows at the top of the display.
2. **UP / DOWN:** choose an item, **ENTER:** the value starts flashing.
3. **UP / DOWN:** change, **ENTER:** save, **ESC:** exit.

Most important: battery type is item **17.** Item 05 on this inverter is the charging source, not the battery type.

6. Settings for LiFePO4 51.2 V

Item	Parameter	What to set
01 / 02	Output	230 V, 50 Hz
03	Output priority	PBG: maximum solar and battery; GPB: if backup is the main goal
04	Input mode	APP; UPS for computers; GEN with a generator
05	Charging source	PNG (solar + grid) or OPV (solar only)
06	Grid charging current	30–40 A, no more than the battery allows
07	Max. charge current	per battery datasheet: 50 A for 100Ah, 100 A for 314–360Ah (inverter can do up to 160 A)
17	Battery type	**FEL** — LiFePO4
44 / 45	BMS communication	battery protocol (PYL: Pylontech-compatible, GRO: Growatt); address AtO. Without a BMS cable: OFF
20 / 21	Charge / float voltage	56.8 V / 54.4 V
18 / 19	Low-voltage warning / cut-off	49.6 V / 48.0 V
15 / 16	To grid / back to battery	50.0 V / 54.0 V
38–40	Second output OUT2	switch off at 50 V or SOC 30–40 %, so charge is kept for OUT1
46–48	By SOC (BMS link only)	cut-off at 20 %, to battery at 90 %, to grid at 50 %
61	Max. discharge current	no more than your battery's BMS current (total for parallel units)
32	Equalization charge	OFF: not used for LiFePO4

Exact charge current and protocol for your battery are in the "Connection: inverter + battery" guide on the kit page.

7. Menu items

Item	Parameter	Options
Output and operating modes		
01	**Output voltage**	230 V default; 208 / 220 / 230 / 240 V
02	**Output frequency**	50 Hz default; 50 / 60 Hz
03	**Load supply priority**	GPB: grid first (default); PGB: solar first, grid tops up; PBG: solar, then battery, then grid; MKS: generator first

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Item	Parameter	Options
04	**AC input mode**	APP: household appliances (default); UPS: computers and sensitive equipment; GEN: generator on AC IN
05	**Battery charging source priority**	PNG: solar and grid together (default); OPV: solar only; PVF: solar first, grid only without sun. Note: battery type is item 17, not 05
Charging current		
06	**Grid charging current**	in 10 A steps; no more than the battery and grid supply allow
07	**Max. charge current (solar + grid)**	in 10 A steps, up to 160 A, per battery datasheet
Battery		
17	**Battery type**	AGM (default); FLd: flooded; LIt: lithium NMC; FEL: LiFePO4; CUS: custom voltages
15	**Battery voltage to switch to grid**	FEL: 49.6 V default (40–50 V)
16	**Return-to-battery voltage**	FEL: 53.2 V default (46–58 V); FUL: only after full charge
18	**Warning: low battery voltage**	FEL: 48 V default (41.2–50 V)
19	**Battery discharge cut-off**	FEL: 42 V default (40–48 V)
20	**Charge voltage (CV)**	FEL: 55.2 V default (48–60 V); always above item 21
21	**Float voltage**	FEL: 54.4 V default (50–58 V)
29	**Battery disconnect signal**	OFF / ON
61	**Max. battery discharge current**	OFF or a limit in amps (5 A step); exceeding it gives warning 60, then fault 14
Grid and grid feed-in		
22	**Grid voltage lower limit**	APP and GEN: 90–154 V (default 154 V); UPS: 170–200 V (185 V)
23	**Grid voltage upper limit**	APP and GEN: 264–280 V (264 V); UPS: 264 V
36	**Grid feed-in**	OFF: no feed-in (default); INT: exports surplus solar per item 03
37	**Max. grid feed-in power**	in kW, up to 12 kW
Lithium: BMS link and SOC		
44	**BMS comms protocol**	OFF (default); PYL: PYLON (485, CAN); GRO: GROWATT (485, CAN); VOL: VOLTRONIC (485); CVT: CVTE (485); IRO: China Tower (485); PAR: PACE (485)
45	**BMS address**	AtO: automatic (default); 0–15
46	**Low-SOC cut-off**	20 % default (5–50 %) or OFF
47	**Grid to battery switch by SOC (PBG)**	90 % default or OFF
48	**Battery to grid switch by SOC (PBG)**	50 % default or OFF; must be lower than item 47
Second output (OUT2)		
38	**OUT2 cut-off by battery voltage**	48 V default (44–60 V)

Item	Parameter	Options
39	**OUT2 run time on battery**	5–900 min or FUL: unlimited
40	**OUT2 cut-off by SOC**	20 % default (5–90 %) or OFF; needs BMS link
Solar inputs		
62	**Solar input mode**	OFF: two independent MPPTs (default); ON: one panel string on both inputs together
Equalising charge (lead-acid only)		
31–35	**Voltage, duration, interval, start**	do not enable for LiFePO4: item 32 = OFF
Display, buzzer and protections		
08	**Return to main screen**	ON / OFF
09 / 10	**Auto restart after overload / overheating**	ON by default
11	**Grid loss alarm**	ON / OFF
12	**Power saving mode**	OFF by default; ON: with loads under 25 W the output switches off periodically
13	**Bypass on overload**	OFF / ON (in PBG and MKS modes)
14	**Silent mode**	OFF / ON: buzzer stays silent on warnings
24	**Backlight auto-off**	ON / OFF
25	**Soft start**	OFF / ON
26	**Reset to factory settings**	ON: reset (on grid or standby, not on battery)

Default values for 15–21 are given for type FEL. Items not in this list may be absent from the menu or are service items.

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8. Display codes

Fault (Err): the red FAULT LED lights, the inverter stops and tries to restart by itself. If it does not recover, switch it off completely until the display goes dark, then switch it on again.

Code	Meaning	What to do
1–3, 7, 8	**Bus voltage errors**	Switch the inverter off completely and on again. If it recurs, contact the seller
4	**Battery overcurrent**	Reduce the load; check battery cables and BMS current
5	**Overheating**	Clear the vents; the inverter restarts after cooling down
6	**Battery overvoltage**	Check items 17, 20, 21 and the charge current
11, 12	**Low output voltage / output short circuit**	Switch off the loads, find the faulty appliance
14	**Overload**	Load above 12 kW or above item 61; reduce it
18	**PV polarity reversed**	Switch off the PV breaker and swap the panels' "+" and "−"
26	**BMS fault**	See the code on the battery display or in its manual

Warning (ALA): the FAULT LED flashes, the inverter keeps running.

Code	Meaning	What to do
50	**Battery disconnected**	Switch on the battery and DC breaker
51, 52	**Battery discharged to cut-off / low voltage**	Charge the battery from grid or sun
56	**No BMS link**	Check the BMS cable and protocol in item 44
58	**Fan fault**	Check the fan is not blocked; if it persists, contact the seller
60	**Overload**	Reduce the load
62	**Weak sun, no battery**	Connect battery or grid
68, 69	**Low SOC**	Wait for the battery to charge; limits: items 46–48
77	**Unstable grid**	The inverter returns to grid after 5 min

If a fault code does not clear, contact the seller.

9. Wi-Fi monitoring

Wi-Fi is built into the inverter, no separate module is needed. The app and pairing steps are on the quick-setup card supplied with the inverter. You will need the serial number (SN) from the sticker and your home Wi-Fi name and password (2.4 GHz).

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10. Common situations

What you see	What to do
No BMS link	Check the cable in the BMS port, the protocol in item 44 and the address/protocol switches on the battery
Will not turn on	Check the DC breaker, polarity and whether the battery is on (the BMS may have tripped)
Shuts down under load	Load above 12 kW or above what the battery BMS gives; move some loads to OUT2 or add a battery
OUT2 turned off	Items 38–40 triggered (battery low): this is normal, the output comes back after charging
No solar charging	PV breaker off, reversed polarity (code 18) or string voltage outside 60–450 V
Grid input breaker trips	Heavy grid charging plus load: reduce item 06

Maintenance. Every 3 months check terminal tightness and that the vents are clean. Do not open the inverter: dangerous voltage remains inside even when switched off.

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