High Frequency Solar Inverter

PV1800 VPK SERIES (1KW-5KW)

MUST
Solar Inverter
PV1800
MUST
AC/INV
CHG
FAULT
MENU
UP
DOWN
ENTER
Solar Inverter

THREE COLORS OPTION

● RED
● SILVER
● GREEN

MUST

PV1800 VPK is a multi-function inverter/charger, combining functions of inverter, PWM solar charger and battery charger to offer uninterruptible power support with portable size. Its comprehensive LCD display offers user-configurable easy-accessible button operation such as battery charging current, AC/solar charger priority, and acceptable input voltage based on different applications.

Features

- Pure sine wave output
- Smart LCD setting(Working modes, Charge Current, Charge Voltage, etc.)
- Built-in PWM 50A/60A solar charge controller
- New SUB working mode(Solar-Utility-Battery working mode) for 4K-5K series
- Combining solar system, AC utility, and battery power source to supply continuous power
- Overload, short circuit and deep discharge protection
- Parallel operation with up to 3 units (Available for 4KW/5KW only)
- Cold start function
- Support USB, RS485 monitoring function with free CD
- WIFI remote monitoring (optional)
- Compatible to generator

Rated power
1KW-5KW

Battery Voltage
12VDC/24VDC/48VDC

MAX charging current
120A

WIFI remote
monitoring

Multi Protection

High frequency above 93% high efficiency

Wide AC input 90-280V

Lead-acid/Lithium Battery Optional

Appearance

MUST
Solar Inverter

MUST

MUST
Solar Inverter
DC+
DC−
PV+
PV−

(1-2KW)

MUST
Solar Inverter

(3KW)

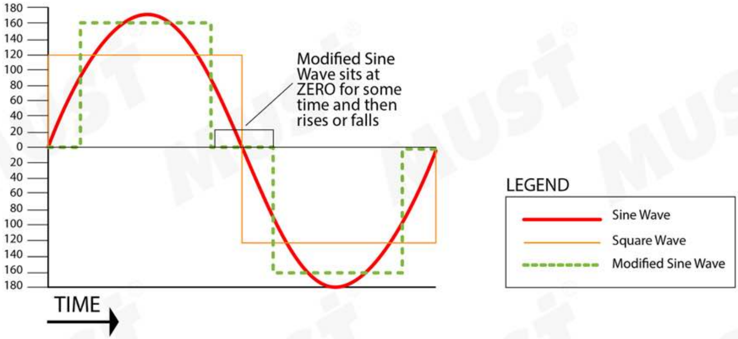
MUST
Solar Inverter
PV1800

(4KW-5KW)

PRODUCT FEATURES

SMART & INTELLIGENT FEATURES

MUST



Pure Sine Wave Output

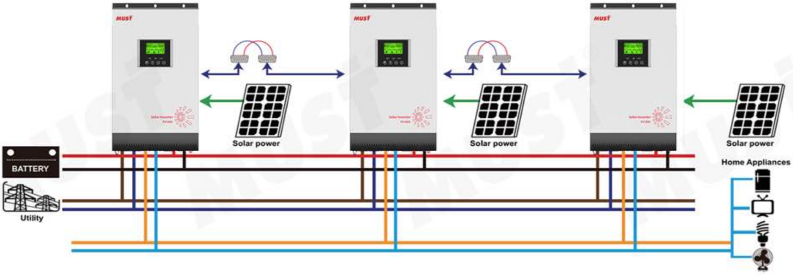
The electrical waveform output of PV1800VPK is a pure sine wave, which has the same quality as utility and/or domestic power. This type of waveform is suitable for most all electrical devices, appliances and tools. This pure sine wave unit provides more capabilities than modified sine wave inverters, because it is a cleaner form of power. The pure sine wave also effectively reduces the noise produced while using appliances.

WiFi-RTU
Wi-Fi RTU

MUST

Wifi communication

You can download this app on your cellphone and monitor the whole system, you will know how much electricity the system generate and sell to utility.


MUST
MUST
MUST
Solar power
Solar power
Solar power
BATTERY
Utility
Home Appliances

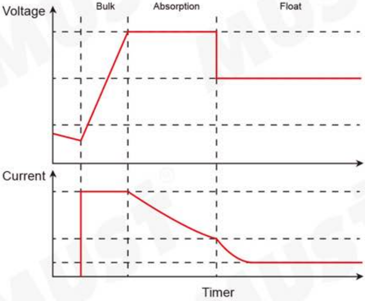
Ability for parallel operation

The inverter is able to run in parallel operation mode to increase the capacity and reliability of the solar system. For higher reliability, parallel kits are adopted for inverters to communicate with each other. Up to 3 inverters can be installed together. Either single-phase or three phases parallel operation is available.

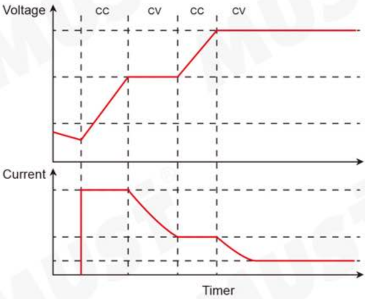
Charging algorithm

3-Step (Flooded Battery, AGM/Gel/Lithium Battery),4-Step(LI)

Charging algorithm for lead acid battery

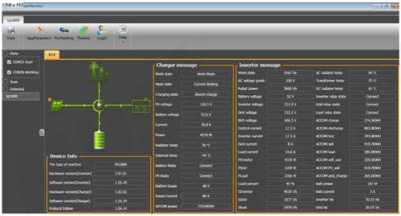


Charging algorithm for Lithium battery



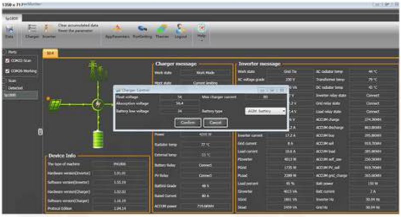
Monitoring system

With USB can connect with computer monitoring the working stage and the data of PV, AC and battery. LCD setting is also available in computer.


Charger message
Inverter message
Device Info

MUST

Solar inverter
PV1800


Data
Charger
Inverter
Clear accumulated data
Reset the parameter
AppParameters
PortSetting
Themes
Logout
Help
Ports
COM22-Scan
COM26-Working
Scan
Detected
Sp1800
Confirm
Cancel

Charger Control

Float voltage	54	Max charger current	80
Absorption voltage	56.4		
Battery low voltage	34	Battery type	AGM battery

Charger message

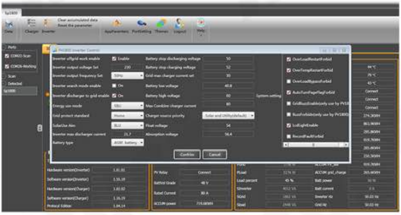
Work state	Work Mode
Work state	Current limiting
Power	4210 W
Radiator temp	77 °C
External temp	33 °C
Battery Relay	Connect
PV Relay	Connect
BattVol Grade	48 V
Rated Current	80 A
ACCUM power	719.6KWH

Device Info

The type of machine	PH1800
Hardware version(Inverter)	1.01.01
Software version(Inverter)	1.55.19
Hardware version(Charger)	1.02.02
Software version(Charger)	1.16.19
Protocol Edition	1.04.14

Inverter message

Work state	Grid-Tie	AC radiator temp	44 °C
AC voltage grade	230 V	Transformer temp	79 °C
	VA	DC radiator temp	43 °C
	V	Inverter relay state	Connect
	V	Grid relay state	Connect
	V	Load relay state	Connect
	V	ACCUM charge	274.36KWH
	A	ACCUM discharge	863.86KWH
Inverter current	17.2 A	ACCUM buy	295.86KWH
Grid current	8 A	ACCUM sell	919.76KWH
Load current	10.6 A	ACCUM load	385.86KWH
PInverter	4013 W	ACCUM self_use	256.56KWH
PGrid	1735 W	ACCUM PV_sell	919.76KWH
PLoad	2289 W	ACCUM grid_charge	365.66KWH
Load percent	45 %	Batt power	150 W
SInverter	4013 VA	Batt current	2 A
SGrid	1861 VA	Inverter Hz	50.04 Hz
SLoad	2459 VA	Grid Hz	50.04 Hz


Data
Charger
Inverter
Clear accumulated data
Reset the parameter
AppParameters
PortSetting
Themes
Logout
Help
Ports
COM22-Scan
COM26-Working
Scan
Detected
Sp1800
Confirm
Cancel

PH1800 Inverter Control

Inverter offgrid work enable	☑ Enable	Battery stop discharging voltage	50
Inverter output voltage Set	230	Battery stop charging voltage	52
Inverter output frequency Set	50Hz	Grid max charger current set	30
Inverter search mode enable	☐ On	Battery low voltage	40.8
Inverter discharger to grid enable	☑ On	Battery high voltage	60
Energy use mode	SBU	Max Combine charger current	80
Grid protect standard	Home	Charger source priority	Solar and Utility(default)
SolarUse Aim	BLU	Float voltage	54
Inverter max discharger current	21.7	Absorption voltage	56.4
Battery type	AGM battery		

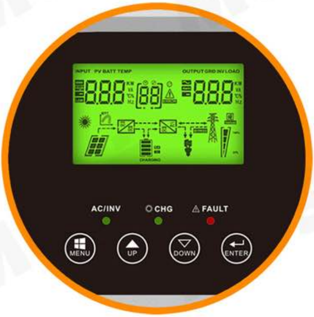
System setting

- ☑ OverLoadRestartForbid
- ☑ OverTempRestartForbid
- ☐ OverLoadBypassForbid
- ☑ AutoTurnPageFlagForbid
- ☐ GridBuzzEnable(only use by PV18
- ☐ BuzzForbide(only use by PV1800
- ☑ LcdLightEnable
- ☐ RecordFaultForbid

Hardware version(Inverter)	1.01.01
Software version(Inverter)	1.55.19
Hardware version(Charger)	1.02.02
Software version(Charger)	1.16.19
Protocol Edition	1.04.14

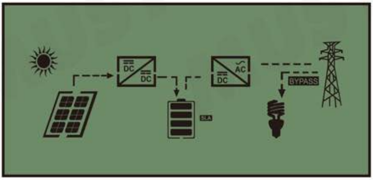
PV Relay	Connect
BattVol Grade	48 V
Rated Current	80 A
ACCUM power	719.6KWH

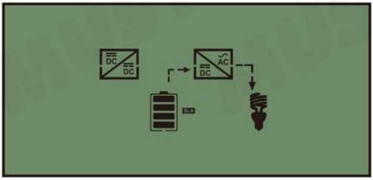
Easy to read all working modes and parameters in LCD


INPUT PV BATT TEMP
OUTPUT GRID INV LOAD
CHARGING
AC/INV
CHG
FAULT
MENU
UP
DOWN
ENTER

MUST

MUST


DC
DC
AC
DC
BYPASS
SLA

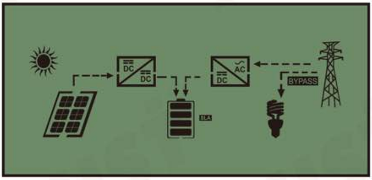

DC
DC
AC
DC
SLA

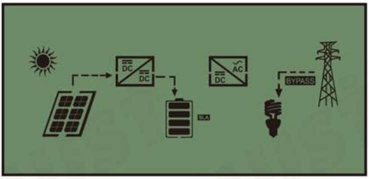
Utility-Tie state

PV energy is charger into the battery and utility provide power to the AC load

Charge state

PV energy and grid can charge batteries.


DC
DC
AC
DC
BYPASS
SLA

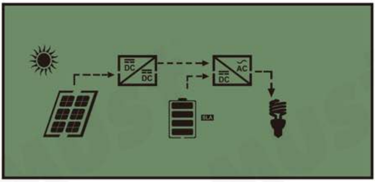

DC
DC
AC
DC
BYPASS
SLA

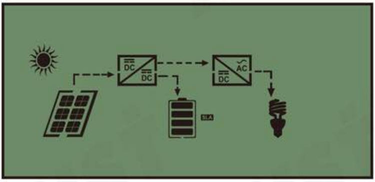
Bypass state

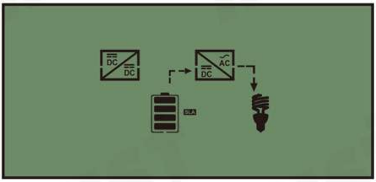
Error are caused by inside circuit error or external reasons such as over temperature, output short circuited and so on.

Off-Grid state

The inverter will provide output power from battery and PV power


DC
DC
AC
DC
SLA


DC
DC
DC
AC
SLA

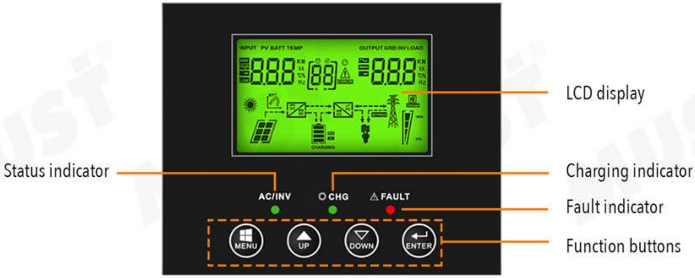

DC
DC
DC
AC
SLA

MUST

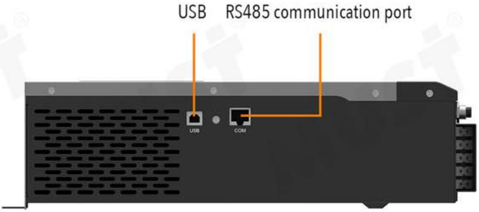
PRODUCT DETAILS

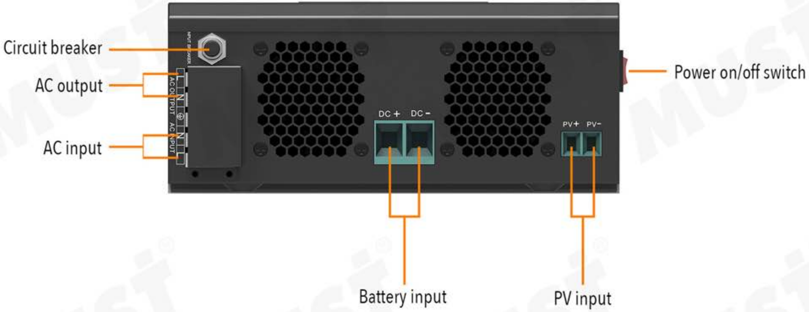
MUST HELP YOU CONTROL EVERY DETAIL

Details reflect quality

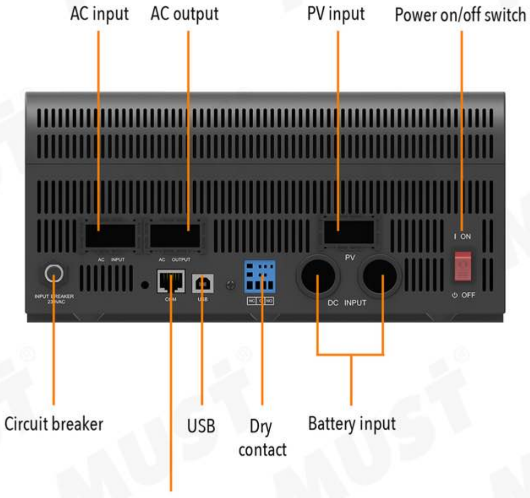

INPUT PV BATT TEMP
OUTPUT GRID INV LOAD
CHARGING
LCD display
Status indicator
Charging indicator
Fault indicator
Function buttons
AC/INV
CHG
FAULT
MENU
UP
DOWN
ENTER

MUST
Solar Inverter
MUST
Solar Inverter
MUST
Solar Inverter
PV1800


USB
RS485 communication port
USB
COM


Circuit breaker
AC output
AC input
Power on/off switch
INPUT BREAKER
AC OUTPUT
AC INPUT
L
N
DC +
DC −
PV+
PV−
Battery input
PV input

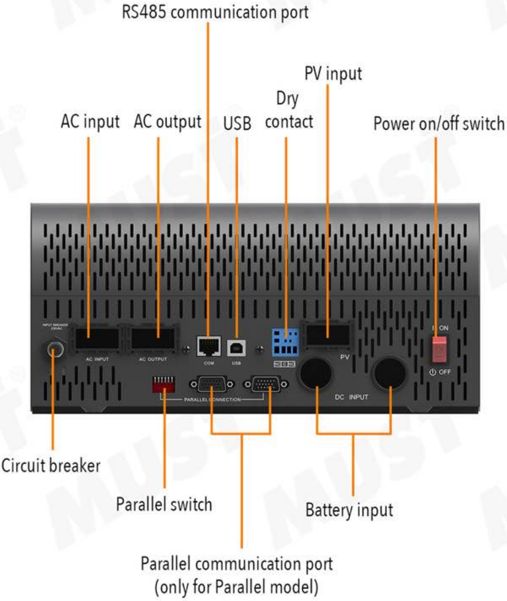
(1-2KW)


AC input
AC output
PV input
Power on/off switch
AC INPUT
AC OUTPUT
PV
I ON
OFF
INPUT BREAKER 230VAC
COM
USB
NC C NO
DC INPUT
Circuit breaker
USB
Dry contact
Battery input

MUST

RS485 communication port

(3KW)

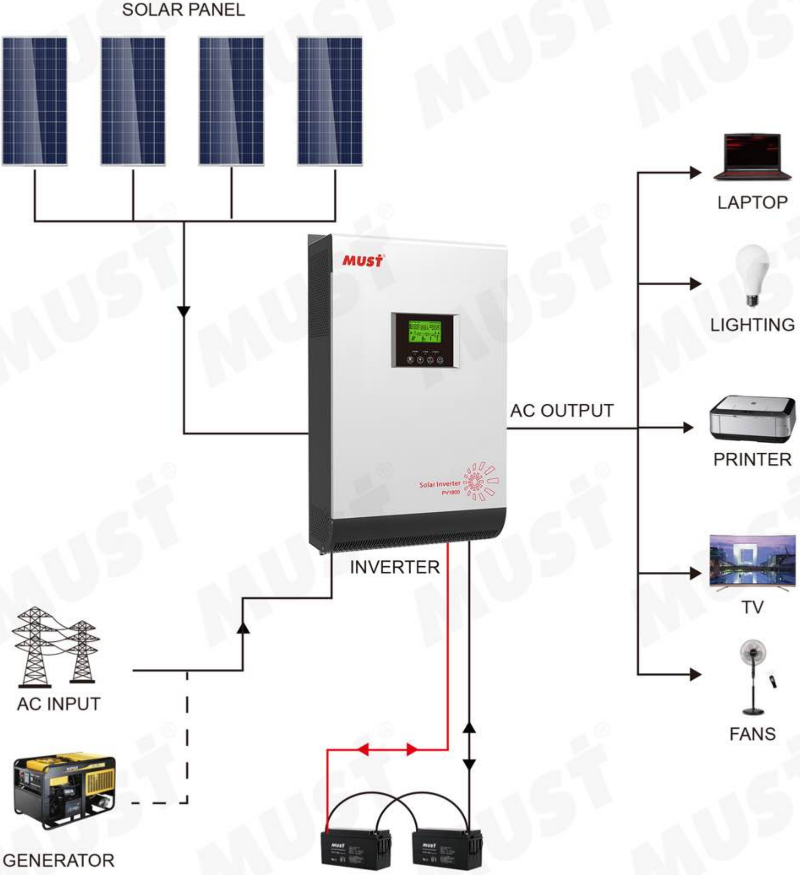

RS485 communication port
PV input
Dry contact
AC input
AC output
USB
Power on/off switch
AC INPUT
AC OUTPUT
COM
USB
PV
ON
OFF
PARALLEL CONNECTION
DC INPUT
Circuit breaker
Parallel switch
Battery input
Parallel communication port
(only for Parallel model)

(4KW-5KW)

MUST

INVERTER SYSTEM CONNECTION

INVERTER + SOLAR PANELS + GRID + APPLICATION LOADS


SOLAR PANEL
LAPTOP
MUST
LIGHTING
AC OUTPUT
PRINTER
Solar Inverter
PV1800
INVERTER
TV
AC INPUT
FANS
GENERATOR

MUST

BATTERY

MUST

PRODUCT PARAMETERS

MAKE SURE EACH PARAMETER IS TRUE

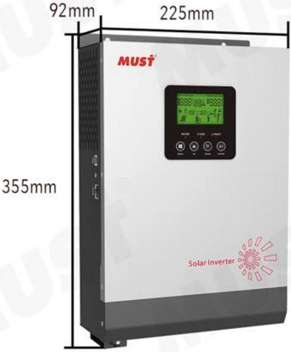
Learn more about the product

MODEL		PV18-1012 VPK	PV18-2024 VPK	PV18-3024 VPK	PV18-4048 VPK	PV18-5048 VPK
Nominal Battery System Voltage		12VDC	24VDC		48VDC	
INVERTER OUTPUT	Rated Power	1000W	2000W	3000W	4000W	5000W
	Surge Power	2000W	4000W	6000W	8000W	10000W
	Waveform	Pure sine wave				
	AC Voltage Regulation (Batt.Mode)	(220VAC ~ 240VAC)±5%				
	Inverter Efficiency (Peak)	93%				
	Transfer Time	10ms（For Personal Computers）20ms（For Home Appliance）				
AC INPUT	Voltage	230VAC				
	Selectable Voltage Range	170~280VAC(For Personal Computers)、90~280VAC(For Home Appliances)、184~253VAC(VDE4105)				
	Frequency Range	50Hz/60Hz (Auto sensing)				
BATTERY	Normal voltage	12VDC	24VDC		48VDC	
	Floating Charge Voltage	13.5VDC	27VDC		54VDC	
	Overcharge Protection	15.5VDC	31VDC		60VDC	
SOLAR CHARGER & AC CHARGER	Maximum PV Array Open Circuit Voltage	55VDC	70VDC		105VDC	
	Standby Power Consumption	2W	2W		2W	
	(PWM) Maximum Solar Charge Current	50A	50A		60A	
	Maximum AC Charge Current	10A or 20A	20A or 30A		60A	
	Maximum Charge Current	70A	80A		120A	
MECHANICAL SPECIFICATION	Machine Dimensions (W*H*D)(mm)	225*355*92	272*355*100		297.5*468*125	
	Package Dimensions (W*H*D)(mm)	405*373*205	465*373*231		618*415*261	
	Net Weight(kg)	4.0	7.8		12	
	Gross Weight(kg)	6.0	10.3		13.5	

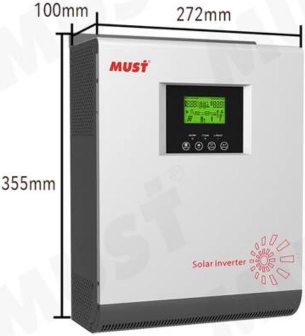
OTHER	Humidity	5% to 95% Relative Humidity (Non-condensing)
	Operating Temperature	0°C -55°C
	Storage Temperature	-15°C -60°C

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

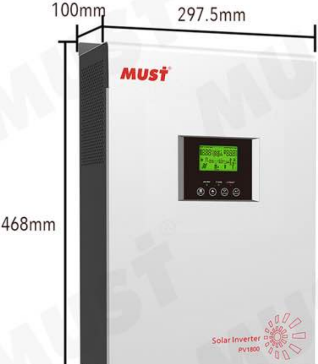
Size


92mm
225mm
355mm
MUST
Solar Inverter

(1KW-2KW)


100mm
272mm
355mm
MUST
Solar Inverter

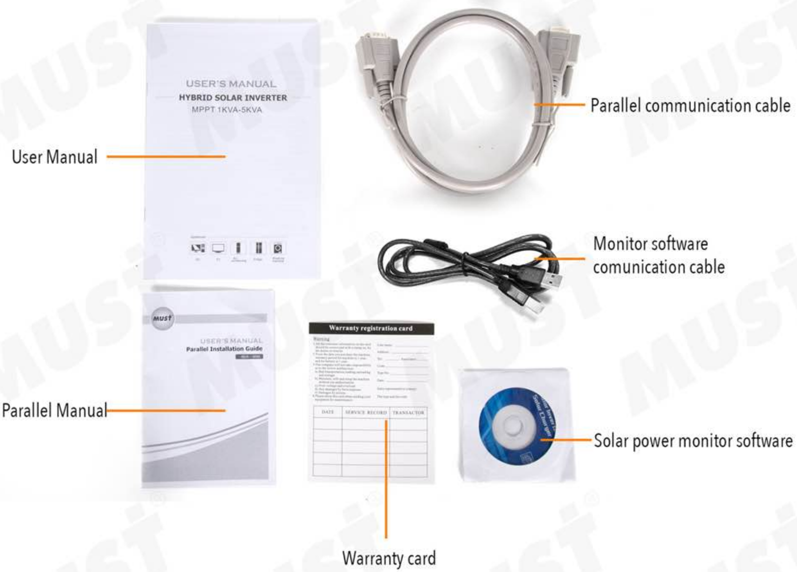
(3KW)


100mm
297.5mm
468mm
MUST
Solar Inverter
PV1800

MUST

(4KW-5KW)

Package


USER'S MANUAL
HYBRID SOLAR INVERTER
MPPT 1KVA-5KVA
User Manual
Parallel communication cable
Monitor software comunication cable
must
USER'S MANUAL
Parallel Installation Guide
Parallel Manual
Warranty registration card
DATE
SERVICE RECORD
TRANSACTOR
Solar power monitor software
Warranty card

MUST

MUST
Green Energy Advocates
100% PURE SINE WAVE SOLAR INVERTER
MUST
100% PURE SINE WAVE SOLAR INVERTER
Hybrid Solar Inverter
Features
All Products Made by ISO 9001 Certified Company

Packaging

Applicable appliances

ELECTRONIC PRODUCT	APPLIANCE	ELECTRONIC PRODUCT	APPLIANCE	ELECTRONIC PRODUCT	APPLIANCE
LED LIGHT	✓	WASHING MACHINE	✓	ELECTRIC IRON	✓
INCANDESCENT LAMP	✓	HAND MILL	✓	HOT WATER BOTTLE	✓
FAN	✓	HAND DRILL	✓	DRYER	✓
DESKTOP PC	✓	IMPACT DRILL	✓	PROJECTOR	✓

LAPTOP	✓	SUBMERSIBLE PUMP	✓	AIR DUCT	✓
ELECTIRC COOKER	✓	AIR-CONDITIONING FAN	✓	PRINTER	✓
TV	✓	CRT TV	✓	VACUUM CLEANER	✓
REFRIGERATOR	✓	SOYMILK MACHINE	✓	DIGITAL PRODUCT	✓

PRACTICAL APPLICATION

APPLICABLE PLACE

CCTV
MARIVAN
Shop / Supermarket
Office

MUST®

Solar power system

Industrial intellectual control system

Ventilation systems

PROJECT REFERENCE

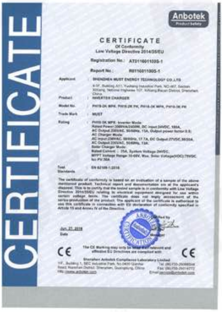
MUST
MUST
MUST
MUST
MUST

PROFESSIONAL CERTIFICATION

CE SAA ISO9001

High quality and high standard

MUST®



CERTIFICATE

CERTIFICATE
Of Conformity
Low Voltage Directive 2014/35/EU

Registration No.: AT0116011005-1

Report No.: R0116011005-1

Applicant : 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

Product : INVERTER CHARGER

Model No. : PH18-2K MPK, PH18-2K PK, PH18-3K MPK, PH18-3K PK

Trade Mark : MUST

Rating : PH18-3K MPK: Inverter Mode:
Rated Power:3000VA/2400W, DC input:24VDC, 100A,
AC Output:230VAC, 50/60Hz, 13A, Output power factor 0.8;
AC Charger Mode:
AC input:230VAC, 50/60Hz, 17.7A, DC Output:27VDC,30/20A,
AC Output:230VAC, 50/60Hz, 13A;
Solar Charger Mode:
Rated Current : 25A, System Voltage:24VDC,
MPPT Voltage Range:30-66V, Max. Solar Voltage(VOC):79VDC,
Isc PV:30A

Test Standards : EN 62109-1:2010

The certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical report and documentation are at the applicant's disposal. This is to certify that the tested sample is in conformity with Low Voltage Directive 2014/35/EU relating to electrical equipment designed for use within certain voltage limits. The certificate does not imply assessment of the series-production of the product. The applicant of the certificate is authorised to use this certificate in connection with EU declaration of conformity specified in Article 15 and Annex IV of the Directive.

Jun. 27, 2016
Date

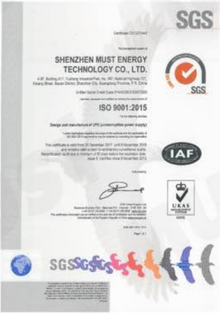
Certified by
Manager

CE

The CE Marking may only be used if all relevant and effective EU Directives are complied with.

CE

Shenzhen Anbotek Compliance Laboratory Limited
1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China
Tel: (86)755-26066544
Fax: (86)755-26014772
Http://www.anbotek.com
Email:service@anbotek.com

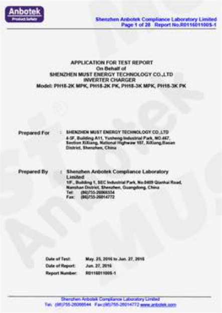


SGS

SHENZHEN MUST ENERGY TECHNOLOGY CO., LTD.

ISO 9001:2015

Design and manufacture of UPS (uninterruptible power supply)



Anbotek

Shenzhen Anbotek Compliance Laboratory Limited
Page 1 of 28 Report No.R0116011005-1

APPLICATION FOR TEST REPORT
On Behalf of
SHENZHEN MUST ENERGY TECHNOLOGY CO.,LTD
INVERTER CHARGER
Model: PH18-2K MPK, PH18-2K PK, PH18-3K MPK, PH18-3K PK

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

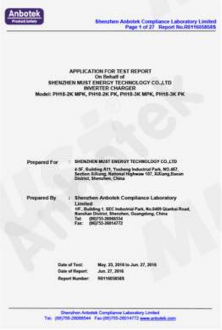
Prepared By : Shenzhen Anbotek Compliance Laboratory Limited
1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road,
Nanshan District, Shenzhen, Guangdong, China
Tel: (86)755-26066334
Fax: (86)755-26014772

Date of Test: May. 25, 2016 to Jun. 27, 2016
Date of Report: Jun. 27, 2016
Report Number: R0116011005-1

Shenzhen Anbotek Compliance Laboratory Limited
Tel: (86)755-26066544 Fax:(86)755-26014772 www.anbotek.com

TEST REPORT

Have quality inspection to use with confidence



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APPLICATION FOR TEST REPORT
On Behalf of
SHENZHEN MUST ENERGY TECHNOLOGY CO.,LTD
INVERTER CHARGER
Model: PH18-2K MPK, PH18-2K PK, PH18-3K MPK, PH18-3K PK

Prepared For : SHENZHEN MUST ENERGY TECHNOLOGY CO.,LTD
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Date of Test: May. 25, 2016 to Jun. 27, 2016
Date of Report: Jun. 27, 2016
Report Number: R0116058585

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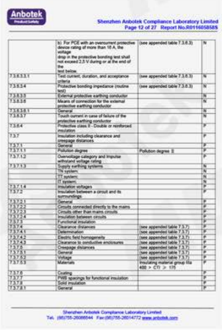

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	b) For PCE with an overcurrent protective device rating of more than 16 A, the voltage drop in the protective bonding test shall not exceed 2.5 V during or at the end of the test below.	(see appended table 7.3.6.3)	N
7.3.6.3.3.1	Test current, duration, and acceptance criteria	(see appended table 7.3.6.3)	N
7.3.6.3.4	Protective bonding impedance (routine test)	(see appended table 7.3.6.3)	N
7.3.6.3.5	External protective earthing conductor		N
7.3.6.3.6	Means of connection for the external protective earthing conductor		N
7.3.6.3.6.1	General		N
7.3.6.3.7	Touch current in case of failure of the protective earthing conductor		N
7.3.6.4	Protective class II - Double or reinforced insulation		P
7.3.7	Insulation including clearance and creepage distances		P
7.3.7.1	General		P
7.3.7.1.1	Pollution degree	Pollution degree II	P
7.3.7.1.2	Overvoltage category and impulse withstand voltage rating		P
7.3.7.1.3	Supply earthing systems		N
	TN system:		N
	TT system:		N
	IT system:		N
7.3.7.1.4	Insulation voltages		P
7.3.7.2	Insulation between a circuit and its surroundings		P
7.3.7.2.1	General		P
7.3.7.2.2	Circuits connected directly to the mains		P
7.3.7.2.3	Circuits other than mains circuits		P
7.3.7.2.4	Insulation between circuits		P
7.3.7.3	Functional insulation		P
7.3.7.4	Clearance distances	(see appended table 7.3.7)	P
7.3.7.4.1	Determination	(see appended table 7.3.7)	P
7.3.7.4.2	Electric field homogeneity	(see appended table 7.3.7)	P
7.3.7.4.3	Clearance to conductive enclosures	(see appended table 7.3.7)	P
7.3.7.5	Creepage distances	(see appended table 7.3.7)	P
7.3.7.5.1	General	(see appended table 7.3.7)	P
7.3.7.5.2	Voltage	(see appended table 7.3.7)	P
7.3.7.5.3	Materials	Insulating material group IIIa 400 > CTI ≥ 175	P
7.3.7.6	Coating		P
7.3.7.7	PWB spacings for functional insulation		P
7.3.7.8	Solid insulation		P
7.3.7.8.1	General		P

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