SIMTEK® POWER SERVICES

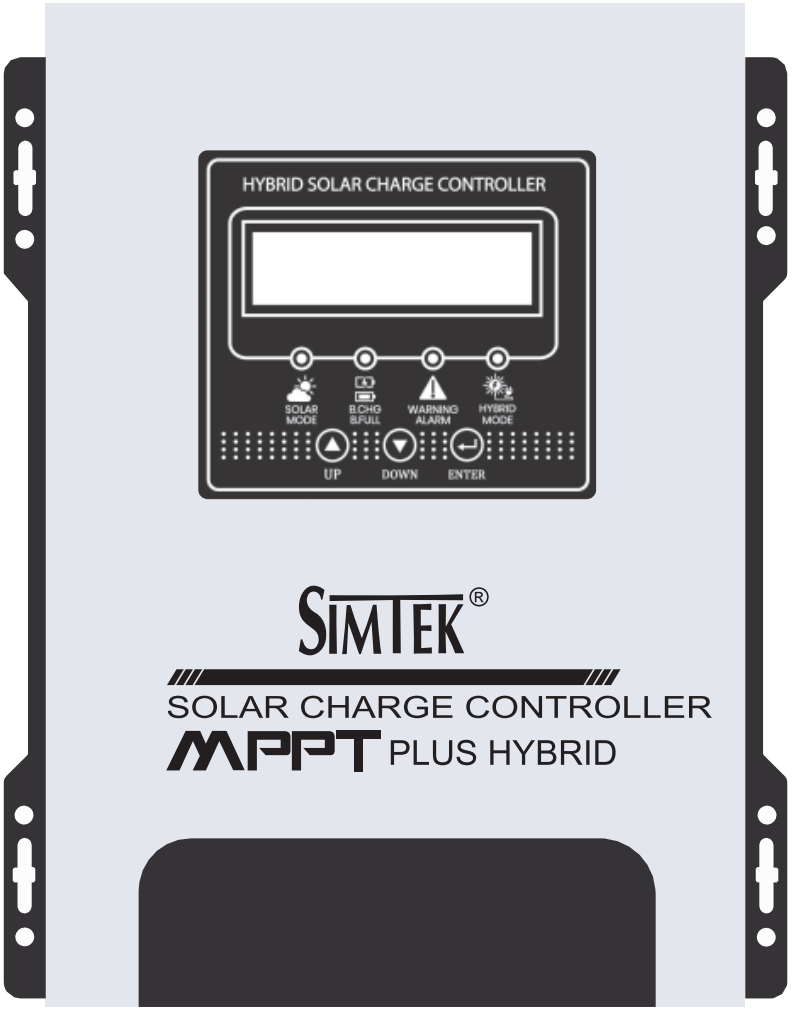
RENEWABLE ENERGY | ENERGY CONSERVATION

UPS \ INVERTERS | BATTERY CHARGERS

USER'S MANUAL

MPPT SOLAR CHARGE CONTROLLER

(HYBRID SERIES)

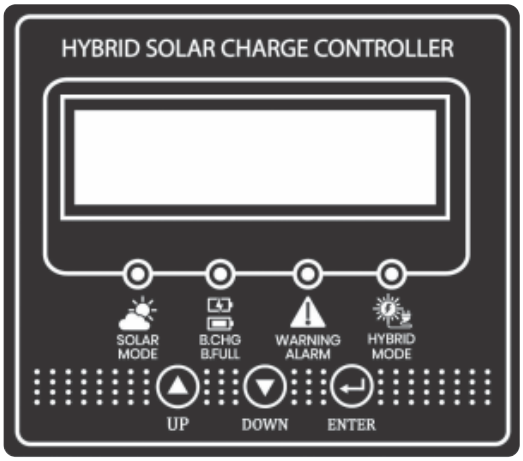


MODEL #: 1224K27 AUTO DETECT 12V\ 24V 70A 120V

MODEL #: 1224K310 AUTO DETECT 12V\ 24V 100A 170V

MODEL #: 48K470 48V 70A 170V

DISPLAY



LCD DISPLAY

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

- PV INPUT VOLTAGES AND CURRENT.
- BATTERY VOLTAGE AND CHARGING CURRENT.
- WARNING MESSAGE's.

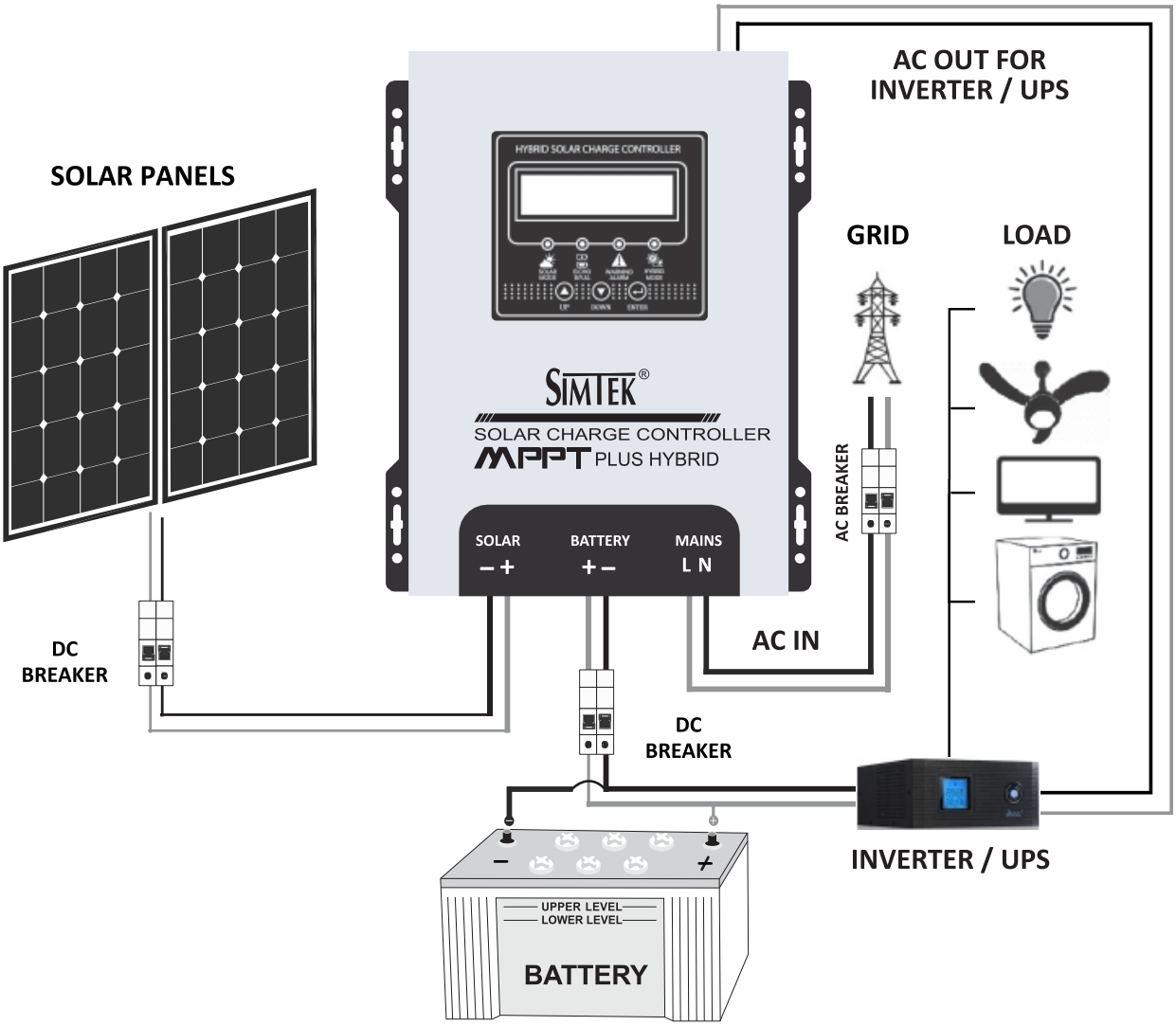
LED DISPLAY

1. YELLOW LED INDICATES MPPT IS RUNNING IN SOLAR MODE ONLY.
2. GREEN LED
    - BLINKING INDICATES BATTERY IS CHARGING.
    - STABLE INDICATES BATTERY IS FULLY CHARGED.
3. RED LED INDICATES WARNING.
4. BLUE LED INDICATES MPPT IS RUNNING IN HYBRID MODE (SOLAR + GRID).

FEATURES

- DUAL DISPLAY
    - LCD DISPLAY
    - LED INDICATIONS
- ALL PARAMETERS DISPLAY ON LCD.
- SOLAR REVERSE POLARITY PROTECTION. (MODEL #: 1224K310\48K470)
- SOLAR REVERSE CURRENT PROTECTION. (MODEL #: 1224K310\48K470)
- HIGH PV VOLTAGE WARNING.
- BATTERY OVER CHARGE PROTECTION.
- OVER CURRENT PROTECTION.
- OVER HEAT PROTECTION.
-
-
- LOW BATTERY VOLTAGE ALAR AND INDICATION.
- SMART SHIFTING BETWEEN SOLAR AND GRID.
- TEMPERATURE CONTROLLING THROUGH AUTO COOLING FAN.
- COMPATIBLE WITH ALL TYPE OF UPS AND SOLAR PANELS.

BLOCK DIAGRAM



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.
- USE ALL WIRES ACCORDING TO THE LOAD AS MENTIONED IN THE WIRE SELECTION TABLE.
- DONOT SHORT CIRCUIT THE BATTERY OR SOLAR CONNECTORS WHEN UNIT IS RUNNING.
- WHEN INSTALLING THE UNIT, FIRST INSTALL THE BATTERY.
- WHEN UNINSTALLING THE UNIT, FIRST UNINSTALL THE SOLAR.

MPPT OVERALL WORKING PRINCIPAL

12V/24V MODE

AUTO DETECT 12V CHARGING MODE OR 24V CHARGING MODE ON EVERY STARTUP.

FAN CONTROLLING AND OVER HEAT PROTECTION

AUTOMATIC TEMPERATURE CONTROLLING THROUGH COOLING FAN.

WHEN TEMPERATURE EXCEED SAFETY LEVEL CHARGING STOPS, WARNING LED(RED) STARTS BLINKING AND A MESSAGE SHOWING **"WARNING!!! OVER HEAT"** APPEARS ON LCD SCREEN. THE CHARGING REMAINS STOP TILL THE TEMPERATURE DECREASES BELOW SAFETY LEVEL.

HIGH VOLTAGE PROTECTION

WHEN SOLAR VOLTAGE EXCEEDS 150V(MODEL #: 1224K310\48K470)
CHARGING STOPS, WARNING LED(RED) STARTS BLINKING AND A MESSAGE SHOWING
"WARNING!!! HIGH PV VOLATGE" APPEARS
REMAINS STOP TILL THE VOLTAGE DECREASES BELOW SAFETY LEVEL.

OVER CHARGE PROTECTION

WHEN BATTERY VOLTAGE EXCEEDS 15V (12V CHARGING MODE) OR 30V (24V CHARGING MODE) OR 60V (48V CHARGING MODE) CHARGING STOPS, WARNING LED(RED) STARTS BLINKING AND A MESSAGE SHOWING **"WARNING!!! OVER CHARGING"** APPEARS ON LCD SCREEN. THE CHARGING REMAINS STOP TILL THE VOLTAGE DECREASES BELOW SAFETY LEVEL.

BATTERY LOW WARNING

WHEN BATTERY CAPACITY DECREASES BELOW 20%, WARNING LED(RED) STARTS BLINKING AND A MESSAGE SHOWING **"WARNING!!! LOW BATTERY"** APPEARS ON LCD SCREEN. THE MESSAGE CONTINUES TO APPEAR ON LCD TILL THE CAPACITY RISES ABOVE 20%.

WHEN BATTERY CAPACITY DECREASES BELOW 50%, MPPT SWITCHES FROM **"SOLAR CHARGING MODE"** TO **"HYBRID CHARGING MODE"**.

WHEN BATTERY REACHES 100% CAPACITY, MPPT RETURNS TO **"SOLAR CHARGING MODE".**

STAND BY MODE

WHEN SOLAR ENERGY IS INSUFFICIENT TO CHARGE THE BATTERY, MPPT SWITCHES TO **"STAND BY MODE"**, HYBRID MODE LED(BLUE) TURNS ON AND A MESSAGE SHOWING **"PV INTERRUPTED"** APPEARS ON LCD SCREEN.

IN **"STAND BY MODE"** GRID SUPPLY IS TURNED ON SO THAT BATTERY CAN BE CHARGED THROUGH GRID.

SOLAR CHARGING MODE

WHEN SOLAR ENERGY IS SUFFICIENT TO CHARGE THE BATTERY, MPPT REMAINS IN **"SOLAR CHARGING MODE".**

WHEN MPPT IS CHARGING THE BATTERY THROUGH SOLAR POWER, SOLAR MODE LED(Y REMAINS ON.

HYBRID CHARGING MODE

WHEN EVER BATTERY CAPACITY DECREASES BELOW 50% OR SOLAR ENERGY IS INSUFFICIENT TO CHARGE THE BATTERY, MPPT SWITCHES TO **"HYBRID CHARGING MODE",** TURNS HYBRID MODE LED(BLUE) ON AND REMAINS IN **"HYBRID CHARGING MODE"** TILL BATTERY REACHES 100% CAPACITY.

BATTERY CHARGING MODES

THREE STAGE CHARGING TOPOLOGY IS IMPLEMENTED IN THE CONTROLLER TO INCREASE THE LIFE AND MAINTAIN THE GRAVITY OF BATTERY.

1. CC MODE OR CONSTANT CURRENT MODE.
   (BATTERY CHARGING LED(GREEN) KEEPS ON BLINKING AT AN INTERVAL OF 1 SECO
2. CV MODE OR CONSTANT VOLTAGE MODE.
   (BATTERY CHARGING LED(GREEN) KEEPS ON BLINKING AT AN INTERVAL OF 1 SECO
3. FLOAT MODE OR TRICKLE CHARGING MODE.
   (BATTERY CHARGING LED(GREEN) BECOMES STABLE AND A MESSAGE SHOWING **"BATTERY CHARGED"** APPEARS ON LCD SCREEN)

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.

1. BATTERY CONNECTION

⚠ ALL WIRING MUST BE PERFORMED BY A PROFESSIONAL PERSON

⚠ CONNECTING THE BATTERY WITH SUITABLE CABLE's 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 BATTERY WILL DAMAGE THE CONTROLLER.

1. PLEASE CHOOSE A SUITABLE BATTERY CABLE WITH CORRECT CONNECTOR WHICH CAN WELL FIT INTO THE BATTERY TERMINALS.
2. USE A SUITABLE SCREW DRIVER TO UNSCREW THE TERMINALS AND FIT THE BATTERY 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.

3. USE BATTERY WIRES ACCORDING TO THE LOADS AS SHOWN BELOW.

LOAD IN AMPS	SIZE OF WIRE
10 AMP – 20 AMP	4 MM – 6MM
20 AMP – 35 AMP	6 MM – 10 MM
35 AMP – 50 AMP	10 MM – 16 MM
50 AMP – 65 AMP	16 MM – 25 MM
65 AMP – 100 AMP	25 MM

2. PV CONNECTION

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

1. BEFORE CONNECTING TO PV MODULES, PLEASE INSTALL A SEPARATE DC CIRCUIT BREAKER BETWEEN MPPT AND PV MODULES.
2. IT IS VERY IMPORTANT FOR SYSTEM SAFETY AND EFFICIENT OPERATION TO USE APPROPRIATE CABLE FOR PV MODULE CONNECTION.

INPUT CURRENT	SIZE OF WIRE
5 AMP – 7 AMP	4 MM
8 AMP – 15 AMP	6 MM
16 AMP – 30 AMP	10 MM

3. PV MODULE SELECTION

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

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

PV INPUT VOLTAGE RANGE

MODEL #: 1224K27

FOR 12V SYSTEM 30V – 120V

FOR 24V SYSTEM 60V – 120V

MODEL #: 1224K310

FOR 12V SYSTEM 30V – 170V

FOR 24V SYSTEM 60V – 170V

MODEL #: 48K470

48V SYSTEM – 170V

4. PV MODULE ARRANGEMENT

MANY KINDS OF SOLAR PANELS ARE AVAILABLE IN THE MARKET AS 150W, 250W, 330W, 450W, 550W, 660W.

150W – 170W SOLAR PANELS ARRANGEMENT FOR MPPT

No. OF PANELS	MODEL #: 1224K27		MODEL #: 1224K310		MODEL #: 48K470
	12V MAX. 1000W	24V MAX. 2000W	12V MAX. 1500W	24V MAX. 3000W	48V MAX. 4000W
2	2-IN SERIES 1 GROUP	-	2-IN SERIES 1 GROUP	-	-
3	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	-
4	4-IN SERIES 1 GROUP	4-IN SERIES 1 GROUP	4-IN SERIES 1 GROUP	4-IN SERIES 1 GROUP	-
5	-	-	5-IN SERIES 1 GROUP	5-IN SERIES 1 GROUP	-
6	3 IN SERIES 2 GROUP	3 IN SERIES 2 GROUP	6-IN SERIES 1 GROUP	6-IN SERIES 1 GROUP	6-IN SERIES 1 GROUP
7	-	-	-	-	-
8	-	4-IN SERIES 2 GROUP	4-IN SERIES 2 GROUP	4-IN SERIES 2 GROUP	-
10	-	-	5-IN SERIES 2 GROUP	5-IN SERIES 2 GROUP	-
12	-	4 IN SERIES 3 GROUP	-	6-IN SERIES 2 GROUP	6-IN SERIES 2 GROUP
14	-	-	-	-	-
15	-	-	-	5-IN SERIES 3 GROUP	-
18	-	-	-	6-IN SERIES 3 GROUP	6-IN SERIES 3 GROUP
20	-	-	-	-	-
21	-	-	-	-	-
24	-	-	-	-	6-IN SERIES 4 GROUP
28	-	-	-	-	-

220W – 250W SOLAR PANELS ARRANGEMENT FOR MPPT

No. OF PANELS	MODEL #: 1224K27		MODEL #: 1224K310		MODEL #: 48K470
	12V MAX. 1000W	24V MAX. 2000W	12V MAX. 1500W	24V MAX. 3000W	48V MAX. 4000W
1	1 DIRECT	-	1 DIRECT	-	-
2	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	-
3	-	-	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP
4	2-IN SERIES 2 GROUP	2-IN SERIES 2 GROUP	2-IN SERIES 2 GROUP	2-IN SERIES 2 GROUP	-
6	-	2-IN SERIES 3 GROUP	3-IN SERIES 2 GROUP	3-IN SERIES 2 GROUP	3-IN SERIES 2 GROUP
8	-	2-IN SERIES 4 GROUP	-	2-IN SERIES 4 GROUP	-
9	-	-	-	3-IN SERIES 3 GROUP	3-IN SERIES 3 GROUP
12	-	-	-	3-IN SERIES 4 GROUP	3-IN SERIES 4 GROUP
15	-	-	-	-	3-IN SERIES 5 GROUP

310W – 380W SOLAR PANELS ARRANGEMENT FOR MPPT

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No. OF PANELS	MODEL #: 1224K27		MODEL #: 1224K310		MODEL #: 48K470
	12V MAX. 1000W	24V MAX. 2000W	12V MAX. 1500W	24V MAX. 3000W	48V MAX. 4000W
1	1 DIRECT	-	1 DIRECT	-	-
2	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	-
3	-	-	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP
4	-	2-IN SERIES 2 GROUP	2-IN SERIES 2 GROUP	2-IN SERIES 2 GROUP	-
6	-	2-IN SERIES 3 GROUP	-	3-IN SERIES 2 GROUP	3-IN SERIES 2 GROUP
8	-	-	-	2-IN SERIES 4 GROUP	-
9	-	-	-	3-IN SERIES 3 GROUP	3-IN SERIES 3 GROUP
12	-	-	-	-	3-IN SERIES 4 GROUP

415W – 460W SOLAR PANELS ARRANGEMENT FOR MPPT

No. OF PANELS	MODEL #: 1224K27		MODEL #: 1224K310		MODEL #: 48K470
	12V MAX. 1000W	24V MAX. 2000W	12V MAX. 1500W	24V MAX. 3000W	48V MAX. 4000W
1	1 DIRECT	-	1 DIRECT	-	-
2	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	-
3	-	-	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP
4	-	2-IN SERIES 2 GROUP	-	2-IN SERIES 2 GROUP	-
6	-	-	-	3-IN SERIES 2 GROUP	3-IN SERIES 2 GROUP
9	-	-	-	-	3-IN SERIES 3 GROUP

525W – 550W SOLAR PANELS ARRANGEMENT FOR MPPT

No. OF PANELS	MODEL #: 1224K27		MODEL #: 1224K310		MODEL #: 48K470
	12V MAX. 1000W	24V MAX. 2000W	12V MAX. 1500W	24V MAX. 3000W	48V MAX. 4000W
1	1 DIRECT	-	1 DIRECT	-	-
2	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	-
3	-	-	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP
4	-	2-IN SERIES 2 GROUP	-	2-IN SERIES 2 GROUP	-
6	-	-	-	3-IN SERIES 2 GROUP	3-IN SERIES 2 GROUP

640W – 660W SOLAR PANELS ARRANGEMENT FOR MPPT

No. OF PANELS	MODEL #: 1224K27		MODEL #: 1224K310		MODEL #: 48K470
	12V MAX. 1000W	24V MAX. 2000W	12V MAX. 1500W	24V MAX. 3000W	48V MAX. 4000W
1	1 DIRECT	-	1 DIRECT	-	-
2	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	2-IN SERIES 1 GROUP	-
3	-	-	-	3-IN SERIES 1 GROUP	3-IN SERIES 1 GROUP
4	-	2-IN SERIES 2 GROUP	-	2-IN SERIES 2 GROUP	-
6	-	-	-	-	3-IN SERIES 2 GROUP

6. DRY CONTACT

THERE IS ONE DRY CONTACT AVAILABLE ON THE CONNECTOR BOX. IT COULD BE USED TO RUN DC LOAD (5A) OR COULD BE USED TO DELIVER SIGNAL TO EXTERNAL DEVICE WHEN BATTERY VOLTAGE REACHES DC LOAD OFF LEVEL.

MPPT STATUS	CONDITION	DRY CONTACT PORT	
		NC & C	NO & C
POWER OFF	UNIT IS OFF & NO OUTPUT IS POWERED	CLOSE	OPEN
POWER ON	BATTERY VOLTAGE > DC LOAD OFF VOLTAGE	OPEN	CLOSE
	BATTERY VOLTAGE < DC LOAD OFF VOLTAGE	CLOSE	OPEN

7. USER SETTINGS MENU

PRESS AND HOLD THE ENTER BUTTON FOR ABOUT 3/4 SECONDS UNTIL SETTINGS MENU APPEAR ON THE LCD SCREEN.

PRESSING THE UP BUTTON WILL MAKE AN INCREMENT OF 0.1V IN THE RESPECTIVE VOLTAGE, SIMILARLY DOWN BUTTON WILL MAKE A DECREMENT OF 0.1V IN THE RESPECTIVE VOLTAGE.

AFTER MAKING THE DESIRED CHANGES, PRESSING THE ENTER BUTTON WILL MAKE A SHIFT TO THE NEXT SETTING.

1. BATTERY FULL VOLTAGE

   SELECTABLE BULK & CONSTANT VOLTAGE CHARGING RANGE (1st & 2nd STAGE CHARGING VOLTAGE)

12V MODE	24V MODE	48V MODE
UPTO 14.9V MAXIMUM	UPTO 29.9V MAXIMUM	UPTO 59.9V MAXIMUM

2. FLOAT CHARGING VOLTAGE

   SELECTABLE FLOAT/3RD STAGE CHARGING VOLTAGE

3. BACK TO SOLAR MODE VOLTAGE

SELECTABLE VOLTAGE WHEN TO SHIFT FROM HYBRID/UTILITY MODE TO SOLAR MODE i.e., TURN OFF UPS/INVERTER SUPPLY

4. BACK TO HYBRID/UTILITY MODE VOLTAGE

SELECTABLE VOLTAGE WHEN TO SHIFT FROM SOLAR MODE TO HYBRID/UTILITY MODE i.e., TURN ON UPS/INVERTER SUPPLY

5. DC LOAD OFF VOLTAGE

SELECTABLE VOLTAGE TO TURN OFF/DISCONNECT DC LOAD FROM BATTERY

6. DC LOAD ON VOLTAGE

SELECTABLE VOLTAGE TO TURN ON/RECONNECT DC LOAD FROM BATTERY

7. LOW BATTERY WARNING & ALARM VOLTAGE

SELECTABLE LOW BATTERY WARNING & ALARM VOLTAGE

8. LOW BATTERY ALARM ON/OFF

SELECTABLE OPTION TO TURN LOW BATTERY ALARM ON OR OFF

LOW BATTERY ALARM	CONDITION	ALARM STATUS
POWERED OFF	BATTERY VOLTAGE > LOW BATTERY ALARM VOLTAGE	ALARM IS OFF
	BATTERY VOLTAGE < LOW BATTERY ALARM VOLTAGE	ALARM IS OFF
POWERED ON	BATTERY VOLTAGE > LOW BATTERY ALARM VOLTAGE	ALARM IS OFF
	BATTERY VOLTAGE < LOW BATTERY ALARM VOLTAGE	ALARM IS ON (ING EVERY SECOND)

9. BACK TO DEFAULT SETTINGS

DISCARD ALL SETTINGS AND RETURN TO FACTORY SETTINGS

FACTORY SETTINGS

1. **BATTERY FULL VOLTAGE**

12V = 14.6V **24V** = 29.2V **48V** = 58.4V

2. **FLOAT CHARGE VOLTAGE**

12V = 13.8V **24V** = 27.6V **48V** = 55.2V

3. **BACK TO SOLAR VOLTAGE**

12V = 14.0V **24V** = 28.0V **48V** = 56.0V

4. **BACK TO HYBRID/UTILITY VOLTAGE**

12V = 11.5V **24V** = 23.0V **48V** = 46.0V

5. **DC LOAD OFF VOLTAGE**

12V = 10.0V **24V** = 20.0V **48V** = 40.0V

6. **DC LOAD ON VOLTAGE**

12V = 11.5V **24V** = 23.0V **48V** = 46.0V

7. **LOW BATTERY WARNING VOLTAGE**

12V = 10.5V **24V** = 21.0V **48V** = 42.0V

8. **LOW BATTERY ALARM**
   - ALARM STATUS = POWERED ON (ING EVERY SECOND)

8. ERROR MESSAGE

WHEN A MALFUNCTION OCCURS, AN ERROR MESSAGE WILL BE DISPLAYED ON THE LCD SCREEN. FAULTS INCLUDE SYSTEM FAULTS AND MPPT FAULTS.

IN SOME CASES, YOU MAY BE ADVISED TO CONTACT **SIMTEK**, PLEASE PROVIDE THE FOLLOWING INFORMATION.

INFORMATION ABOUT THE MPPT:

- MODEL NUMBER
- ERROR MESSAGE ON THE LCD
- A SHORT DESCRIPTION OF THE PROBLEM
- DC INPUT VOLTAGE
- CAN YOU REPRODUCE THE FAILURE? IF SO, HOW?
- HAS THIS PROBLEM OCCURRED IN THE PAST?
- WHAT WERE THE ENVIRONMENTAL CONDITIONS WHEN THE PROBLEM OCCURRED?

INFORMATION ABOUT THE PHOTOVOLTAIC PANELS:

- PV PANEL MANUFACTURER'S NAME AND MODEL
- PANEL OUTPUT POWER
- VOC OF THE PANEL
- VMP OF THE PANEL
- IMP OF THE STRING/ARRAY
- THE NUMBER OF PANELS IN EACH STRING

WARNING MESSAGE

WARNING MESSAGE	DESCRIPTION	SUGGESTION
OVER HEAT	TEMPERATURE IS TOO HIGH	1. CHECK THE DEVICE TEMPERATURE, THE INSTALLATION PLACE SHOULD BE SHADED AND AIRY. IT IS NOT RECOMMENDED TO EXPOSE THE UNIT DIRECTLY TO STRONG SUNLIGHT TO PREVENT OVERHEATING AND CAUSE POWER DERATING. 2. IF THE FAULT MESSAGE STILL EXISTS, CONTACT THE MANUFACTURER
OVER CHARGE	BATTERY VOLTAGE IS TOO HIGH	1. DISCONNECT THE DC SWITCH & CHECK THE BATTERY CONNECTIONS, ENSURE THERE IS NO LOSSING BETWEEN MPPT AND BATTERY CONNECTIONS. 2. IF THE FAULT MESSAGE STILL EXISTS, CONTACT THE MANUFACTURER
HIGH PV VOLTAGE	PV PANEL VOLTAGE HAS EXCEEDED DEVICE RATED MAXIMUM INPUT VOLTAGE	1. DISCONNECT THE DC SWITCH IMMEDIATELTY AND CONFIRM THE VOLTAGE ARE BELOW THE DEVICE RATED MAXIMUM INPUT VOLTAGE. 2. AFTER THE NORMAL VOLTAGE IS RESTORED, IF THE FAULT MESSAGE STILL EXISTS, CONTACT THE MANUFACTURER
LOW BATTERY	BATTERY VOLTAGE IS TOO LOW	1. DISCONNECT ANY LOAD RUNNING ON BATTERY IMMEDIATELTY AND CONFIRM THE VOLTAGE. 2. AFTER THE NORMAL VOLTAGE IS RESTORED, IF THE FAULT MESSAGE STILL EXISTS, CONTACT THE MANUFACTURER

ERROR MESSAGE

ERROR MESSAGE	DESCRIPTION	SUGGESTION
PV NOT CONNECTED	PV PANEL VOLTAGE IS TOO LOW	1. CHECK PV PANEL VOC VOLTAGE, THEY MUST BE GREATER THAN 1.5 TIMES BATTERY VOLTAGES 2. IF THE FAULT MESSAGE STILL EXISTS, CONTACT THE MANUFACTURER
FAN FAULT	TEMPERATURE SENSOR FAULTY	1. TEMPERATURE SENSOR IS FAULTY; DEVICE MUST BE SENT TO SERVICE CENTRE FOR REPAIRING

WARRANTY CARD

MODEL #:

1224K27 ☐

1224K310 ☐

48K470 ☐

DATE OF PURCHASE: _____

WARRANTY VALID UPTO: _____

CUSTOMER INFORMATION: _____

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WARRANTY TERMS & CONDITIONS

WARRANTY IS AGAINST MANUFACTURING DEFECT. ANY DEFECTIVE PRODUCT WILL BE REPAIRED FREE OF COST WITHIN THE PERIOD OF WARRANTY SUBJECT TO FOLLOWING CONDITIONS.

WHEN ANY FAULT OCCURS TO THE PRODUCT, PLEASE CONTACT COMPANY HELP LINE \ DEALER FOR REPAIR.

DEALER'S STAMP

WWW.SIMTEK.COM.PK