USER'S MANUAL

Wide Range of Off-Grid Solar Inverters

SINKO

SINKO
solar tech

The Energy Solution for Life

- **PV3200:** Max. Load 2.2 KW Semi Sine Wave
- **PV5000:** Max. Load 3.7 KW Pure Sine Wave
- **PV7000:** Max. Load 5.0 KW Pure Sine Wave
- **PV10000:** Max. Load 7.0 KW Pure Sine Wave

SINKO

PRODUCT OVERVIEW

SAFETY INSTRUCTION

- Before using the unit, read all the instructions carefully.
- Install the unit at eye level on a wall vertically.
- The installation place should be shaded and airy.
- Do not remove the cover when the unit is installed, (risk of electric shock)
- All the wires should be well tight in the relevant connectors.
- It is important for system safety to use the proper breakers and proper wires in the right polarity as indicated on the connector box.
- It is important to use the Hi-Voltage DC Breaker (63A-1000VDC) for the PV connections.
- Connect the neutral (N) and Live (L) wires in the right polarity as shown on the connector box.

FEATURE

01. Soft Start Function

Provides a smooth transition to PV.

02. Built-in Buzzer

The buzzer rings in the following functions.

☆ on startup ☆ In case of an error or fault

03. Short Circuit Protection

Protects the system against short circuits & Shuts down the load.

04. AC Low Voltage Protection

If AC voltage drops below 180V:

☆ Power will be cut off.

☆ The buzzer sounds to alert the consumer.

05. Overload Protection

If the load is over the max capacity of the inverter then it cuts off the load for certain time and the buzzer will ring to alert the consumer.

06. Adjustable Low PV Error

The low PV error threshold can be adjusted according to system requirements.

07. Fixed Frequency

The output frequency is fixed at 50Hz.

08. Output Adjustable Voltage

Voltage output can be adjusted to meet specific requirements.

09. Over Temperature Protection

In case the system over heats, it shuts down the load for certain amount of Time.

10. AC Input Voltage Protection

Over volt protection from 265V and above
under volt protection from 160V and below.

11. Various Inverter Modes

Pure Sine Wave / Auto / Vfd Mode.

12. Utility and Solar Consumption

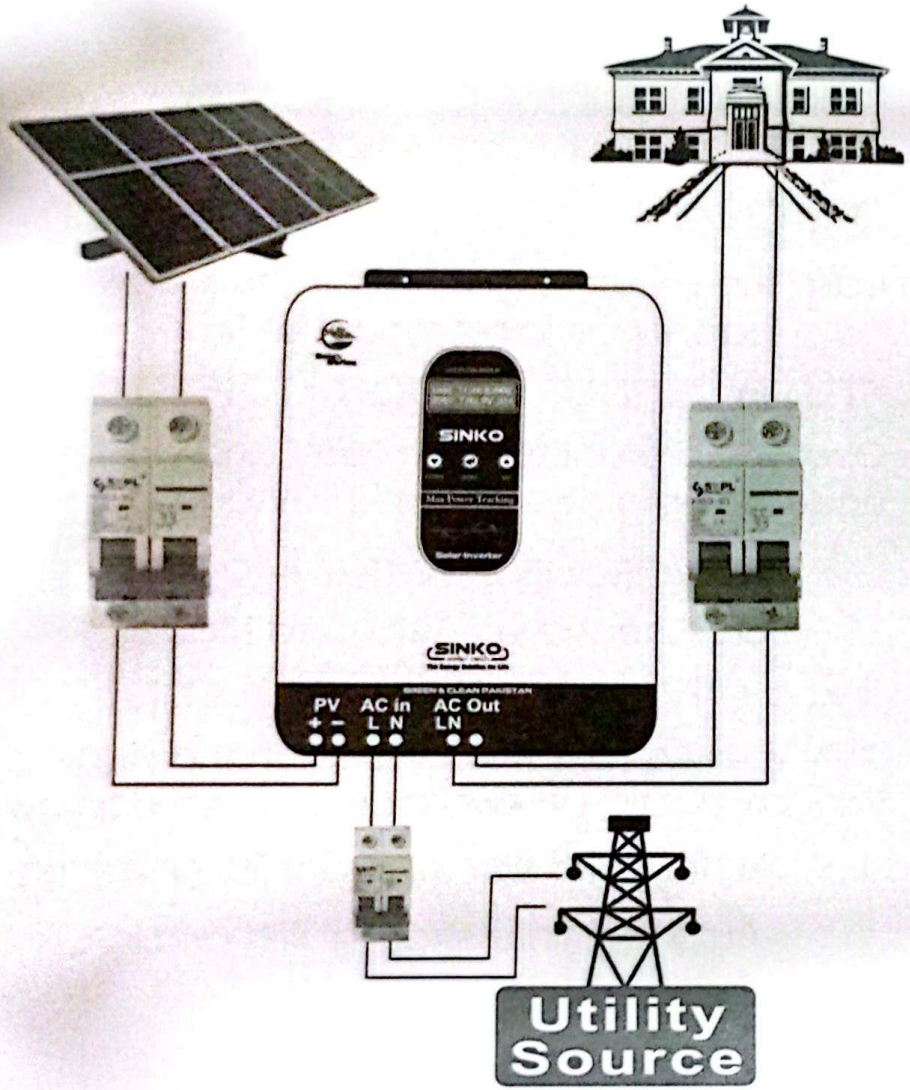
Utility Volts Amps & Kwh shown on the display.
Solar production in Kwh shown the on display.

13. Auto grid sharing and shifting

Auto real time sharing with grid.
Auto load changeover shifting.

All the parameters adjustable by function keys

BLOCK DIAGRAM



HOW TO INSTALL THE UNIT

Install the unit at eye level on a wall vertically, in a shaded and airy place.

PV CONNECTIONS

It is important for the system safety to use proper breaker between PV and the unit.
Locate the PV (solar) input connector (+,-) Insert the PV wires carefully in right polarity as shown in the connector box and well tight all the screws.

AC INPUT/OUTPUT CONNECTIONS

Before connecting to AC input power source, please insert proper AC breaker between The AC input connector and the power source. Similarly insert the proper AC breaker between the AC output load and the unit.
connect the AC input and output wires carefully according to the polarity shown on the connector box and well tight all the screws.

OVERVIEW INVERTER SERIES

Sinko Solar Tech Off-Grid Inverter Series is Designed for Optimal energy management offering two distinct power handling architectures.

1. PV BOOST UP INVERTER SERIES

This series incorporates a built-in step-up booster which boost the PV voltage to 265Vdc before converting it to 220Vac. Two models of this series are launched.

Max. PV3200, Max Load 2.2 Kw, Semi Sine Wave

This invert is a smart energy source, modified sine waves PV range = 50Vdc - 260Vdc.
Max. load 2.2 Kw Sporting 1,2,3,4,5 Solar Panels
Max. PV current is = 13.5Amp

Max. PV7000, Max. Load 5 Kw, Pure Sine Wave

This invert is best for random number for solar panels sporting 3,4,5,6,7,8,10,12 Solar panels.
3,4,5,6,7,8 Solar Panels in single string.
10 Solar panels and 12 Solar panels in double string ie 2x5=10, 2x6=12 Solar panels.
Max. PV current is = 26Amp

SOLAR PANELS ATTACHMENT FOR BOOST INVERTERS

Switch off the side button of the inverter, Press and hold up key ⊕ for 3 seconds to hear a long beep. now press the down key ⊖ to save the PV input volts. This process should be made in the time of sun Light Repeat this Passes whenever changing the number of solar panels.

2. PV DIRECT INVERTER SERIES

Max. PV5000 Max. Load 3.7 Kw, Pure Sine Wave

This invert is good energy source, for medium range house appliances.
PV voltage range = 350Vdc - 400Vdc.
Max. load 3.7 Kw Sporting 6,7,8 Solar Panels
Max. PV current is = 13.5Amp

Max. PV10000, Max. Load 7Kw, Pure Sine Wave

This invert is good energy source, to meet the energy requirements for a house.
PV voltage range = 350Vdc - 400Vdc.
Max. load 7.0 Kw Sporting 7,8,14,16 Solar Panels
Max. PV current is = 26Amp

PRODUCT VARIANTS AND OPERATING MODES.

1. Load shifting mode, 2. Grid sharing mode,
3. Load Shifting & Grid Sharing Mode.

1. LOAD SHIFTING MODE

- Operates in Shifting Mode, using solar first.
- If solar power is insufficient, the load shifts to utility.
- It continuously attempts to revert to solar when available and the buzzer alerts the user during transition periods to reduce the load.

2. GRID SHARING MODE

- Operates in Sharing Mode, ensuring a smooth power supply.
- If solar power is insufficient, the inverter shares the load with the utility grid instead of completely switching over.
- Prioritises solar energy and reduces grid dependency whenever possible.
- Best for: Users looking for stable and uninterrupted power with optimal solar usage.

3. LOAD SHIFTING+GRID SHARING MODE

- Operates in both Shifting and Sharing Modes for maximum flexibility.
- If solar power is insufficient, the inverter shares power with the grid instead of shifting entirely.
- If solar voltage drops to the min. Limit. the inverter fully shifts to utility mode to ensure a stable supply.
- Best for: Users seeking a smart, adaptive energy solution that efficiently manages solar and grid power both day and night.

TROUBLESHOOTING

Startup Fault

On first power up, decrease load or check PV voltage or on / off the switch.

Low PV Voltage

PV voltage is less than the set voltage in the program please check the no. of solar panels in the series and polarity of connections.

Low AC Voltage

if AC output voltage is less than 180 either the PV voltage is low are the load is more than the available solar energy.

System Overheat

Device is overheated. Check if the fan is operating optimally & verify the environmental conditions for adequate ventilation.

System Overload

If the system display overload please reduce the load

PV High Voltage

If PV voltage exceeds 430V. check the PV string configuration or number of panels.

LIST OF FAULT CODES

F0: null	[00]
F1: Low Pv Volt on load	[01]
F2: Low output Volts	[02]
F3: Short circuit	[03]
F4: Over load	[04]
F5: Over heat/fan error	[05]
F6: Over Pv voltage	[06]
F7: Temperature sensor Error	[07]
F8: Utality load > Output load	[08]
F9: Soft start failed	[09]
F10: Bus voltage too low	[10]
F11: Output voltage too low	[11]

PROGRAM FUNCTION

Press and hold Enter key for 5 sec to hear three beeps and a Long one to enter main maneu.

Prog # 0	M0 SETUP MENU Down Menu Up	Enter to M1
Menu # 1	INV START PV 150V < Limit > 350V	Next M2
Menu # 2	INV OFF PV 240 220V < Limit > 310V	Next M3
Menu # 3	LO-OUT ALERT 190 140V < Limit > 215V	Next M4
Menu # 4	LO-OUT OFF 175V 140V < Limit > 215V	Next M5
Menu # 5	RESTART DELAY=100 005<Seconds>900	Next M6
Menu # 6	WAV FROM=AUTO Auto/Sinwave/Modif.	Next M7
Menu # 7	Set Inv out = 220V 210V < Limit > 240V	Next M17
Menu # 17	GRID SHARING=ON on/off	Next M18
Menu # 18	SHARING ON PV=300 230V<Limit>330	

Save?

SAVE CHANGES?
NO YES

No Changes
System Restart

Changes Saved
Successfully

HIDDEN SETTINGS

Press and hold Enter key for 5 sec to hear three beeps and a Long one. Then press and hold Up key for 5 sec to hear three beeps and a Long one to enter the hidden Settings

Menu # 8	Calibrate PV Volt – PV=⊟⊟⊟ +	Next M9
Menu # 9	Calibrate AC Volt – Difference +	Next M10
Menu # 10	Calibrate Amp Output Amp 0.0	

PV 10000W

Max Load = 6500W
500 <Limit > 7000

PV 7000W

Max Load = 4500W
500 <Limit> 5000

PV 5000W

Max Load = 3500W
500 <Limit> 3700

PV 3200W

Max Load = 2000W
500 <Limit> 2200

Menu # 10
BOOST MODEL

Calibrate DC Bus
DC Bus 365V

Enter to Save

Menu # 11 — Soft Start = Off On/Off — Enter to Save

Menu # 12 BOOST MODEL — Set PV MPPT PV MPPT at = 80% — Enter to Save

Menu # 13 — Select Freq = 16K 13Khz/16Khz/20Khz, — Enter to Save

Menu # 14 — Output Freq = 50Hz 50Hz / Vfd — Enter to Save

Save Changes? No Default Yes

- No → No Changes System Restart
- Default → Saved as Default Settings
- Yes → Changes Saved Successfully

NOTE: Hidden Setting is not for Consumers Only for Manufacturer / Admin

MULTIPLE DISPLAY SCREENS

Different Parameters are displayed by multiple Screens

Horne Screen#1: Load 23.4A 5.2Kwh / 220V - 360 PV 342
Press ⊙ to next screen

Screen#2: Ut = 2.4A 0.02Kwh / SL=23.4A 0.47Kwh
Press ⊙ to next screen

Screen#3: Utility = 232 Normal / Fault Code [ ]
Press ⊙ to next screen

Screen#4: Net Sol. Production Units = 0.43 Kwh

Whenever the grid Sharing input > Output Load then the system bypass the Utility to the load and start the delay count down

Screen#5: Utility input > Load Delay = 300Sec

DATA SHEET

Model	Max PV3200	Max PV5000	Max PV7000	Max PV10000
Max Power	2.2 KW	3.7 KW	5.0 KW	7.0 KW
Parallel	No	No	Yes x 2	Yes x 2

AC INPUT

Voltage	230Vac
Selectable Voltage Range	160-265Vac
Frequency Range	50Hz / 60Hz Auto Sensing

AC OUTPUT

AC Voltage	225Vac ± 5%
Efficiency (Peak) PV to INV	93%
Wave From	Pure Sine Wave

SOLAR

Max. PV Array Power	3200W	5000W	7000W	10000W
Max PV Open Circuit V.	50-260 Vdc	350-4000 Vdc	130-400 Vdc	350-400 Vdc
Max PV Input Current	13A	13A	26A	26A
Maximum Efficiency	98%			

PHYSICAL

Dimensions LxWxH (mm)	450 x 250 x 125	554x432.5x147.5	
Net Weight (Kg)	4.5Kg	7.5Kg	7.5Kg
Status	Portable		

OPERATING ENVIRONMENT

Humidity	5% to 95% Relative Humidity (Non-condensing)
Operating Temperature	-10°C to 55°C
Storage Temperature	-15° C to 60° C