# LOW FREQUENCY OFF GRID SOLAR INVERTER

## PV3000 MPK SERIES (1KW-6KW)

MUST
SOLAR CONTROLLER
SOLAR INVERTER/CHARGER
100% PURE SINE WAVE SOLAR INVERTER
SELECT
MUST
SOLAR CONTROLLER
SOLAR INVERTER/CHARGER
100% PURE SINE WAVE SOLAR INVERTER
SELECT

**THREE COLORS OPTION**

● RED
● SILVER
● GREEN

PV3000 MPK series is a multi-function inverter ,combining functions of inverter and mppt solar charger controller, solar charger and battery charger to offer uninterruptible power support with portable size. The comprehensive LCD display offers user-configurable and easy-accessible button operation such as battery charging current, AC/solar charger priority, and selectable input voltage based on different applications.

Rated Power
1KW-6KW

Battery DC voltage
12V, 24V, 48V

Wide AC input range
155-272Vac / 96-132Vac

Wide frequency
40HZ-80HZ

3 times surge power
based on
capacity 1KW-6KW

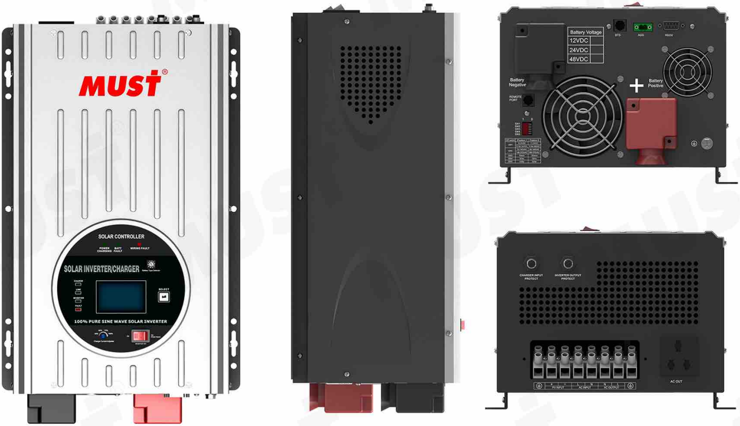
Pure copper
UI transformer

Battery smart
charge design

Multi protection

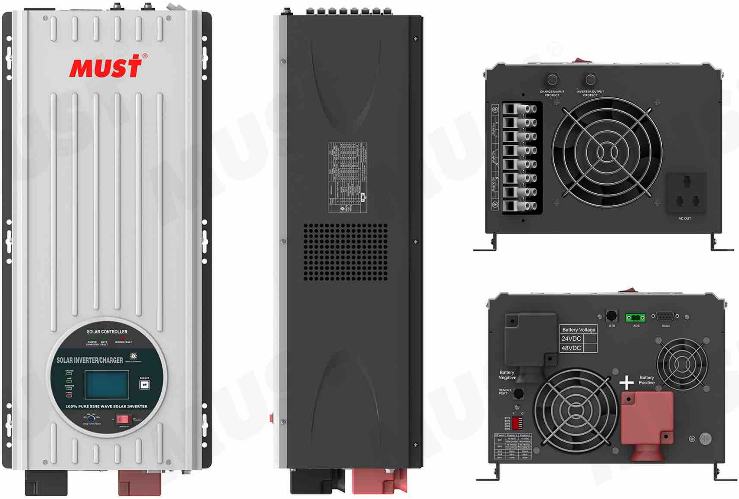
## Appearance

MUST


MUST
SOLAR CONTROLLER
POWER CHARGING
BATT FAULT
WIRING FAULT
SOLAR INVERTER/CHARGER
CHARGE
LINE
INVERTER
FAULT
SELECT
100% PURE SINE WAVE SOLAR INVERTER
Battery Voltage
12VDC
24VDC
48VDC
BTS
AGS
RS232
Battery Negative
Battery Positive
REMOTE PORT
CHARGER INPUT PROTECT
INVERTER OUTPUT PROTECT
PV INPUT
AC INPUT
AC OUTPUT
AC OUT

**(1-3KW)**

MUST


MUST
SOLAR CONTROLLER
SOLAR INVERTER/CHARGER
SELECT
100% PURE SINE WAVE SOLAR INVERTER
CHARGER INPUT PROTECT
INVERTER OUTPUT PROTECT
AC OUT
BTS
AGS
RS232
Battery Voltage
24VDC
48VDC
Battery Negative
Battery Positive
REMOTE PORT

**(4-6KW)**

# PRODUCT FEATURES

## SMART & INTELLIGENT FEATURES

- LCD display ,easy to read how inverter operates on LCD screen
- Compatible to generator
- 5 -levels DIP switch ,offering customized performance
- 9 - levels battery selector ,Enable to charge Gel , lead-acid battery

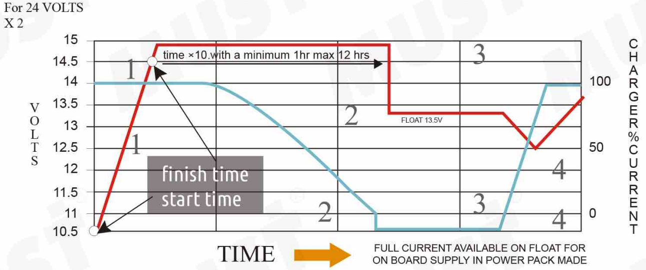
- DC(Solar)/AC prority optional
- 4 levels charge current adjustable
- With RS232 communication port
- With BTS & AGS , optimazing battery performance & start generator automatically
- Power saver Switch , Enable to minimize standby consumption

## Pure sine wave output

Perfectly driving inductive load current

RIGOL
Horizontal
Period
Freq
Rise Time
Fall Time
+Width
-Width
Auto
Back
Undo
1 200mV
2 100mV
3 1.00V
4 1.00V

ADJUSTABLE TIME DEPENDING ON BATTERY BANK SIZE



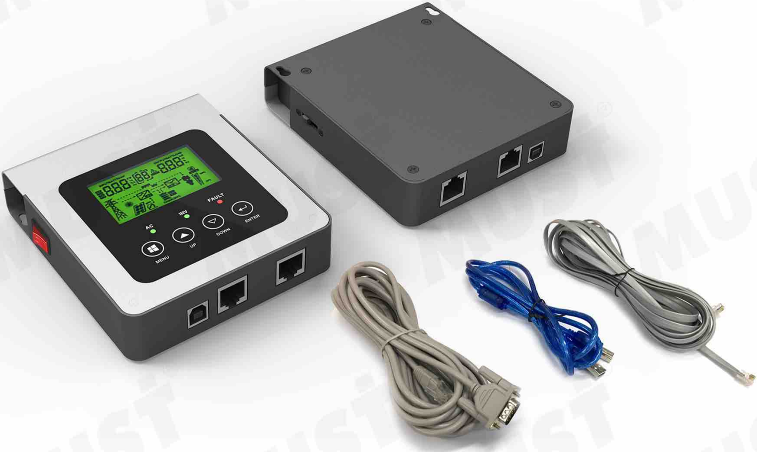
THE NEW BATTERY CHARGERS AND BOOTSTERS OFFER THE FASTEST CHARGE RATE CURRENTLY AVAILABLE

STEP 1 = CONSTANT CURRENT CHARGE
STEP 2 = ABSORPTION CHARGE AT 14.4/14.8 V
STEP 3 = CONSTANT VOLTAGE AT 13.5 VOLTS
STEP 4 = LOW VOLTAGE RESETTO STEP 1

## Smart Battery Chargers

MUST

Smart battery charger design for optimized battery performance.


FAULT
INV
AC
MENU
UP
DOWN
ENTER

## Remote control

Control with a wired remote control panel

The remote control is particularly suitable when the power-source manager is installed behind a casing or in a place that prevents you from accessing the device. The remote control allows you to switch the power saving mode on/off easily. Please note that remote control panel is optional, not included in inverter package.

## LCD display, easy to read how inverter operates on LCD screen

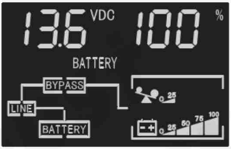
MUST

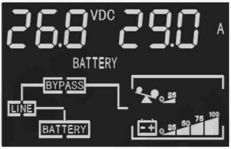
MUST

PV
BATT
CHG.STA
POWER SYSTEM
Battery typ
1-6 AC Priority
7-9 Battery Priority
0 AC Priority Without Charge
CHARGE
LINE
INVERTER
FAULT
229 VAC 50.0 Hz
INPUT
LINE
INV
BATTERY
SELECT
ine Wave Combined Inverter & Charge
50% 75%
25% 100%
Power saver auto
Power saver

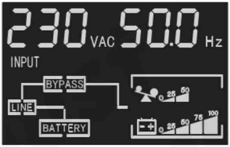
## Line Mode

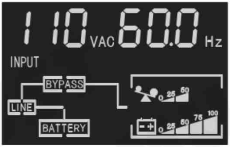
When utility is the unit the battery from the utility,LCD indicate charge current.


13.6 VDC
100 %
BATTERY
BYPASS
LINE
BATTERY
0 25
0 25 50 75 100


26.8 VDC
29.0 A
BATTERY
BYPASS
LINE
BATTERY
0 25
0 25 50 75 100

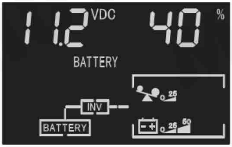
In utility mode the unit provide output power from the utility, the indication and displays are following figures:

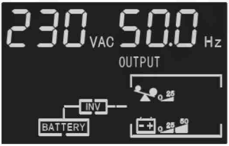

230 VAC
50.0 Hz
INPUT
BYPASS
LINE
BATTERY
0 25 50
0 25 50 75 100

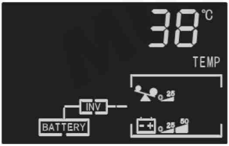

110 VAC
60.0 Hz
INPUT
BYPASS
LINE
BATTERY
0 25 50
0 25 50 75 100

## Battery Mode

In battery mode the unit will provide output power from battery or PV, LCD indicate battery capacity


11.2 VDC
40 %
BATTERY
INV
BATTERY
0 25
0 25 50


230 VAC
50.0 Hz
OUTPUT
INV
BATTERY
0 25
0 25 50


38 ℃
TEMP
INV
BATTERY
0 25
0 25 50

## Fault Mode

When inverter fault, the indication and displays are as following figures:

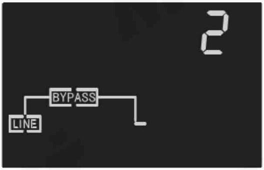
**1** ------- fan jam

**2** ------- overload

**3/6/7** ------- output short circuit

**4** ------- over temperature

**8/9** ------- battery over voltage.


2
BYPASS
LINE

# PRODUCT DETAILS

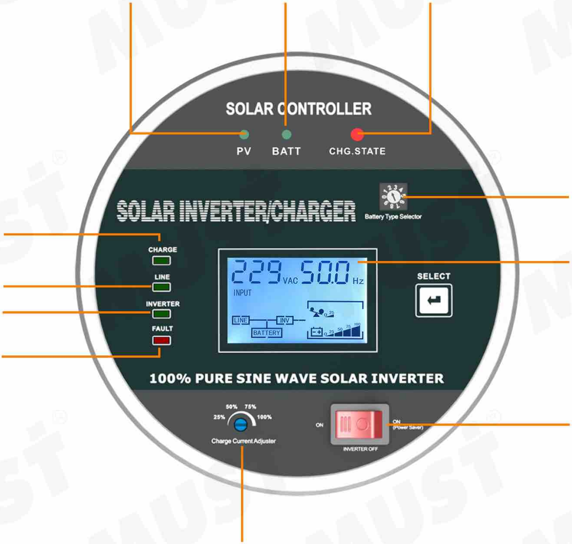
MUST HELP YOU CONTROL EVERY DETAIL

Details reflect quality

PV voltage
normal

Battery voltage
normal

Charging


SOLAR CONTROLLER
PV
BATT
CHG.STATE
SOLAR INVERTER/CHARGER
Battery Type Selector
CHARGE
LINE
INVERTER
FAULT
229 VAC 50.0 Hz
INPUT
LINE
INV
BATTERY
SELECT
100% PURE SINE WAVE SOLAR INVERTER
25%
50%
75%
100%
Charge Current Adjuster
ON
ON (Power Saver)
INVERTER OFF

Battery Type Selector

AC Charge

LCD display

AC power on

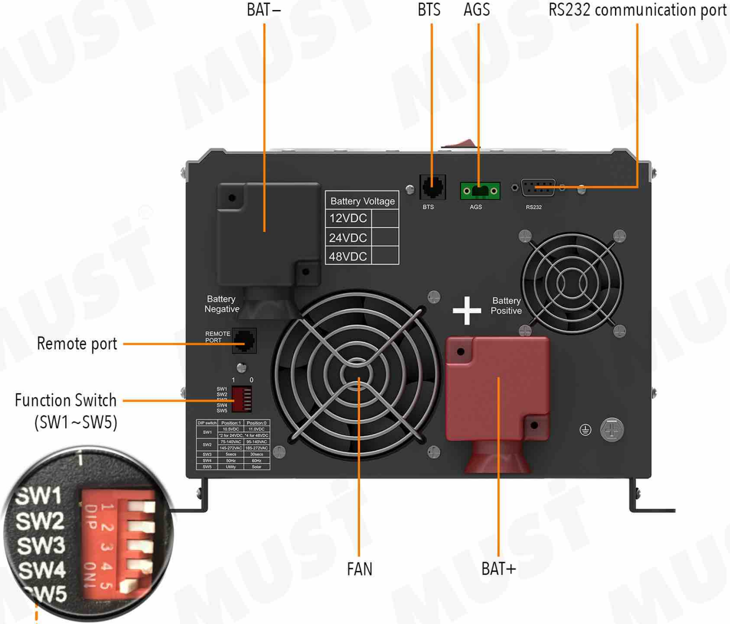
Inverter mode

Fault

Switch ON/OFF

Charge Current Adjuster:25%,50%,75%1,00%.
(Optional)

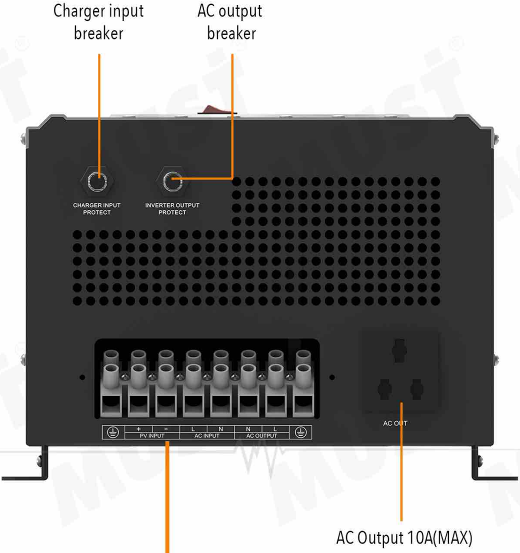
MUST

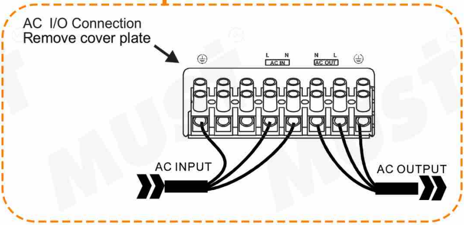

BAT–
BTS
AGS
RS232 communication port
Battery Voltage
12VDC
24VDC
48VDC
BTS
AGS
RS232
Battery Negative
Battery Positive
Remote port
REMOTE PORT
Function Switch
(SW1～SW5)
SW1
SW2
SW3
SW4
SW5
DIP
ON
1
2
3
4
5
FAN
BAT+

| DIP switch NO. | Switch function | | Position:1 | Position:0 |
|---|---|---|---|---|
| SW1 | Low battery trip volt | | 10.5VDC | 11.0VDC |
| | | | *2 for 24VDC, *4 for 48VDC | |
| SW2 | AC input range/ (AVR) | 120VAC | 75-140VAC | 95-140VAC |
| | | 230VAC | 145-272VAC | 185-272VAC |
| SW3 | Power saver auto setting | | Detect load per 5ecs | Detect load per 30ecs |
| SW4 | O/P frequency setting | | 50Hz | 60Hz |
| SW5 | Low battery trip volt | | Utility priority | Solar priority |

Tabledip switch function setting

MUST

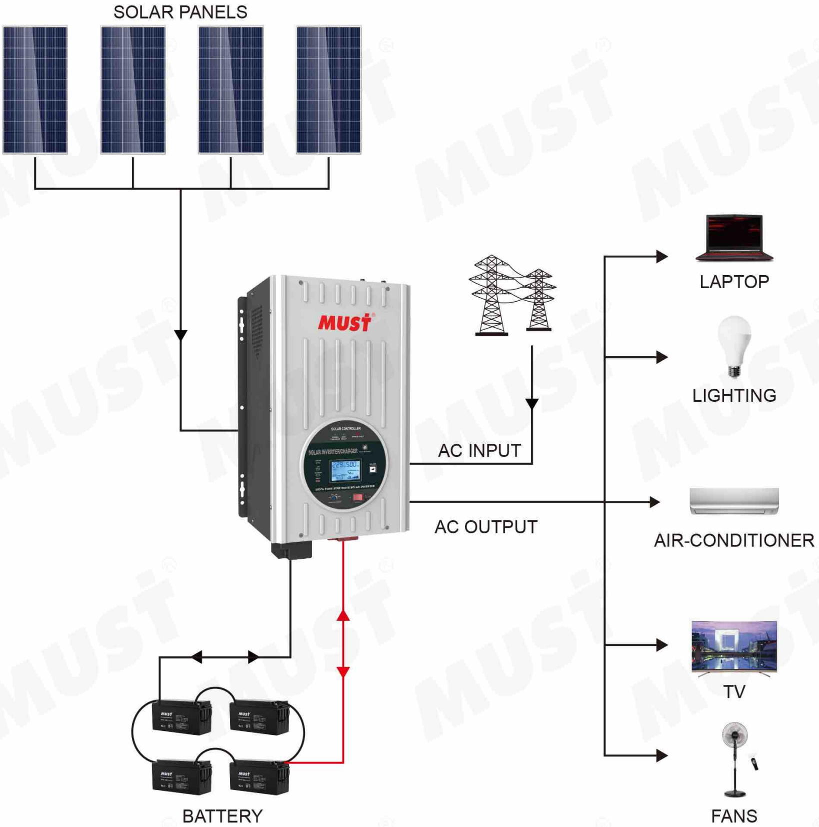

Charger input breaker
AC output breaker
CHARGER INPUT PROTECT
INVERTER OUTPUT PROTECT
+ − PV INPUT
L N AC INPUT
N L AC OUTPUT
AC OUT
AC Output 10A(MAX)


AC I/O Connection
Remove cover plate
L N AC IN
N L AC OUT
AC INPUT
AC OUTPUT

# INVERTER SYSTEM CONNECTION

MUST

# SOLAR INVERTER+BATTERY+SOLAR PANELS +GRID + APPLICATION LOADS


SOLAR PANELS
MUST
SOLAR CONTROLLER
SOLAR INVERTER/CHARGER
100% PURE SINE WAVE SOLAR INVERTER
AC INPUT
AC OUTPUT
LAPTOP
LIGHTING
AIR-CONDITIONER
TV
FANS
BATTERY

MUST

# PRODUCT PARAMETERS

## MAKE SURE EACH PARAMETER IS TRUE

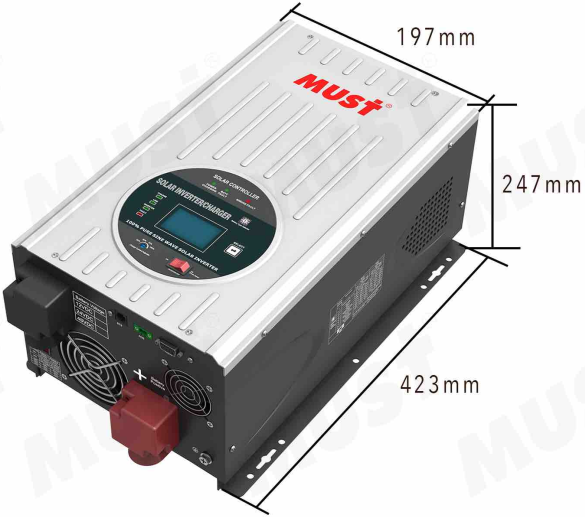
Learn more about the product

| MODEL | | PV30-1KW MPK | | PV30-1.5KW MPK | | PV30-2KW MPK | | PV30-3KW MPK | | PV30-4KW MPK | | PV30-5KW MPK | | PV30-6KW MPK | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nominal Battery System Voltage | | 12VDC | 24VDC | 12VDC | 24VDC | 12VDC | 24VDC | 12VDC | 24VDC | 24VDC/48VDC | | 24VDC/48VDC | | 24VDC/48VDC | |
| **INVERTER OUTPUT** | Rated Power | 1KW | | 1.5KW | | 2KW | | 3KW | | 4KW | | 5KW | | 6KW | |
| | Surge Rating (20ms) | 3KW | | 4.5KW | | 6KW | | 9KW | | 12KW | | 15KW | | 18KW | |
| | Capable Of Starting Electric Motor | 1HP | | 1HP | | 1HP | | 2HP | | 2HP | | 3HP | | 3HP | |
| | Waveform | Pure sine wave/ same as input (bypass mode) | | | | | | | | Pure sine wave/ same as input (bypass mode) | | | | | |
| | Nominal Output Voltage RMS | 100V/110V/120VAC 220V/230V/240VAC(+/-10% RMS) | | | | | | | | 100V/110V/120VAC<br>220V/230V/240VAC | | 220V/230V/240VAC | | | |
| | Output Frequency | 50Hz/60Hz +/-0.3 Hz | | | | | | | | 50Hz/60Hz +/-0.3 Hz | | | | | |
| | Inverter Efficiency(Peak) | >88% | | | | | | | | >88% | | | | | |
| | Line Mode Efficiency | >95% | | | | | | | | >95% | | | | | |
| | Power Factor | 1.0 | | | | | | | | 1.0 | | | | | |
| | Typical Transfer Time | 10ms(max) | | | | | | | | 10ms(max) | | | | | |
| **AC INPUT** | Voltage | 230VAC | | | | | | | | 230VAC | | | | | |
| | Selectable Voltage Range | 96~132VAC 155~280VAC(For Personal Computers) | | | | | | | | 96~132VAC/155~280VAC(For Personal Computers) | | | | | |
| | Frequency Range | 50Hz/60Hz (Auto sensing) 40-80Hz | | | | | | | | 50HZ/60HZ (Auto sensing) 40-80Hz | | | | | |
| **BATTERY** | Minimum Start Voltage | 10.0VDC /10.5VDC for12VDC mode (*2 for 24VDC, ) | | | | | | | | 20.0VDC~21.0VDC /40.0VDC~42.0VDC | | | | | |
| | Low Battery Alarm | 10.5VDC+/-0.3V for12VDC mode (*2 for 24VDC, ) | | | | | | | | 21.0VDC+/-0.6V /42.0VDC+/-1.2V | | | | | |
| | Low Battery Cutoff | 10.0VDC+/-0.3V for12VDC mode (*2 for 24VDC, ) | | | | | | | | 20.0VDC+/-0.6V /40.0VDC+/-1.2V | | | | | |
| | High Voltage Alarm | 16.0VDC+/-0.3V for12VDC mode (*2 for 24VDC, ) | | | | | | | | 32.0VDC+/-0.6V /64.0VDC+/-1.2V | | | | | |
| | High Battery Voltage Recover | 15.5VDC+/-0.3V for12VDC mode (*2 for 24VDC, ) | | | | | | | | 31.0VDC+/-0.6V / 62.0VDC+/-1.2V | | | | | |
| | Idle Consumption-Search Mode | <25W when power saver on | | | | | | | | <50W when power saver on | | | | | |
| **AC CHARGER** | Output Voltage | Depends on battery type | | | | | | | | Depends on battery type | | | | | |
| | Charger AC Input Breaker Rating | 10A | | 30A | | 30A | | 30A | | 40A | | | | | |
| | Overcharge Protection S.D. | 15.7VDC for 12VDC mode (*2 for 24VDC, ) | | | | | | | | 31.4VDC/62.8VDC | | | | | |
| | Maximum Charge Current | 35A | 20A | 45A | 25A | 65A | 35A | 75A | 45A | 65A | 35A | 70A | 40A | 75A | 50A |
| **BYPASS & PROTECTION** | Input Voltage Waveform | Sine wave (grid or generator) | | | | | | | | Sine wave (grid or generator) | | | | | |
| | Nominal Input Frequency | 50Hz or 60Hz | | | | | | | | 50Hz or 60Hz | | | | | |
| | Overload Protection (SMPS Load) | Circuit breaker | | | | | | | | Circuit breaker | | | | | |
| | Output Short Circuit Protection | Circuit breaker | | | | | | | | Circuit breaker | | | | | |
| | Bypass Breaker Rating | 10A | | 15A | | 30A | | 30A | | 40A | | | | | |
| | Max Bypass Current | 30Amp | | | | | | | | 40Amp | | | | | |
| **SOLAR CHARGER** | Maximum PV Array Power | 600W | 1200W | 600W | 1200W | 600W | 1200W | 600W | 1200W | 1600W | 3200W | 1600W | 3200W | 1600W | 3200W |
| | Maximum PV Charge Current | 40A | | | | | | | | 60A | | | | | |
| | DC Voltage | 12V/24V atuo work | | | | | | | | 24V/48V atuo work | | | | | |
| | MPPT Range @ Operating Voltage | 16~100VDC @12V/32~145VDC @ 24V | | | | | | | | 32~145VDC @ 24V / 64~145VDC @ 48V | | | | | |
| | Maximum PV Array Open Circuit Voltage | 100VDC/ 145VDC | | | | | | | | 145VDC | | | | | |
| | Maximum Efficiency | >90% | | | | | | | | >98% | | | | | |
| | Standby Power Consumption | <2W | | | | | | | | <2W | | | | | |
| **MECHANICAL SPECIFICATIONS** | Mounting | Wall mount | | | | | | | | Wall mount | | | | | |
| | Dimensions (W*H*D) | 423*247*197mm | | | | | | | | 597x247x197mm | | | | | |
| | Net Weight (Solar CHG) kg | 18.5 | 18.4 | 19.5 | 19.4 | 23.5 | 32.2 | 28.7 | 27 | 41.3 | 39.4 | 50.4 | 48.8 | 51.8 | 49.2 |
| | Shipping Dimensions(W*H*D) | 570*355*300mm | | | | | | | | 743*372*312mm | | | | | |
| | Shipping Weight (Solar CHG) kg | 21.5 | 21.4 | 22.4 | 22.5 | 25.8 | 25.6 | 31.2 | 29.6 | 44.7 | 42.8 | 54 | 52.4 | 55.7 | 53.1 |
| **OTHER** | Operation Temperature Range | 0°C to 40°C | | | | | | | | | | | | | |
| | Storage Temperature | -15°C to 60°C | | | | | | | | | | | | | |
| | Audible Noise | 60dB MAX | | | | | | | | | | | | | |
| | Display | LED+LCD | | | | | | | | | | | | | |
| | Loading(20GP/40GP/40HQ) | 460pcs / 920pcs / 1060pcs | | | | | | | | 320pcs / 640pcs / 750pcs | | | | | |

*** Product specifications are subject to change without further notice.**

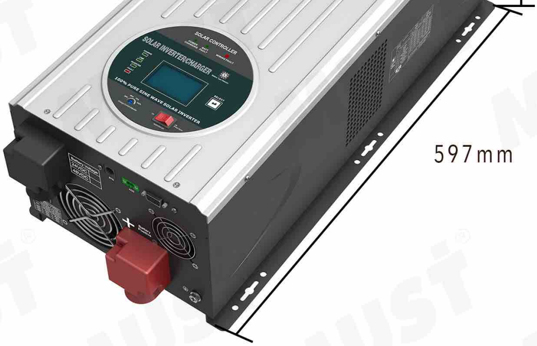
MUST

# Size


197mm
247mm
423mm
MUST
SOLAR CONTROLLER
SOLAR INVERTER/CHARGER
100% PURE SINE WAVE SOLAR INVERTER
SELECT
Battery Voltage
12VDC
24VDC
48VDC
Battery Positive

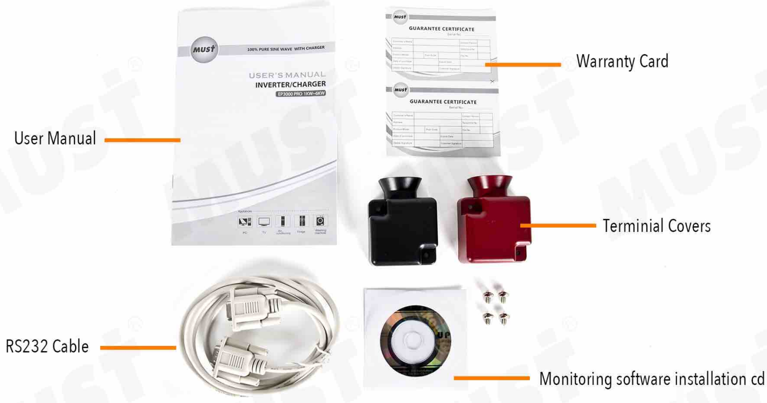
**1KW-3KW**

197mm
247mm
MUST


SOLAR CONTROLLER
SOLAR INVERTER/CHARGER
100% PURE SINE WAVE SOLAR INVERTER
SELECT
Battery Voltage
24VDC
48VDC
597mm

**4KW-6KW**

## Package


User Manual
100% PURE SINE WAVE WITH CHARGER
USER'S MANUAL
INVERTER/CHARGER
EP3000 PRO 1KW~6KW
GUARANTEE CERTIFICATE
GUARANTEE CERTIFICATE
Warranty Card
Terminial Covers
RS232 Cable
Monitoring software installation cd

# Applicable appliances

| ELECTRONIC PRODUCT | APPLIANCE | ELECTRONIC PRODUCT | APPLIANCE | ELECTRONIC PRODUCT | APPLIANCE |
|---|---|---|---|---|---|
| **LED LIGHT** | ✓ | **WASHING MACHINE** | ✓ | **ELECTIRC COOKER** | ✓ |
| **INCANDESCENT LAMP** | ✓ | **HAND MILL** | ✓ | **TV** | ✓ |
| **FAN** | ✓ | **HAND DRILL** | ✓ | **REFRIGERATOR** | ✓ |
| **DESKTOP PC** | ✓ | **IMPACT DRILL** | ✓ | **AIR-CONDITIONING FAN** | ✓ |
| **LAPTOP** | ✓ | **SUBMERSIBLE PUMP** | ✓ | **CRT TV** | ✓ |

# PRACTICAL APPLICATION

## APPLICABLE PLACE

MUST

CCTV

Shop / Supermarket

Office

Solar power system

Industrial intellectual control system

Ventilation systems

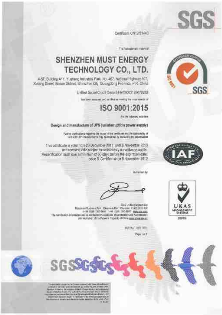
## ACTUAL CASE

MUST

# PROFESSIONAL CERTIFICATION

## IEC ISO9001

High quality and high standard



SGS

Certificate CN12/31440

The management system of

**SHENZHEN MUST ENERGY TECHNOLOGY CO., LTD.**

4-5F, Building A11, Yusheng Industrial Park, No. 467, National Highway 107,
Xixiang Street, Baoan District, Shenzhen City, Guangdong Province, P.R. China

Unified Social Credit Code 914403003193672263

has been assessed and certified as meeting the requirements of

**ISO 9001:2015**

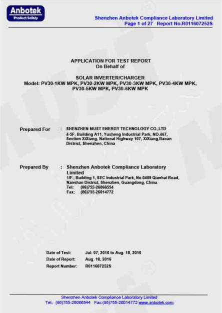
For the following activities

**Design and manufacture of UPS (uninterruptible power supply)**

This certificate is valid from 20 December 2017 until 8 November 2018
and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 5. Certified since 8 November 2012

Authorised by

Page 1 of 1



**Anbotek**
Product Safety

Shenzhen Anbotek Compliance Laboratory Limited
Page 1 of 27 Report No.R011607252S

**APPLICATION FOR TEST REPORT**
**On Behalf of**

**SOLAR INVERTER/CHARGER**
**Model: PV30-1KW MPK, PV30-2KW MPK, PV30-3KW MPK, PV30-4KW MPK, PV30-5KW MPK, PV30-6KW MPK**

**Prepared For** : SHENZHEN MUST ENERGY TECHNOLOGY CO.,LTD
4-5F, Building A11, Yusheng Industrial Park, NO.467,
Section XiXiang, National Highway 107, XiXiang,Baoan
District, Shenzhen, China

**Prepared By** : Shenzhen Anbotek Compliance Laboratory Limited
1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road,
Nanshan District, Shenzhen, Guangdong, China
Tel: (86)755-26066554
Fax: (86)755-26014772

**Date of Test:** Jul. 07, 2016 to Aug. 18, 2016
**Date of Report:** Aug. 18, 2016
**Report Number:** R011607252S

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