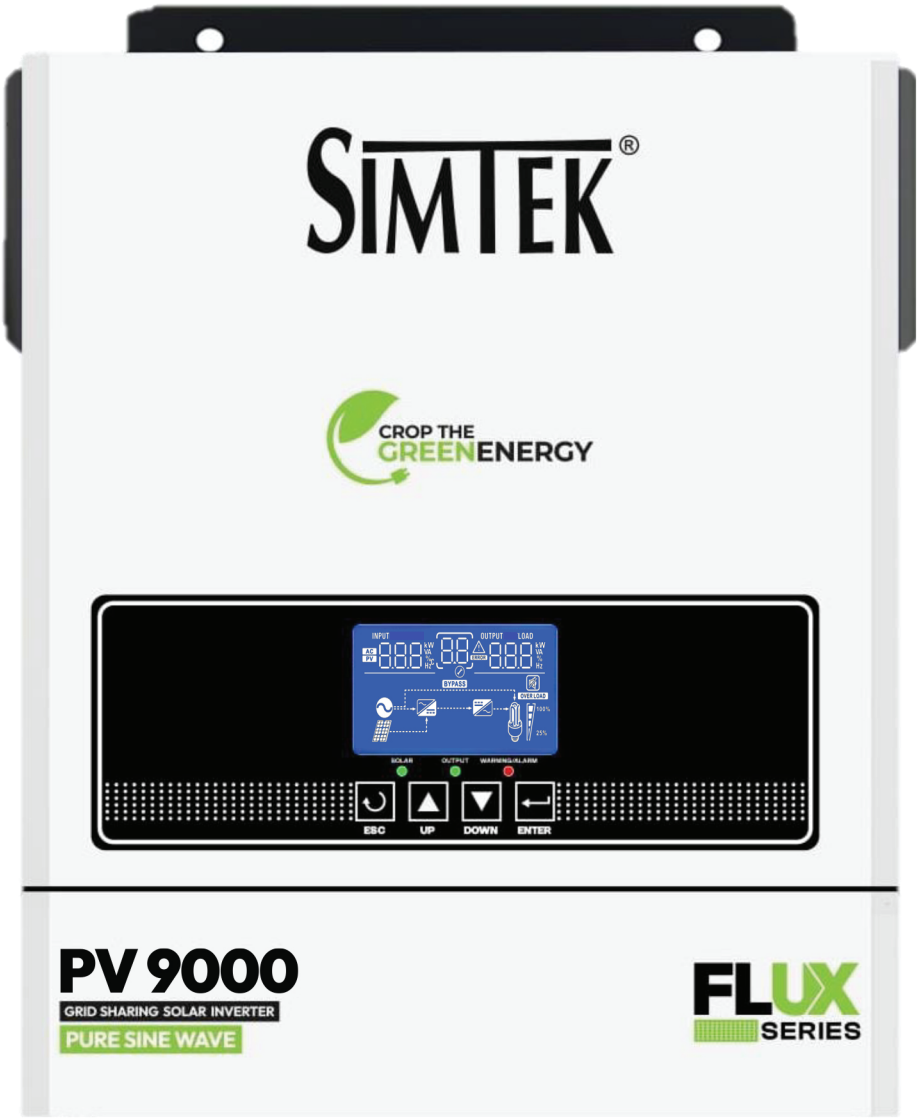
USER'S MANUAL

SIMTEK®

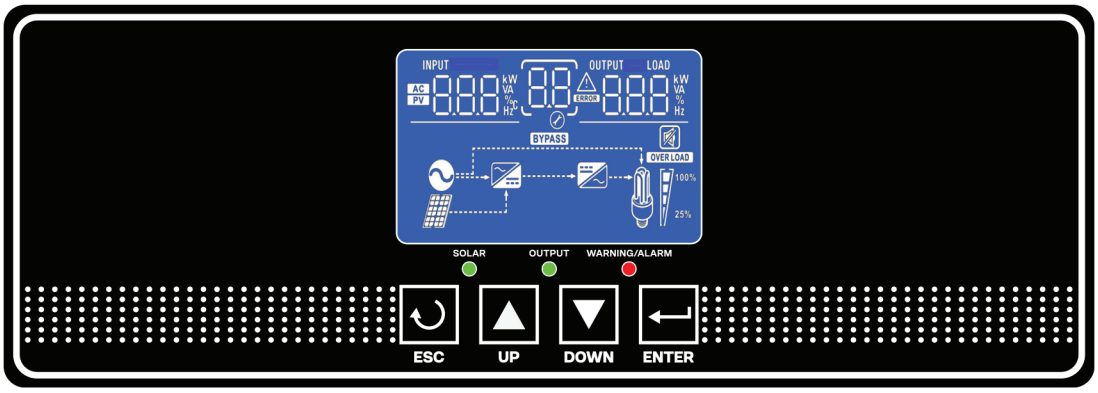
MPPT SOLAR INVERTER
WITH GRID SHARING (BATTERY LESS)



MODEL #: STK-PV9000 430VDC 6000KW (DUAL OUTPUT)

MODEL #: STK-PV14000 430VDC 10000KW (DUAL OUTPUT)

DISPLAY



LCD DISPLAY

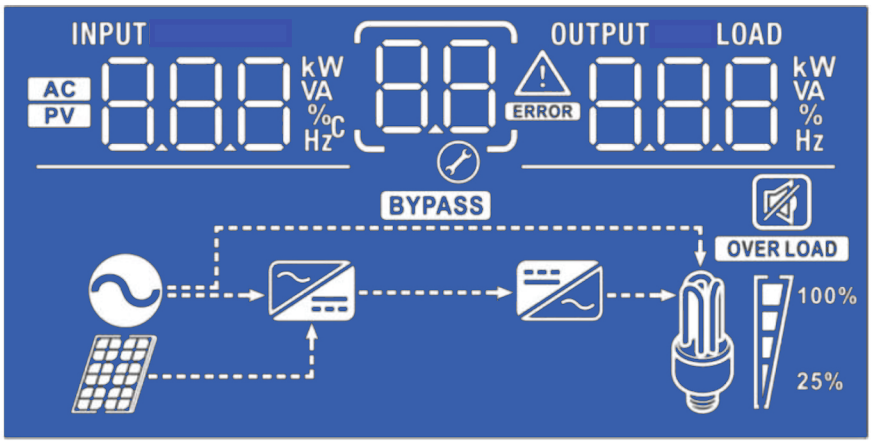
LCD DISPLAY SHOWS ALL THE INPUT AND OUTPUT PARAMETERS AS WELL AS WARNING's.

- PV INPUT VOLTAGE, CURRENT, POWER & PERCENTAGE.
- OUTPUT VOLTAGE, CURRENT, POWER & PERCENTAGE.
- GRID PARAMETERS.

LED DISPLAY

1. GREEN LED INDICATES SOLAR POWER IS AVAILABLE.
2. GREEN LED BLINKING INDICATES INVERTER IS RUNNING.
3. RED LED INDICATES WARNING/ALARM.

LCD DISPLAY ICONS



FEATURES

- DUAL DISPLAY
- LCD DISPLAY
- LED INDICATIONS
- ALL PARAMETERS DISPLAY ON LCD.
- AUTO CHANGE OVER (PV → GRID → PV).
- REAL TIME GRID SHARING.
- HIGH RUNNING CAPACITY FOR MOTOR.
- SOFT START (adjustable).
- USER CUSTOMIZABLE PARAMETERS.
- FAN THERMALLY CONTROLLED.
- ALARM IN CASE OF ANY DISRUPTION.
- MPPT TRACKING EFFICIENCY > 99%.
- CONVERSION EFFICIENCY DC/AC >93%.
- SUPPORT 700W+ SOLAR PANELS.
- OUTPUT SHORT CIRCUIT PROTECTION.
- OUTPUT OVER LOAD PROTECTION.
- OVER HEAT PROTECTION.
- STRING OVER LOAD PROTECTION.
- HIGH PV VOLTAGE WARNING.
- LOW AC WARNING.
- WIFI (OPTIONAL).

SAFETY INSTRUCTIONS

- BEFORE INSTALLING 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.
- DONOT REMOVE THE COVER WHEN THE UNIT IS RUNNING, RISK OF ELECTRIC SHOCK.
- ALL THE WIRES SHOULD BE WELL TIGHTENED IN THEIR RESPECTIVE CONNECTORS.
- IT IS IMPORTANT FOR SYSTEM SAFETY TO USE PROPER BREAKERS AND WIRES IN THE RIGHT POLARITY AS INDICATED ON THE CONNECTOR BOX.

INSTALLATION

- THE WALL ON WHICH THE UNIT IS TO BE MOUNTED MUST BE STURDY AND CAN WITHSTAND THE WEIGHT OF THE UNIT.
- DO NOT INSTALL THE UNIT IN A BUILDING CONSTRUCTED OF FLAMMABLE OR HEAT-RESISTANT MATERIALS.
- INSTALL THE UNIT ON AN EYE VIEW ORIENTATION TO FACILITATE INSPECTION OF THE LCD DISPLAY AND MAINTENANCE WORK.
- IT IS NOT RECOMMENDED TO EXPOSE THE UNIT DIRECTLY TO STRONG SUNLIGHT TO PREVENT OVERHEATING AND CAUSE POWER DERATING.

PV CONNECTION

⚠ TO AVOID ANY MALFUNCTION, DO NOT CONNECT ANY PV MODULES WITH POSSIBLE CURRENT LEAKAGE TO THE INVERTER.

1. BEFORE CONNECTING TO PV MODULES, PLEASE INSTALL A SEPARATE DC CIRCUIT BREAKER BETWEEN INVERTER AND PV MODULES.
2. IT IS VERY IMPORTANT FOR SYSTEM SAFETY AND EFFICIENT OPERATION TO USE APPROPRIATE CABLE FOR PV MODULE CONNECTION. ALL WIRING MUST BE PERFORMED BY A PROFESSIONAL PERSON.

⚠ IT'S REQUESTED TO USE PV JUNCTION BOX WITH SURGE PROTECTION. OTHERWISE, IT WILL CAUSE DAMAGE ON INVERTER WHEN LIGHTENING OCCURS ON PV MODULES.

⚠ CONNECTING THE SOLAR MODULES WITH SUITABLE CABLE IS IMPORTANT FOR SAFE AND EFFICIENT OPERATION OF THE SYSTEM AND TO REDUCE THE RISK OF FIRE & INJURY.

⚠ BEFORE MAKING THE FINAL DC CONNECTION BE SURE POSITIVE (+) WIRE MUST BE CONNECTED TO THE POSITIVE (+) TERMINAL IN THE CONNECTOR BOX AND NEGATIVE (-) WIRE MUST BE CONNECTED TO THE NEGATIVE (-) TERMINAL IN THE CONNECTOR BOX. REVERSE POLARITY CONNECTION ON SOLAR WILL DAMAGE THE INVERTER.

1. PLEASE CHOOSE A SUITABLE CABLE WITH CORRECT CONNECTOR WHICH CAN WELL FIT INTO THE TERMINALS.
2. USE A SUITABLE SCREW DRIVER TO UNSCREW THE TERMINALS AND FIT THE WIRES IN, THEN FASTEN THE TERMINALS BY SCREWDRIVER, MAKE SURE THE TERMINALS ARE WELL TIGHTENED.

Note: A loose connection can damage the unit and increases the risk of fire.

PV MODULE SELECTION

WHEN SELECTING PV MODULES, PLEASE BE SURE TO CONSIDER BELOW PARAMETERS

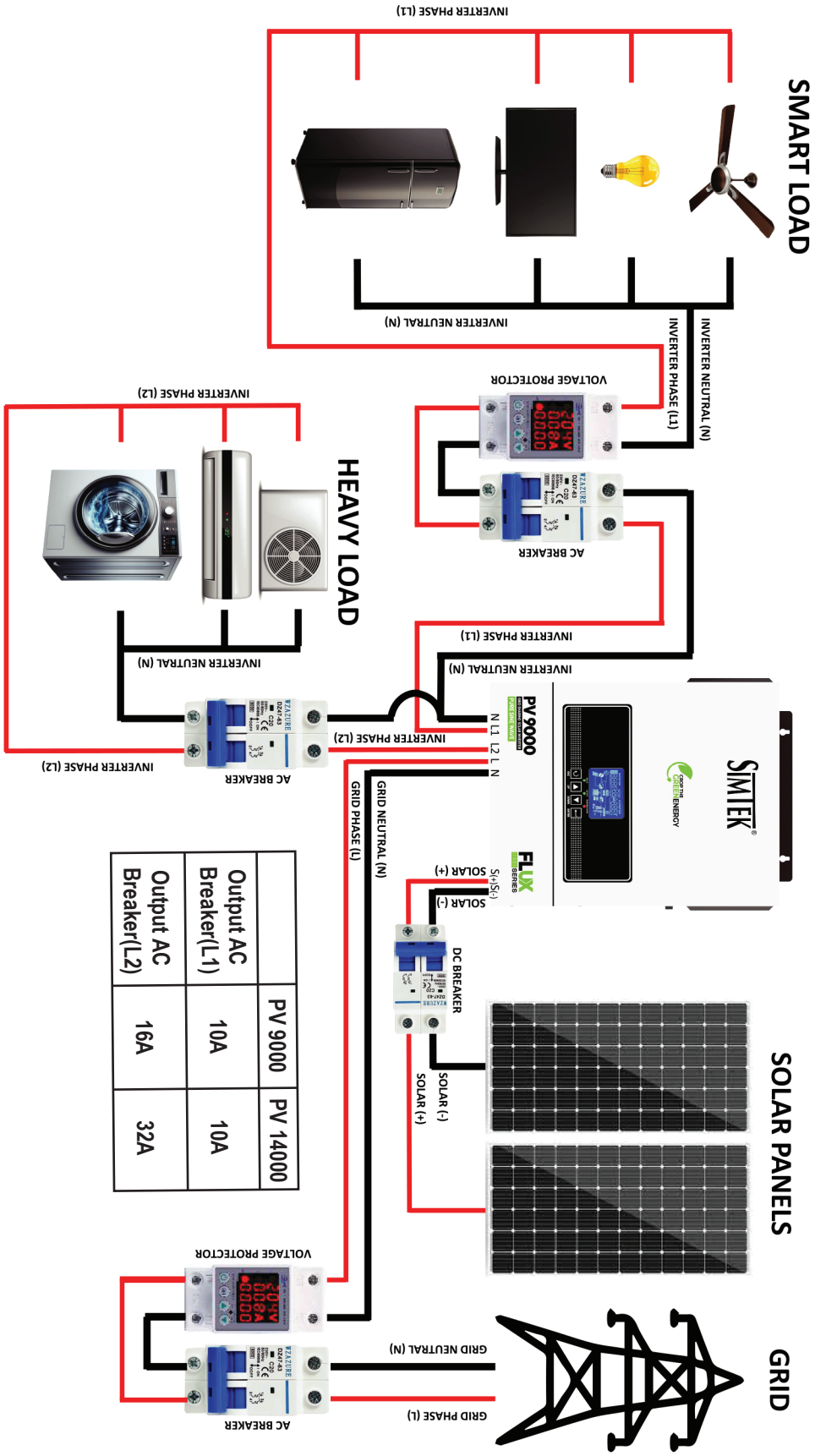
1. OPEN CIRCUIT VOLTAGE (VOC) OF PV MODULES NOT EXCEEDS MAX. PV ARRAY OPEN CIRCUIT VOLTAGE OF INVERTER.
2. OPEN CIRCUIT VOLTAGE (VOC) OF PV MODULES SHOULD BE HIGHER THAN MIN. START VOLTAGE.

PV INPUT VOLTAGE RANGE

MODEL #: STK-PV9000 90V – 430V

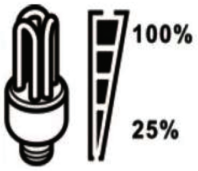
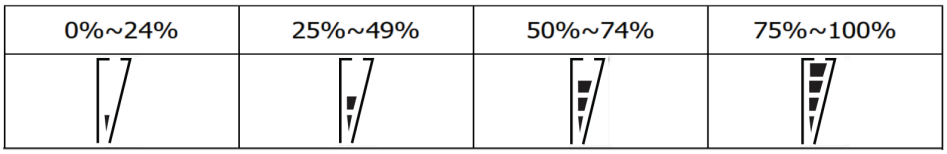
MODEL #: STK-PV14000 90V – 430V

WIRING DIAGRAM

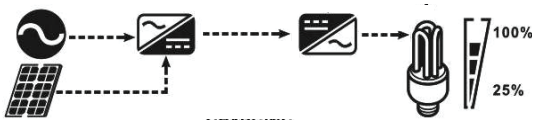
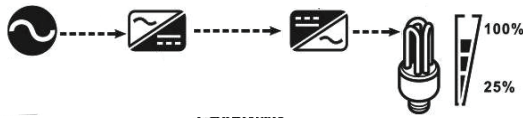


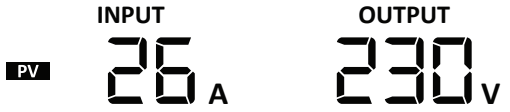
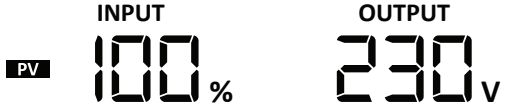
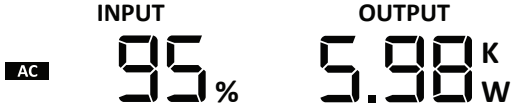
SOLAR INVERTER WITH GRID SHARING (BATTERY LESS) FLUX SERIES		
MODEL	**STK-PV9000**	**STK-PV14000**
RATED OUTPUT POWER	**6000 W**	**10000 W**
PV INPUT PARAMETERS		
MAX. PV INPUT VOLTAGE	**430 VDC**	**430 VDC**
MIN. PV INPUT VOLTAGE	**90 VDC**	**90 VDC**
RECOMMENDED PV INPUT VOLTAGE	**400 VDC**	**400 VDC**
MAX. PV INPUT CURRENT	**27 A**	**36 A (18 A + 18 A)**
NUMBER OF MPPT TRACKERS	**1**	**2**
MPPT TRACKING EFFICIENCY	**> 98 %**	**> 98 %**
AC INPUT PARAMETERS		
GRID VOLTAGE	**230 VAC**	**230 VAC**
INPUT VOLTAGE RANGE	**90 - 280 VAC**	**90 - 280 VAC**
FREQUENCY RANGE	**50 Hz / 60 Hz**	**50 Hz / 60 Hz**
GRID SHARING PARAMETERS		
GRID SHARING VOLTAGE RANGE	**180 - 280 VAC**	**180 - 280 VAC**
FREQUENCY RANGE	**50 Hz / 60 Hz (Auto Sensing)**	**50 Hz / 60 Hz (Auto Sensing)**
AC OUTPUT PARAMETERS		
INVERTER OUTPUT VOLTAGE (adjustable)	**230 VAC ± 5%**	**230 VAC ± 5%**
MAX. OUTPUT CURRENT	**26 A**	**44 A**
OUTPUT FREQUENCY	**50 Hz**	**50 Hz**
OUTPUT WAVE FORM	**PURE SINE WAVE**	**PURE SINE WAVE**
CONVERSION EFFICIENCY (DC / AC)	**> 93 %**	**> 93 %**
OPERATING TEMPERATURE	**-10° - 85°**	**-10° - 85°**
HEAVY LOAD OUTPUT L2 ON/OFF	**ON > 205 VAC / OFF < 200 VAC**	**ON > 205 VAC / OFF < 200 VAC**
BYPASS MODE	**SAME AS AC INPUT**	**SAME AS AC INPUT**

Series/Parallel	سولر پینلز کی تعداد		Load(لوڈ)
2 (Series)	سولر پینلز	2	2پنکھے + 4 انرجی سیور بلب
3 (Series)	سولر پینلز	3	1فریج + 2 پنکھے + 4 انرجی سیور بلب
4 (Series)	سولر پینلز	4	1فریج + 2 پنکھے + 4 انرجی سیور بلب + 2/1 ہارس پاور موٹر
5 (Series)	سولر پینلز	5	1ٹوکا مشین + 2 پنکھے + 4 انرجی سیور بلب
6 (Series)	سولر پینلز	6	1ٹن انورٹر اے سی + 2 پنکھے + 4 انرجی سیور بلب
7 (Series)	سولر پینلز	7	1ٹن انورٹر اے سی + 4 پنکھے + 5 انرجی سیور بلب
8 (Series)	سولر پینلز	8	ٹن انورٹر اے سی + 1 فریج + 4 پنکھے + 4 انرجی سیور بلب1.5
5 + 5 (Parallel)	سولر پینلز	10	2ٹن انورٹر اے سی + 1 فریج + 6 پنکھے + 6 انرجی سیور بلب
6 + 6 (Parallel)	سولر پینلز	12	ٹن انورٹر اے سی + 1 فریج + 2/1 ہارس پاور موٹر + 4 پنکھے + 4 انرجی سیور بلب1.5
7 + 7 (Parallel)	سولر پینلز	14	ٹن انورٹر اے سی + 1 فریج + 1 ہارس پاور موٹر + 5 پنکھے + 10 انرجی سیور بلب1.5
8 + 8 (Parallel)	سولر پینلز	16	ٹن انورٹر اے سی + 2 فریج + 1 ہارس پاور موٹر + 6 پنکھے + 10 انرجی سیور بلب1.5

ICON	FUNCTION DESCRIPTION
INPUT SOURCE INFORMATION	
AC	INDICATES THE AC INPUT
PV	INDICATES THE PV INPUT
	INDICATES PV VOLTAGE, PV CURRENT, PV POWER, PV PERCENTAGE, GRID VOLTAGE, GRID POWER, & GRID PERCENTAGE
CONFIGURATION PROGRAM & FAULT INFORMATION	
	INDICATES THE SETTING PROGRAM
	INDICATES THE WARNING & FAULT CODES
	FAULT LIGHTING WITH FAULT CODES
	INDICATES OUTPUT VOLTAGE, OUTPUT CURRENT, OUTPUT POWER & OUTPUT PERCENTAGE
LOAD INFORMATION	
OVER LOAD	INDICATES OVER LOAD
	INDICATES THE LOAD LEVEL BY 0-24%, 25-49%, 50-74% & 75-100%
	
MODE OPERATION INFORMATION	
	INDICATES UNIT CONNECTS TO THE MAINS
	INDICATES UNIT CONNNECT TO THE PV PANEL
BYPASS	INDICATES LOAD IS SUPPLIED BY UTILITY POWER
	INDICATES DC/AC INVERTER CIRCUIT IS WORKING
MUTE OPERATION	
	INDICATES UNIT ALARM IS DISABLED

OPERATING MODE DESCRIPTION

OPERATION MODE	DESCRIPTION	LCD DISPLAY
INVERTER MODE	THE UNIT WILL PROVIDE OUTPUT POWER FROM SOLAR ENERGY ONLY	Power from PV energy only. 
GRID SHARING MODE	IF SOLAR ENERGY IS NOT SUFFICIENT, THE UNIT WILL PROVIDE OUTPUT POWER FROM SOLAR ENERGY & UTILITY	
LINE MODE	IF SOLAR ENERGY IS NOT AVAILABLE, THE UNIT WILL PROVIDE OUTPUT POWER FROM UTILITY	
BYPASS MODE	IF SOLAR ENERGY IS NOT AVAILABLE FOR MORE THEN 5 MINUTES, THE UNIT WILL SHIFT TO BYPASS MODE, THE UNIT WILL PROVIDE OUTPUT POWER FROM UTILITY	

INFORMATION	LCD DISPLAY
INPUT PV VOLTAGE / OUTPUT VOLTAGE (DEFAULT DISPLAY SCREEN)	
INPUT PV CURRENT	
INPUT PV POWER	
INPUT PV PERCENTAGE	
INPUT GRID VOLTAGE	
INPUT GRID POWER	
INPUT GRID PERCENTAGE	
OUTPUT CURRENT	
OUTPUT POWER IN KVA	
OUTPUT POWER IN KILO WATT	
OUTPUT PERCENTAGE	

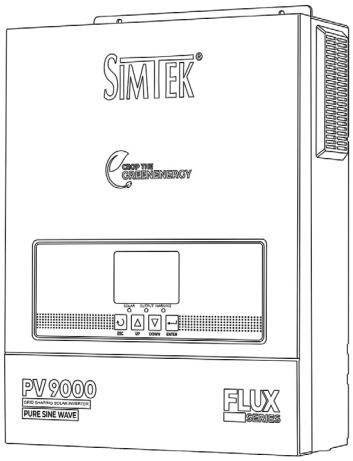
CLEARANCE AND MAINTENANCE FOR ANTI-DUST KIT

Overview

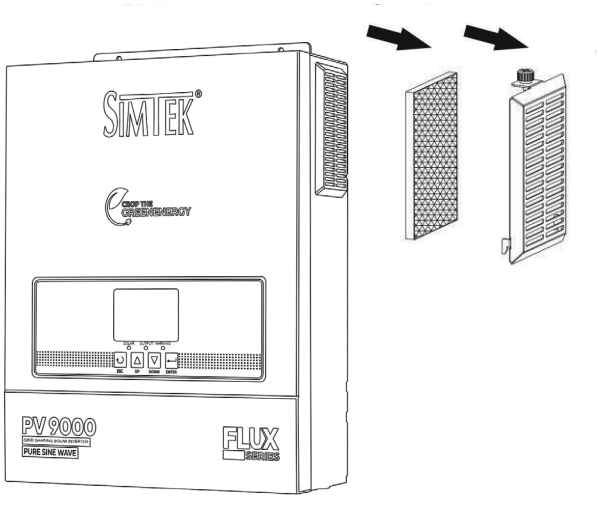
Every inverter is already installed with anti-dusk kit from factory. Inverter will automatically detect this kit and activate internal thermal sensor to adjust internal temperature. This kit also keeps dusk from your inverter and increases product reliability in harsh environment.

Clearance and Maintenance

Step 1: Please loosen the screw in counterclockwise direction on the top of the inverter.



Step 2: Then, dustproof case can be removed and take out air filter foam as shown in below chart.



Step 3: Clean air filter foam and dustproof case. After clearance, re-assemble the dust-kit back to the inverter.

NOTICE: The anti-dust kit should be cleaned from dust every one month.

USER SETTING

Press and hold the Enter button for 3-4 seconds in order to open settings menu

DISPLAY CODE	DESCRIPTION	SELECTION	ICON
0 0	AC Output Voltage	Range = 220V - 240V	
0 1	High PV Voltage Warning	Range = 400V – 440V	
0 2	Over Load Ampere	PV9000 Range = 10A – 30A PV14000 Range = 10A – 50A	
0 3	Buzzer Alarm Enable/Disable	00 = Disabled 01 = Enabled	
0 4	Soft Start	Range = 1 – 10 (1 = Slowest; 10 = Fastest)	
0 5	Low AC Voltage Warning	Range = 120V – 240V	
0 6	Low AC Voltage Warning Enable/Disable	00 = Disabled 01 = Enabled	
0 7	AC Out2(L2) Off Voltage	Range = 150V – 250V	
0 8	Save Setting	00 = Default Factory Setting 01 = User Setting	

WARNING INDICATOR

WARNING CODE	WARNING EVENT	DESCRIPTION	ICON
0 0	Short Circuit	After 3 tries inverter will shut down, restart is required.	
0 1	Inverter Over Heat	Shift to bypass mode, when temperature gets normal inverter will restart automatically.	
0 2	Over Load	After 3 tries inverter will shut down, restart is required.	
0 3	High Bus Voltage	Inverter will stop, when voltage gets within range inverter will restart automatically.	
0 4	High PV1 Voltage	Inverter will stop, when voltage gets within range inverter will restart automatically.	
0 5	High PV2 Voltage	Inverter will stop, when voltage gets within range inverter will restart automatically.	
0 6	High PV1 Current	After 3 tries inverter will shut down, restart is required.	
0 7	High PV2 Current	After 3 tries inverter will shut down, restart is required.	
0 8	Low AC Output Voltage	After 3 tries inverter will shut down, restart is required.	

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