SolarEdge SE5000H-US

SolarEdge SE5000H-US Single Phase 5000-Watt Grid-Tied Inverter Instruction Manual

Model: SE5000H-US

1. Product Overview

The SolarEdge SE5000H-US is a single-phase 5000-watt grid-tied inverter featuring HD Wave technology. This inverter is designed to work specifically with SolarEdge power optimizers, offering high efficiency and a compact design for solar PV systems.

Key Features:

- Specifically designed to work with SolarEdge power optimizers.
- Range from 3 kW to 11.4 kW.
- 99% weighted efficiency (33%-50% less losses than market standard).
- Small, lightweight, and easy to install.
- Up to 155% oversizing allowed.

Image 1: Front view of the SolarEdge SE5000H-US Single Phase 5000-Watt Grid-Tied Inverter.

2. Specifications

Specification	Value
Product Dimensions	17.7 x 14.6 x 6.8 inches
Item Weight	25 pounds

Manufacturer	SolarEdge
Item Model Number	SE5000H-US
Recommended Uses	Appliances, Business trip, Home, Office
Power Source	Solar Powered
Wattage	5000 watts

3. Setup and Installation

This section provides detailed instructions for the physical installation and initial setup of your SolarEdge HD-Wave Inverter. Ensure all safety precautions are followed during the installation process.

3.1 Unboxing and Components

Upon opening the box, you will find the inverter unit, a pre-installed DC safety switch, a mounting bracket kit, a mounting template, the installation manual, and an activation card. Keep the activation card safe as it is essential for activating the inverter later.

Image 2: The SolarEdge HD-Wave Inverter and its integrated DC safety switch.

3.2 Mounting the Inverter

1. Turn the DC safety switch to the OFF position.
2. Remove the cover of the DC safety switch.
3. Identify the conduit entry locations. There are two options: side and bottom. For outdoor installations, the bottom entry is recommended.
4. Mount the inverter using the provided mounting bracket and template. The inverter weighs approximately 25 pounds, allowing for single-person installation.
5. Lift the inverter from the bottom or sides, above the DC safety switch, and secure it to the pre-installed

mounting brackets.

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

Model Number	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5[1]							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, adjustable -0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V[2]	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V[2]	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

[1] For other regional settings please contact SolarEdge support
[2] A higher current source may be used; the inverter will limit its input current to the values stated

Image 3: Demonstrates the process of mounting the lightweight SolarEdge inverter onto a wall.

3.3 Wiring Connections

The SolarEdge inverter uses spring compression terminal blocks for wiring. Ensure all connections are secure.

3.3.1 AC Power Connection

1. Connect the Line 1, Line 2, and Neutral wires.
2. Strip 5/16 of an inch of insulation from the wire ends.
3. Using a flat blade screwdriver, insert it into the terminal block to open the clamp, then insert the wire.
4. Remove the screwdriver to clamp the wire. Perform a tug test to ensure a secure connection.

3.3.2 DC Wiring

1. Connect the DC positive and DC negative wires to the inverter. Up to two strings can be connected in parallel to the terminal blocks on the 3.8 kW inverters.
2. Strip 5/16 inches of insulation from the wire ends.
3. Connect the DC equipment grounding conductor to the equipment grounding terminal block in the safety switch.
4. Before connecting the DC positive and negative wires, check the safe DC voltage. Each optimizer connected to a PV module will output approximately 1 volt at this stage. For an installation with 14

modules in series, expect around 14 volts. Also, check the polarity.

5. Insert a flat blade screwdriver into the terminal block, insert the wires, and remove the screwdriver to clamp. Perform a tug test for security.

3.4 Communication Setup (Ethernet)

For Ethernet communication, route the Cat 5 cable through the lower portion of the DC safety switch and then up into the lower portion of the inverter.

1. Open the communication gland.
2. Remove the rubber fitting from the gland and insert the Cat 5 cable through the gland and through the gland opening of the inverter.
3. Insert the cable through the opening in the DC safety switch towards the communication board.
4. Connect the Ethernet connector to the RJ45 port on the communication board.
5. Connect the other side of the Cat 5 cable or Ethernet cable to the homeowner's router or switch. The maximum distance is 330 feet. Routing the cable through the DC safety switch provides a cleaner aesthetic.

Your browser does not support the video tag.

Video 1: Detailed guide on how to install the SolarEdge HD-Wave Inverters, covering physical mounting, wiring, and communication setup.

4. Operating the Inverter

After completing the wiring, the inverter needs to be activated and the power optimizers paired. The inverter's LCD screen provides essential information and navigation options.

4.1 Inverter Activation

1. Insert the activation card (found in the accessories bag) into the designated slot on the communication board. Ensure the logo on the card is facing the correct direction for proper fit. Listen for a click to confirm it's securely in place.
2. If the activation card is lost, the recovery code on the inverter label can be used.
3. Turn the AC breaker ON.
4. The inverter LCD will display "Running Script" and then "Done" or "Activation Complete".
5. Ensure the safety switch is in the ON position and the inverter on/off switch is in the OFF position.

4.2 Pairing Power Optimizers

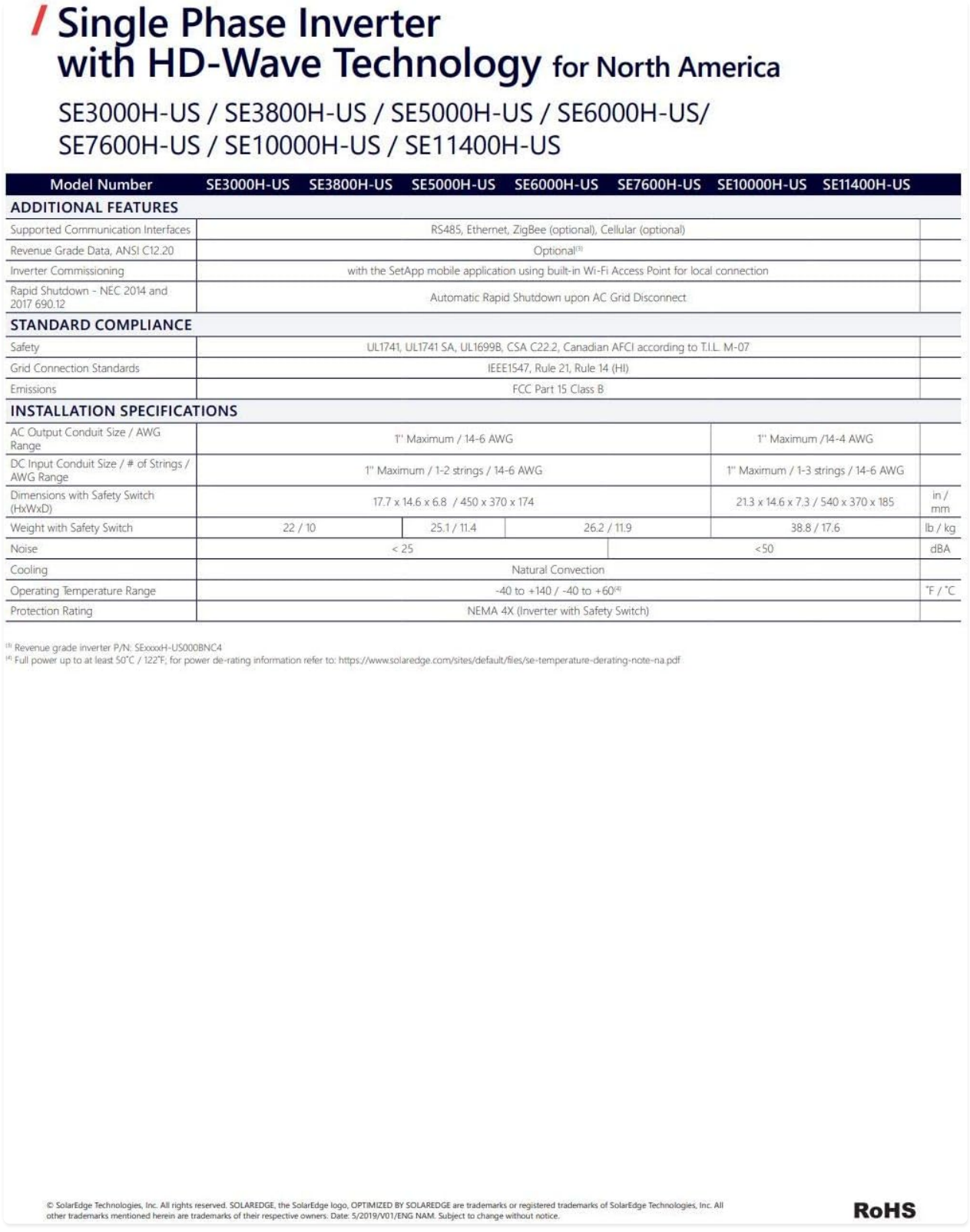
1. To pair the power optimizers to the inverter, press and hold the OK button for 10 seconds.
2. The display will show a message indicating the pairing process.
3. After the 180-second countdown, the inverter will confirm the number of optimizers detected.
4. The inverter will then monitor the grid. After the wake-up cycle is complete, the inverter will begin producing power.

4.3 Navigating Inverter Settings

The inverter features a four-button touch panel interface for navigation:

- **Escape Button:** Functions as a back button, returning to the previous menu and canceling a value change with a long touch.
- **OK Button:** Selects a menu option and accepts a value change with a long touch.
- **Up/Down Arrows:** Scroll through various display screens and menu options.

On the home screen, you can view the grid voltage (VAC), fixed DC voltage (VDC), and instantaneous output power (PAC). The fixed DC voltage is typically around 380 volts, allowing for longer string lengths compared to standard inverters.



Single Phase Inverter with HD-Wave Technology for North America

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Model Number	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional[3]							
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi Access Point for local connection							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect							
STANDARD COMPLIANCE								
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07							
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)							
Emissions	FCC Part 15 Class B							
INSTALLATION SPECIFICATIONS								
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG					1" Maximum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG					1" Maximum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174					21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10		25.1 / 11.4	26.2 / 11.9		38.8 / 17.6		lb / kg
Noise	< 25				<50			dBA
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Revenue grade inverter P/N: SExxxxH-US000BNC4
[4] Full power up to at least 50°C / 122°F, for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

RoHS

Image 4: Close-up of the SolarEdge inverter's LCD display showing operational data.

4.4 Standby Mode

The inverter can be set to standby mode, which prevents it from exporting power until remotely commissioned. This is useful before receiving Permission To Operate (PTO).

1. Navigate to the Maintenance menu using the arrow buttons.
2. Scroll to "Standby Mode" and select "Enable" to activate remote commissioning.
3. Once PTO is received, log into the monitoring portal, choose "Logical Layout", right-click on the inverter, select "Choose Operation", and then "Exit Standby".

5. Maintenance

Regular maintenance ensures optimal performance and longevity of your SolarEdge inverter. While specific maintenance schedules should be followed as per the full manual, general practices include:

- Keep the inverter's exterior clean and free from dust and debris.
- Ensure proper ventilation around the unit to prevent overheating.
- Periodically check all wiring connections for tightness and signs of wear or damage.
- Monitor the inverter's performance via the monitoring portal for any anomalies.

6. Troubleshooting

If you encounter issues with your SolarEdge inverter, refer to the following basic troubleshooting steps. For complex problems, contact SolarEdge customer support.

- **No Power Output:** Check if the AC breaker is ON and the DC safety switch is in the ON position. Verify that the inverter's on/off switch is in the ON position.
- **Communication Issues:** Check the Ethernet cable connection to both the inverter and your router. Verify the communication status on the inverter's display.
- **Error Messages:** Note any error codes displayed on the LCD screen and consult the full installation manual for specific meanings and solutions.
- **Powering Down:** To safely power down the inverter, first turn the on/off switch to the OFF position. Allow the DC voltage to drop below 50 volts (the display will notify you). Once the voltage has dropped, turn the DC safety switch to the OFF position.

7. Warranty and Support

The SolarEdge SE5000H-US Inverter comes with a 12-year standard warranty. This warranty may be

augmented by an installer warranty, potentially extending the total warranty period to 25 years. For customer support, technical assistance, or warranty claims, please refer to the contact information provided in your product packaging or visit the official SolarEdge website.