CONNECTION AND SETUP GUIDE

Hybrid inverter GSIKE 6.2 kW 48 V

Model GSK-6.2KW-48V-WIFI · connectors, connection, menu programs 01–50, lithium battery, fault codes



Control panel

On the front panel: display, three LEDs and four buttons.

ESC	UP	DOWN	ENTER
exit settings	previous item	next item	enter settings and confirm

How to change settings

1. Press and hold **ENTER** 3 seconds: the inverter enters settings mode.
2. Select the program number with **UP / DOWN**.
3. Press **ENTER** to confirm or **ESC** to exit.

Notation in ranges: “greater of (A; B)” takes the larger of the two values, “lesser of (A; B)” the smaller.



Most important: battery type, program 05.

Default: AGM. For a lithium battery cabled to the RS485 port, select **Li2** (PYLON US2000 protocol) or **Li4** (inverter maker’s protocol); for a lithium battery without link: **LIb.** Details: section “Lithium battery settings”.

LEDs

Indicator	Steady	Flashing
AC / INV (green)	Output supplied from the grid (grid mode)	Output supplied from battery or sun (battery mode)
CHG (green)	Battery fully charged	Battery charging
FAULT (red)	Inverter fault	Warning

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CONNECTORS

Bottom panel: what goes where

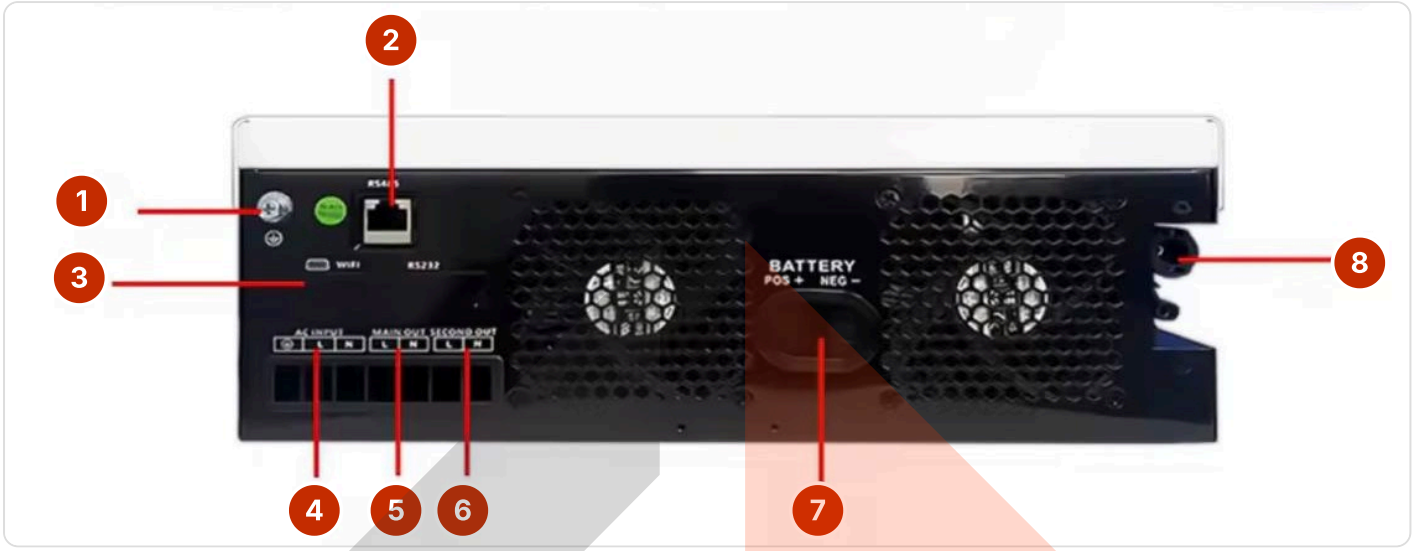

Photo of the GSK-6.2KW-48V-WIFI bottom panel. Numbers in the photo match those in the table; the set of connectors was checked against the product overview in the manual (p. 2). The ON/OFF power switch is on the side wall of the housing.

	What it is	Why	What connects where
1	**Grounding**	Case earthing bolt. The inverter must be connected to a permanent earthing system.	Earth wire (PE) of the panel.
2	**RS485 (BMS)**	Comm port to the lithium battery BMS (RJ45 connector). Pins: 1 — RS485-B, 2 — RS485-A, 7 — RS485-A, 8 — RS485-B.	Communication cable from the BMS RS485 port (“pin to pin” cable, included). Battery type: item 05.
3	**RS232**	RS232 communication port. The case is labelled “WIFI” and “RS232” next to it.	The manufacturer’s manual does not describe what exactly connects here or how, so we do not cover it here.
4	**AC grid input**	**AC INPUT** terminals: ⏚, L, N.	Grid or generator via a separate 50 A breaker. 10 mm² cable.
5	**Main output**	**MAIN OUT** terminals: L, N (OP1). For heavy loads: air conditioners, heaters, motors.	Main load panel. Cut-off by battery voltage: item 31.
6	**Second output**	**SECOND OUT** terminals: L, N (OP2). For light loads: lighting, computers, fans. Its cut-off is usually lower than the main output’s, so light loads run longer.	Light load panel. Enable: item 43, cut-off: item 29, overload threshold: item 47.
7	**Battery input**	**BATTERY** terminals: POS + and NEG –.	48 V battery via separate DC protection. 35 mm² cable, torque 2–3 N·m.
8	**PV input**	Solar panel connectors (+ and –), one input.	Solar panels via a separate DC switch. Up to 500 V open-circuit, MPPT 60–500 V, up to 27 A.

The manual provides no CAN port, dry contact or parallel port for this model.

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Safety, installation site, cables and breakers

Safety (from the manufacturer's manual)

- Mounting and connection by a qualified specialist only. Do not disassemble the inverter: repairs only at a service centre.
- Before servicing or cleaning, disconnect all wires: simply switching the inverter off does not remove the shock hazard.
- Never charge a frozen battery. Be careful with metal tools near the battery: a spark or short circuit can cause an explosion.
- The inverter must be connected to a permanent earthing system in line with local rules.
- Never short the AC output to the DC input; do not connect to the grid if the DC input is short-circuited.
- Air conditioners need 2–3 min before restarting. If an air conditioner has no start delay, a quick loss and return of power may make the inverter report an overload fault and damage the air conditioner.

Location

- Only on concrete or another non-combustible solid surface, vertically, at eye level.
- Ambient temperature 0...55 °C. Free space: **50 cm** above and below, **20 cm** at the sides.
- Fixing: two screws, M4 or M5 recommended. Before connecting, remove the bottom cover (undo the screws).
- Kit: inverter, manual, 2 PV connectors.

Cables and protection

Section	Cable	Torque	Protection
Battery (max. current 140 A, capacity from 200 Ah)	35 mm²; lug: L 37 mm, W 22 mm, D 8.4 mm	2–3 N·m	separate DC fuse or breaker between the battery and the inverter; rating per the typical current 140 A
Grid input and AC outputs	10 mm²	1.4–1.6 N·m	separate **50 A** breaker between grid and inverter
Solar panels (typical current 27 A)	4 mm²	1.4–1.6 N·m	separate DC switch between the panels and the inverter

Stripping: AC wires 10 mm, make phase L and neutral N 3 mm shorter than PE; PV wires 6 mm.

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WIRING

Step-by-step connection

1. **Remove the bottom cover** and fix the inverter to the wall with the required clearances.
2. **Battery.** Install separate DC protection (fuse or breaker) between the battery and the inverter.
   - Crimp lugs of the recommended size on the “+” and “−” cables; connect the battery as the inverter requires (48 V), preferably of the recommended capacity.
   - Fit the lugs squarely on the BATTERY terminals and tighten the bolts to 2–3 N·m. Put nothing between lug and terminal, otherwise it may overheat; do not apply antioxidant paste before tightening.
   - Before closing the DC protection check polarity: “+” to “+”, “−” to “−”.
3. **Grid and AC outputs.** First open the battery DC protection. Install a separate 50 A breaker between the grid and the inverter.
   - Strip the wires by 10 mm, shorten L and N by 3 mm.
   - **AC INPUT:** earth ⏚ first (green-yellow), then L (brown or black) and N (blue). The grid must be off.
     MAIN OUT and **SECOND OUT** outputs: the same, earth first. Do not mix up the input (IN) and output (OUT) blocks.
   - Make sure the wires are clamped firmly and L/N polarity is correct.
   -
4. **Solar panels.** Install a separate DC switch between the panels and the inverter. Strip the wires by 6 mm, check polarity and connect “+” to “+”, “−” to “−” of the PV input.
5. **Lithium battery with link:** connect the BMS RS485 port to the inverter RS485 port (see the lithium battery section).
6. **Refit the cover** and tighten the screws.
7. **Switch on the inverter** with the ON/OFF switch on the housing (the battery must be connected) and set up the menu, first of all the battery type (program 05).

Choosing solar panels

Panel (manufacturer’s example)	In series in one string	Two parallel strings
450 W (Vmp 34.67 V, Voc 41.25 V, Isc 12.98 A)	from 2 to 12 pcs (900–5400 W)	6 × 2 = 12 pcs (5400 W); 7 × 2 = 14 pcs (6300 W)
550 W (Vmp 42.48 V, Voc 50.32 V, Isc 13.70 A)	from 2 to 9 pcs (up to 4950 W)	4 × 2 = 8 pcs (4400 W); 5 × 2 = 10 pcs (5500 W); 6 × 2 = 12 pcs (6600 W)

Conditions: the string open-circuit voltage must not exceed 500 V and must be above the minimum battery voltage.

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SPECIFICATIONS

Specifications GSK-6.2KW-48V-WIFI

Output (inverter mode)		AC grid input	
Rated power	**6.2 kVA / 6.2 kW**	Rated voltage	**230 V**
Dual output	**yes**	Lower limit	**90 ± 7 V** (APL), **170 ± 7 V** (UPS)
Max. power of main / second output	**6.2 kVA / 6.2 kW***	Return after lower limit	**100 ± 7 V** (APL), **180 ± 7 V** (UPS)
Waveform	**pure sine wave**	High limit / return	**280 ± 7 V / 270 ± 7 V**
Voltage	**230 V ± 5 %**	Max. input voltage	**300 V**
Frequency	**50 or 60 Hz**	Frequency	**50 / 60 Hz** (auto-detect)
Peak efficiency	**94 %**	Transfer time	**10 ms** (UPS), **20 ms** (APL)
Surge capacity	**2 × rated, 5 s**	Grid efficiency	**over 95 %**
Battery		**Solar panels (PV)**	
Rated voltage	**48 V**	Rated power	**6500 W**
Cold start voltage	**46.0 V**	Max. open-circuit voltage	**500 V**
Max. charge current (PV + grid)	**120 A**	MPPT range	**60–500 V**
Max. grid charge current	**80 A**	Max. input current	**27 A**
Charge voltage: flooded / AGM, gel	**58.4 V / 56.4 V**	Max. PV charge current	**120 A**
Float voltage	**54 V**	**General**	
Overcharge protection	**63 V**	Operating temperature	**−10…+55 °C**
Charging algorithm	**3 stages**	Storage	**−15…+60 °C**
Max. battery current	**140 A**	Humidity	**5–95 %,** non-condensing
Recommended battery capacity	**200 Ah**	Dimensions (D × W × H)	**438 × 315 × 122 mm**
		Weight	**9.0 kg**

* The manufacturer's table gives one shared value for the main and second outputs.

Battery voltages for lead-acid batteries (AGM and flooded)

Load	"Low battery" warning	Warning cleared	Cut-off
under 20 %	44.0 V	46.0 V	42.0 V
20–50 %	42.8 V	44.8 V	40.8 V
50 % and above	40.4 V	42.4 V	38.4 V

Data from the manual's specification tables (6.2 kVA column). If the label on your inverter differs, go by the label.

SETTINGS MENU

All menu programs (01–50)

On the left: the default option code as shown in the manual, or the default value. Values are given for the 48 V model. Programs 04, 14, 15, 17, 21, 22, 24, 28, 30, 38, 40, 44, 45, 48, 49 are not in the manual's table.

Output and load power source



01 Output source priority

`UtI`	**Grid first:** default. The grid powers the load; solar and battery only when there is no grid.
`SOL`	**Solar first:** solar powers the load, and if it is not enough, the battery at the same time. The grid connects only when there is no sun or the battery voltage has fallen to the warning level or to the value of item 12.
`SbU`	**SBU:** solar, then battery, then grid. The grid powers the load only when the battery voltage has fallen to the warning level or to the value of item 12.
`SUb`	**SUB:** solar first charges the battery, then powers the load; if solar is not enough, the grid is added at the same time.
`SUF`	**SUF:** if solar covers the load and battery charging, the surplus may be exported to the grid; if not, the grid is added at the same time.



03 Grid input voltage range

`APL`	**Household appliances:** default, 90–280 V.
`UPS`	**UPS:** 170–280 V.
`GNt`	**Generator:** 170–280 V, compatible with generators. A generator is unstable, so the inverter output may also be unstable.

default
230 V

08 Output voltage

220, 230 or 240 V can be selected.

default
50 Hz

09 Output frequency

50 or 60 Hz can be selected.



10 Auto bypass

`nML`	**Manual:** default.
`Ato`	**Auto:** if the grid is normal, the inverter switches to bypass automatically, even with the switch off.



23 Bypass on overload

`byd`	**Off**
`byE`	**On:** default; on overload in battery mode the inverter switches to the grid.



43 Second output (OP2) enable

`on`	**Enabled:** default.
`oFF`	**Disabled:** second output off.

default
50 %

47 OP2 overload warning threshold

Range 10–100 %. If the second output load exceeds the setting, warning **22** appears.

Battery charging



16 Charging source priority

Applies when the inverter runs on grid, in standby or in fault mode:

CSo	**Solar first:** the grid charges the battery only when there is no sun.
SNU	**Solar and grid:** default; both charge at once.
oSo	**Solar only:** charging from solar only, even if the grid is present.

In battery mode only solar can charge (if there is enough).

default
60 A

02 Maximum charge current (solar + grid)

Range: from the max. grid charge current to the maximum per specification (120 A), but not below the value of item 11.

default
30 A

11 Maximum grid charging current

Range 5 A up to the maximum per specification (80 A).

default
Auto

32 Constant voltage stage time (C.V)

Adjustable if USE or LIb is selected in item 05. **Auto:** the inverter sets the time itself. Or 5–900 min in 5 min steps.

Battery



05 Battery type

AGn	**AGM:** default, lead-acid.
FLd	**Flooded:** lead-acid.
USE	**User:** charge and cut-off voltages are set in items 26, 27, 29.
Li2	**Lithium with link:** PYLON US2000 protocol, version 3.5.
Li4	**Lithium with link:** standard protocol of the inverter manufacturer.
LIb	**Lithium without link:** factory values are chosen for a lithium battery without link; charge and cut-off voltages are set in items 26, 27, 29.

default
46.0 V

12 Return to grid (SBU and “Solar first” modes)

- Type not LIb: **46.0 V,** range from the greater of (44 V; item 31 + 0.1 V) to the lesser of (item 13 – 0.1 V; 57.2 V).
- Type LIb: **52.0 V,** same range.
- Lithium battery with link (Li2/Li4): **20 %** SOC, range from the greater of (5 %; item 31 + 1 %) to the lesser of (item 13 – 1 %; 96 %).

default
FUL

13 Return to battery (SBU and “Solar first” modes)

- Type not LIb and LIb: default **full battery charge;** range from the greater of (48 V; item 12 + 0.1 V) to (item 26 – 0.5 V) or “full charge”.
- Lithium battery with link: **30 %** SOC, range from the greater of (10 %; item 12 + 1 %) to 100 %.

default
56.4 V

26 Charge voltage (C.V)

Adjustable with USE or LIb in item 05. Type not LIb: **56.4 V,** range from the value of item 27 to 62 V. LIb: **56.4 V,** from the value of item 27 to 58 V.

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default
54.0 V

27 Float voltage

Adjustable with USE or LIb. Type not LIb: **54.0 V;** LIb: **56.4 V.** Range from 48.0 V to the value of item 26.

default
42.0 V

29 Second output (OP2) cut-off

Adjustable with USE or LIb.

- Type not LIb: **42.0 V,** range from 40 V to the lesser of (item 31; 54 V); the value must be below item 31.
- LIb: **50.0 V,** same range.
- Lithium battery with link: **10 %** SOC, range from 0 % to the value of item 31.

default
44.0 V

31 Main output cut-off (OP1)

Adjustable with USE or LIb; the set cut-off voltage applies regardless of load.

- Type not LIb: **44.0 V,** range from the value of item 29 to the lesser of (item 12 – 0.1 V; 54 V).
- LIb: **51.9 V,** same range.
- Lithium battery with link: **15 %** SOC, range from the value of item 29 to the lesser of (95 %; item 12 – 1 %).



46 Max. discharge current protection

OFF by default (protection off). Single inverter only; range 20–500 A. If the discharge current exceeds the setting: with grid present the inverter switches to grid and battery discharge stops; without grid a warning appears and discharge continues.

Lithium battery activation



41 Automatic lithium battery activation

nML	**Off:** default.
Ato	**Auto:** if USE, LIb or Li2/Li4 is selected in item 05 and no battery is detected, the inverter activates the lithium battery automatically once. For auto-activation to work, the inverter must be restarted.



42 Manual lithium battery activation

noP	**Off:** default.
ACt	**Activate:** if USE, LIb or Li2/Li4 is selected in item 05 and no battery is detected: one-time lithium battery activation.

default
6 s

50 Lithium battery activation time

Range 6–300 s (when activation is available).

Equalization charge



33 Equalization charge

Adjustable if FLd, USE or LIb is selected in item 05.

EEN	**On**
EdS	**Off:** default.

default
58.4 V

34 Equalising voltage

Type not LIb: **58.4 V,** range from the float voltage to 62 V.

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default
60 min

35 Equalization time

Range 0–900 min.

default
120 min

36 Equalization extension (timeout)

Range 0–900 min. If the equalization voltage is not reached within the time of item 35, charging is extended; if it is still lower after the timeout, equalization stops and the battery goes to float.

default
30 days

37 Equalising interval

Range 1–90 days.



39 Start equalising now

Available if equalization is enabled in item 33.

AEN	**Enable:** equalization starts at once, “Eq” appears on the main screen.
AdS	**Disable:** default; equalization waits for the next time per item 37.

Display, sound, restart, communication



06 Auto restart after overload

Ltd	**Off**
LtE	**On:** default.



07 Auto restart after overheating

ttd	**Off**
ttE	**On:** default.



18 Buzzer mode

Md1	**Mode 1:** sound off.
Md2	**Mode 2:** signal on power source change, certain warnings or faults.
Md3	**Mode 3:** signal on certain warnings or faults.
Md4	**Mode 4:** default; signal on faults only.



19 Return to main screen

ESP	**Return:** default; after 1 min without key presses the display returns to the main screen.
HEP	**Stay:** the display stays on the last selected screen.



20 Backlight

LoN	**On**
LoF	**Off:** default.

default
001

25 Modbus address (Modbus ID)

Range 001–247.

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Lithium battery settings

Only what is in the manufacturer's manual

Connection

A lithium battery has two connections: the power cable and the BMS RS485 port. Power cables and lugs are as for a lead-acid battery (section "Cables and protection"). Connect the battery RS485 port to the inverter **RS485 (BMS)** port (connector 2 on the bottom panel). The cable must connect the pins "one to one"; it is supplied in the kit.

RS485 port pins

Pin	Signal
1	RS485-B
2	RS485-A
7	RS485-A
8	RS485-B

What the display shows with a working link

№	Information	Symbol
1	Link established	"Li" icon
2	Lithium battery max. charge voltage	
3	Lithium battery max. charge current	
4	Lithium battery discharge forbidden	"Li" blinks every 1 s
5	Lithium battery charging forbidden	"Li" blinks every 2 s
6	State of charge SOC, %	

Via the comm cable the inverter receives data from the BMS and uses it to adjust the charge voltage, charge current and discharge cut-off voltage, and starts or stops charging depending on the battery state.

> The manufacturer states: only lithium batteries it has configured for this inverter may be used.

Menu selection (program 05)

Code	When to choose
Li2	Battery with PYLON US2000 protocol (version 3.5) connected to RS485
Li4	Battery with the standard protocol of the inverter maker, connected to RS485
LIb	Lithium battery without link to the inverter

After choosing the type, check the values of programs **12, 13, 29, 31, 41, 42.** With a working link, items 12, 13, 29 and 31 are set in SOC percent (factory 20 %, 30 %, 10 %, 15 %).

The manual also says that with a working link programs 43/44/45 are available, replacing functions 12/13/29; but programs 44 and 45 are not in the menu table, so they are not described here.

If there is no BMS link: warning **19.**

PYLONTECH US2000 battery

1. DIP switches on the battery: switch 1 ON for baud rate 9600; switches 2, 3, 4 set the group address (on the main, first battery). "1" is the up position, "0" the down position.
2. Connect the inverter and battery with the RS485 cable.
3. Switch on the battery and hold its start button over 3 s until the power output is ready.
4. Switch on the inverter and select **Li2** in program 05. If the link is established, the battery icon lights up on the display.

Lithium battery without link

Method 1: select **LIb** in program 05.

Method 2: first find in the BMS data sheet: max. charge voltage, max. charge current and discharge protection voltage. Then:

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1. Program 05: **LIb.**
2. Program 26 (C.V): BMS max. charge voltage minus 0.5 V.
3. Program 27 (float): equal to the C.V voltage.
4. Cut-off in program 29: not below the BMS discharge protection voltage. (Program 29 is the second output OP2 cut-off; the main output cut-off, program 31, is always not below 29.)
5. Program 02: max. charge current, below the BMS max. charge current.
6. Program 12 (return to grid in SBU mode): not below the cut-off voltage + 2 V, otherwise a low battery voltage warning appears.

It is best to configure while the inverter gives no output (only the display is lit), and restart the inverter afterwards.

Faults, warnings and troubleshooting

Fault codes (red FAULT indicator lit)

Code	Fault
01	Inverter module overheat
02	DC/DC module overheat
03	Battery voltage too high
04	PV module overheat
05	Output short circuit
06	Output voltage too high
07	Overload: time used up
08	Bus voltage too high
09	Bus soft start failed
10	PV overcurrent
11	PV overvoltage
12	DC/DC overcurrent
13	Overcurrent or current surge
14	Bus voltage too low
15	Inverter failure (self-test)
18	Output current sensor offset too large
19	Inverter current sensor offset too large
20	DC/DC current sensor offset too large
21	PV current sensor offset too large
22	Output voltage too low
23	Negative inverter power
24	OP2 current sensor offset too large

Warning codes (red FAULT indicator blinking)

Code	Warning	Beeper
02	Temperature too high	3 beeps every second
04	Low battery voltage	1 beep every second
07	Overload	1 beep every 0.5 s
10	Output power derating	2 beeps every 3 s
14	Fan blocked	none
15	Low PV energy	2 beeps every 3 s
19	No link with lithium battery (BMS)	1 beep every 0.5 s
21	Lithium battery overcurrent	none
22	OP2 load exceeds the value of item 47	none
Eq	Battery equalization charge	none
—	Battery not connected (display symbol)	none

Troubleshooting

Symptom	Cause	What to do
The inverter turns off during start-up; display, indicators and buzzer work for 3 s and go out	Battery voltage too low	Charge or replace the battery.
No response after switching on	Battery voltage very low or battery polarity reversed	Check the battery connection; charge or replace the battery.
Grid present, but the inverter runs on battery; input voltage on display 0, green indicator blinking	Input protection tripped	Check the input breaker and AC wire connections.

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Grid present, but the inverter runs on battery; green indicator blinking	Poor grid or generator quality	Check whether the AC wires are too thin or long, the generator works and the input range is correct (item 03: UPS / APL).
Same, green indicator blinking	“Solar first” selected in item 01	Change the priority to “Grid first”.
After switching on, the internal relay clicks, display and indicators blink	Battery disconnected	Check the battery cable connections.
Buzzer sounds continuously, red indicator lit: code 07	Overload above 110 %, time used up	Reduce the load.
Code 05	Output short circuit	Check the wiring, disconnect the faulty load.
Code 02	Component temperature above 100 °C	Check that airflow is not blocked and the ambient temperature is not too high.
Code 03	Battery overcharge or battery voltage too high	Check the battery type and number; if that does not help, service.
Code 06 / 22	Output voltage below 190 V or above 260 V	Reduce the load; if that fails, to service.
Code 08 / 09 / 15	Internal component fault	Contact service.
Code 13	Overcurrent or current surge	Restart the inverter; if it repeats, service.
Code 14 and others	Low bus voltage / other	If the wiring is correct, contact service.

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