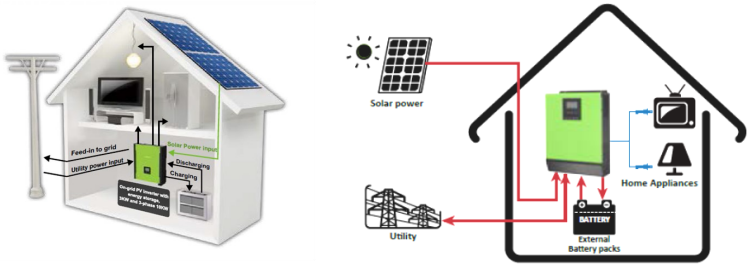
HYBRID V / V2 SERIES

220-240V Hybrid Solar Inverter

HV2-3K, 5K

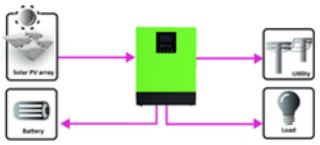
HV 3-5K



Three Major Operating Modes

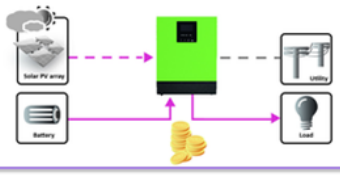
•Feed-in to Grid + Load + Battery Charging

With enough solar power, Hybrid V will convert solar power to power the load and charge the battery. The extra power will feed-in to Grid.



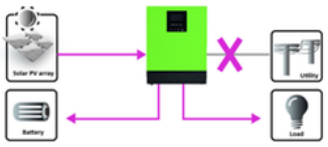
•Pay Less Electricity Bill

With sufficient solar power Hybrid V will convert solar power and get the battery energy to power the load by disconnect Grid automatically. Reduce dependence on Grid and your electricity bill



•Battery Backup when AC Fail

If Grid is not available, Hybrid V will direct power to load from the solar power and the extra solar energy would be used to charge the battery.



MAIN FEATURES

- NEW! Max PV input up to 450V (V2 only)
- NEW! Parallel support up to 9 units
- NEW! Batteryless operation (V2 only)*
- Pure sine wave output 3-5KW
- Hybrid Mode, Off-Grid Mode available
- Max PV input power up to 6KW max
- Max PV input volt 145V
- Max solar charging up to 120A
- Dual MPPT tracker (HV 5k only)
- Timer charging control
- Supports generator use + genset starter dry conact (grid-tie disabled)**
- Programmable parameters
- Max up to 60A utility charging
- Lightweight, easy to install
- FREE monitoring software
- LCD Display + LED indicators
- USB, RS232 communication interface

HYBRID V/V2 SERIES	3048	4048	5048	V2-3048	V2-5048
STANDARD RATING					
Continuous Output	3000W	4000W	5000W	3000W	5000W
System DC Volt		48V		48V	48V
Parallel Ready			Yes, max 9		
PV INPUT / SOLAR CHARGING					
Max PV Input Power	4000W	4000W	6000W	4000W	5000W
Max PV Input Volt		145VDC (Voc)		450VDC (Voc)	
MPPT Range		60 - 145V		120-430V	
Number of PV Input	1	1	2	1	1
Max Charging Current	80A	80A	120A	60A	80A
GRID TIE MODE					
Nominal Output Volt			220/230/240VAC, Single Phase		
Feed-in Volt Range			184 - 264.5VAC		
Feed-in Volt Frequency			47.5 - 51.5Hz		
Nominal Output Current	13A	17.4A	21.7A	13A	21.7A
Max DC/AC Efficiency		>90%		>95%	
OFF-GRID, HYBRID MODE					
Output Waveform			Pure Sine Wave		
Nominal Output Volt			220/230/240VAC, Single Phase		
Frequency			50 / 60Hz, auto-sensing		
AC Input Transfer Relay			40A		
Max Efficiency			>93%		
Max Utility Charging			60A		
Max Utility + Solar Charging	140A	140A	180A	60A	80A
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS					
Communication Port			USB, RS232/Dry Contact		
Operating Temp.			0 - 50°C		
Operating Humidity			0 - 90% RH (No Condensing)		
Dimension (mm)	468*295*120		483*295*190	468*295*120	
Net Weight (kg)	11	11	16	11	12

*Important: batteries MUST be connected when configuring in parallel operation!

**requires inverter-type generator of acceptable output quality

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NEW **Now supports PylonTech LITHIUM Batteries!**

CLICK FOR MORE DETAILS

MPI 3K MPI 4K MPI 5.5K MPI 5K MPI 10K (3-Phase)

*only 4K, 5K, 10K supports parallel operation up to 6 units max.

MPI HYBRID SOLAR INVERTER SERIES

GRID-TIED + BATTERY BACKUP

MPI Hybrid Series

These hybrid solar inverters combine the features of both grid-tied and off grid operations, and allow users to operate in 3 main modes:

- Grid-Tied (Feedback)
- Off Grid
- Grid-Tied with Battery Backup

Available in 3KW, 4KW, 5KW, 5.5KW (single phase) and 10kw (3 phase), these hybrid systems offer an excellent all-in-one solution of off-grid inverter + grid-tie inverter + battery charger. Able to accept PV input voltage up to 900V (5K, 10K only) with MPPT functionality, the Hybrid family can support up to max PV array sizes of up to 14.85KW. This enables users great flexibility in running load as well as feeding extra solar power back to grid. When grid fails, these systems will switch to battery source like an off-grid inverter and keep load backed up. The bundled monitoring software, SolarPower, offers powerful features which allow users total control and access to a wide variety of operations to meet all types of demand. Hybrid models are fully compliant to and certified in VDE (Germany) and CE standards.

**Optional accessories such as MODBUS card, MODBUS server, and Energy Meter are available upon request

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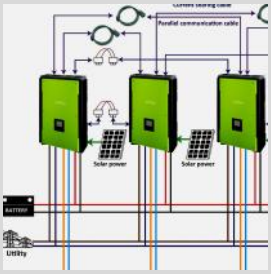
New Features

These new features are now available on selective Hybrid models:

HIGH CHARGING
Max battery charging current now up to 200A! (10K)



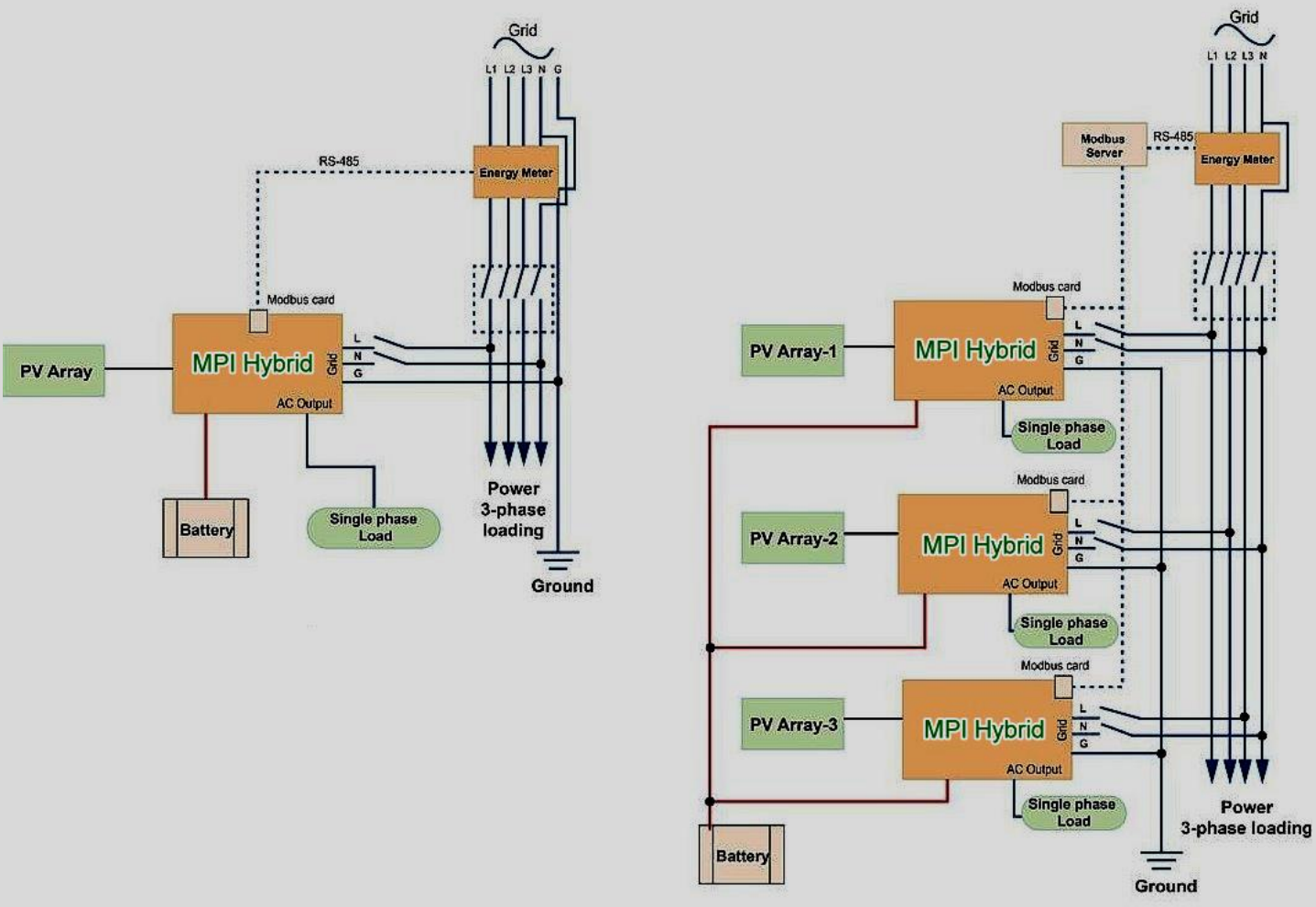
STACKABLE
Supports parallel operation up to 6 units max! (4K,5K,10K only)

EMS PORT
this useful port is for emergency light load, 230V/5A (4K, 5K only)

DUAL AC INPUT
grid + generator. Genset starter dry contact available (4K, 5K only)

Energy Meter Application Diagram: Single Phase vs. Three Phase Setup

*MODBUS card, Energy Meter, and Web-box are optional accessories.



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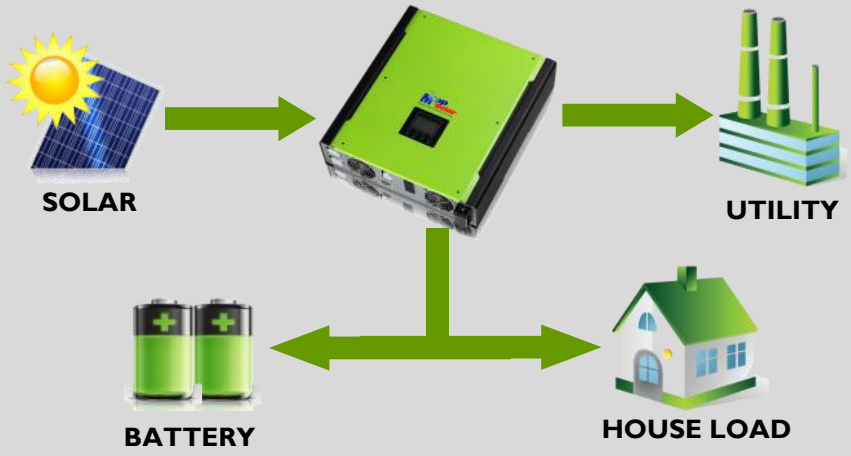
Operation Modes

GRID-TIE + BATTERY BACKUP

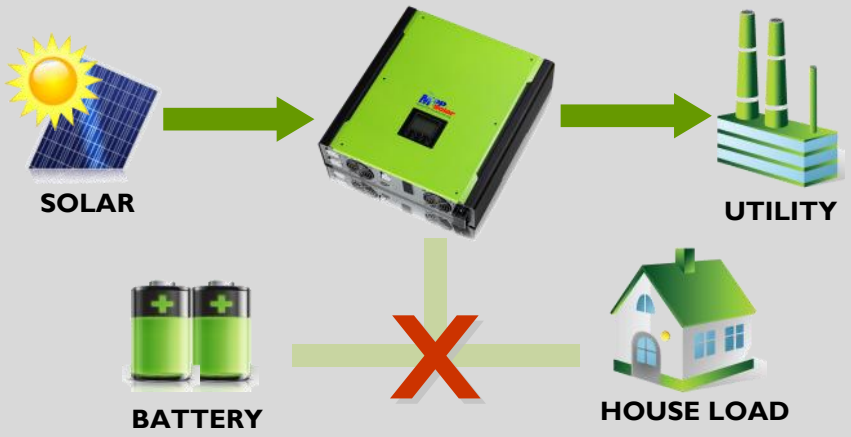


In this operation mode, users can program unit to

- Feedback PV power to utility
- Provide PV power to load
- Charge battery by PV

Different priority settings are available in this mode. Charging source may be selected from PV and grid as default, PV only, or none (when charging not intended). All programming conditions can be done in the CD-bundled software.

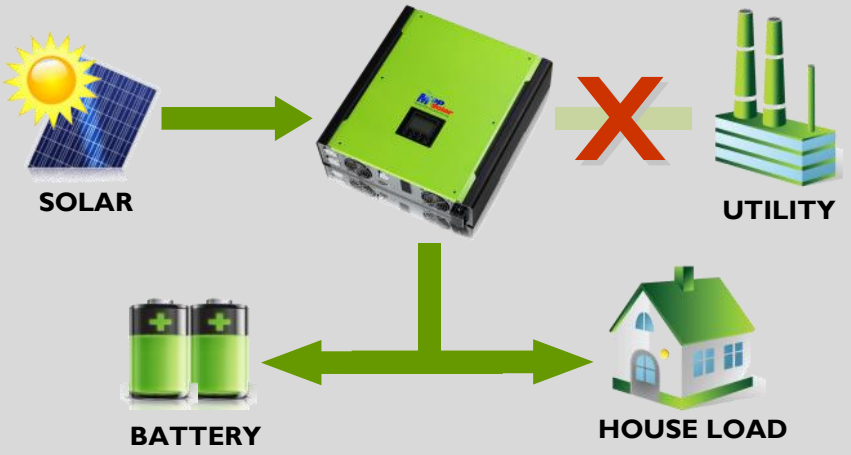
GRID-TIE ONLY



In this operation mode, the inverter will only behave like a pure grid-tie inverter where it only feeds back electricity to grid from PV source.

There is no priority setting available when this mode is selected.

OFF-GRID ONLY



In this operation mode, grid feedback to utility is disabled. Users can only program unit to:

- Provide PV power to load
- Charge battery by PV

Different priority settings are also available, and grid relay may be connected to inverter to provide support when load > 3kw. Charging source may be selected from PV and grid, PV only, or none (charging not intended). All programming can be done in the CD-bundled software.

Specifications

MPI HYBRID SERIES	3K	4K	5K	5.5K	10K
Rated Power					
Continuous Output	3,000W	4,000W	5,000W	5,500W	10,000W
Parallel-Ready	No	Yes	Yes	No	Yes
PV Input Rating (GRID-TIE)					
Max PV Input Power	4,500W	5,000W	10,000W	6,500W	14,850W
Max PV Input Voltage	500Vdc	580Vdc	900Vdc	500Vdc	900Vdc
Start-up / Initial Feeding Voltage	116 / 150Vdc	116 / 150Vdc	220 / 250 Vdc	116 / 150Vdc	320 / 350 Vdc
PV MPPT Range	250 - 450Vdc	120 - 500Vdc	250 - 850 Vdc	120 - 450Vdc	350 - 850 Vdc
Max PV Input Current	18A	18A	10A x 2	13A x 2	18A x 2
MPPT Tracker	1	1	2	2	2
Max DC/AC Conversion Efficiency	>96%				
AC Input					
Start-up / Auto Restart Voltage	120 - 140Vac / 180Vac				
Input Voltage Range	170 - 280Vac				
Nominal Frequency	50 / 60 Hz				
Max AC Input Current	30A	40A	40A	40A	40A
AC Output					
Nominal AC Output Voltage	208/220/230/240Vac, Single Phase				400Vac, 3-Phase
Output Voltage Range	184 - 265Vac				184 - 265Vac (P-N) / 318 - 460Vac (P-P)
Output Frequency (GRID-TIE)	47.5 - 51.5Hz / 59.3 - 60.5 Hz				
Output Frequency (OFF-GRID)	50 / 60Hz, auto-sensing				
Output Waveform	Pure Sine Wave				
Max Output Power (via grid relay)	5,100W	6,000W	7,000W	6,500W	16,000W
Max Output Power (battery mode)	3,000W	4,000W	5,000W	5,500W	10,000W
Max Efficiency	>93%				>91%
Battery Charger					
Nominal DC Voltage	48Vdc				
Max Charging Current	25A	80A	100A	60A	200A
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS					
Communication Port	RS232 / USB, INTELLIGENT SLOT (CARD)				
Certifications	EN62109-1, EN62109-2, EN62040-1 / CE VDE4105, VDE0126-1-1 AS4777/3100 **(3K, 5.5K, 10K only)**				
Operating Temp.	0 - 40°C		-10 - 50°C	0 - 40°C	-10 - 50°C
Operating Humidity	0 - 90% RH (No condensing)				
Dimension	480*438*107mm	535*438*117mm	600*460*200mm	450*445*110mm	622*500*167mm
Net Weight	16Kg	17Kg	29Kg	16Kg	45Kg

*Product specifications are subject to change without prior notice. MPP Solar is a registered trademark of MPP Solar Inc.

NELSON SOLAR

MPPT Solar Charge Controller

PC1600A Series (20/30/40A)

Features

- LCD display , easy to operate on LCD screen
- Multi stage charging (3-stage charging , parallel charging and equalized charging function)
- BTS - Battery remote temperature sensor terminal
- Enable to charge Li-thium, Gel , lead-acid battery
- With RS485 & USB communication port
- Protection: PV array short circuit, PV reverse polarity, Battery reverse polarity, Over charging, Output short circuit

Selection Guide

MODEL		PC16-2015A	PC16-3015A	PC16-4015A
Nominal Battery System Voltage		12VDC/24VDC (Auto Detection)		
CONTROLLER INPUT	PV Open Circuit Voltage	100VDC@12V/145VDC @24V		
	PV Array MPPT Voltage Range	16VDC~100VDC / 32VDC~130VDC		
	Max PV Input Power(12V)	300W	450W	600W
	Max PV Input Power(24V)	600W	900W	1200W
BATTERY	Absorption Voltage	12.5VDC / 25.0VDC		
	Refloat Voltage	13.7VDC / 27.4VDC		
	Float Voltage	14.3VDC / 28.6VDC		
	Low Voltage Protection Point	10.0VDC / 20.0VDC		
DC OUTPUT	Output Voltage	10.0~14.5VDC / 20.0~29.0VDC		
	Peak Conversion Efficiency	98%(MPPT Efficiency 99%)		
	Max Charging Current	20 amps continuous	30 amps continuous	40 amps continuous
	Max Output Current	20 amps continuous	20 amps continuous	20 amps continuous
	Low Voltage alarm	10.25VDC / 20.5VDC		
	Low Voltage cutoff	10.0VDC / 20.0 VDC		
	Low Voltage Recovery	11.0VDC / 22.0VDC		
GENERAL SPRCIFICATION	Radiating Mode	Automatic cooling		
DISPLAY & PROTECTION	LED Indication	Systematic operation, LV indication, LV protection, Over charge protection Loads protection, Short circuit protection		
	LED Display	Charge Voltage, Charge Current, Voltage of storage battery, Capacity of storage battery, Output current		
	Alarm Protections	PV array short circuit, PV reverse polarity		
		Battery reverse polarity, Over charging protrction		
		Output short circuit protection		
		Low voltage protection for storage battery		
MECHANICAL SPECIFICATIONS	Mounting	Wall mount		
	Machine Dimension(W*H*D)	154*236*88mm (color box / pcs)		
	Gross Wight (kg)(per pcs)	2.5kg		
	Package Dimension (W*H*D)	610*308*230mm (4PCS/Carton)		
	Gross Weight (kg)(per carton)	10.8kg	13.4kg	13.4kg
OTHER	Environmental Rating	Indoor		
	Operation Temperature Range	-25℃ ~ +55℃		
	Loading (20GP/40GP/40HQ)	2500pcs / 5000pcs / 5800pcs		

NELSON SOLAR

MPPT Solar Charge Controller

(100A)

(60A/80A)

PC1800F Series (60A/80A/100A)

Features

- LCD display , easy to operate on LCD screen
- Multi stage charging (3-stage charging , parallel charging and equalized charging function)
- BTS - Battery remote temperature sensor terminal
- Enable to charge Li-thium, Gel , lead-acid battery
- With RS485 & USB communication port
- Protection: PV array short circuit, PV reverse polarity, Battery reverse polarity, Over charging, Output short circuit

Selection Guide

MODEL		PC18-6015F		PC18-8015F		PC18-10015F
Nominal Battery System Voltage		12V/24V/48VDC (Auto detection); 36V (Setting)				
CONTROLLER INPUT	Battery Voltage	12V	24V	36V	48V	48V
	Maximum Solar Input Voltage	100V	145V			
	PV Array MPPT Voltage Range	15~95V	30~130V	45~130V	60~130V	60~130V
	Maximum Input Power	12Volt-940W 24Volt-1880W 36Volt-2820W 48Volt-3760W		12Volt-1250W 24Volt-2500W 36Volt-3750W 48Volt-5000W		12Volt-1550W 24Volt-3100W 36Volt-4650W 48Volt-6200W
BATTERY	Charging Set Points	Absorption Stage			Float Stage	
	Flooded Battery	14.2V/28.4V/42.6V/56.8V			13.7V/27.4V/41.1V/54.8V	
	AGM (Default)	14.4V/28.8V/43.2V/57.6V			13.7V/27.4V/41.1V/54.8V	
	Over-charging Voltage	15.5V/30.0V/45.0V/60.0V				
	Over-charging Comeback Voltage	14.5V/29.5V/44.5V/59.0V				
	Battery Defect Voltage	10.0V/17.0V/25.5V/34.0V				
	Temperature Compensation Conefficient	-5mv / ˚C /cell (25˚C vef)				
	Peak Conversion Efficiency	98% (MPPT Efficiency 99%)				
	Max Charging Current	60amps continuous @ 40˚C ambient		80amps continuous @ 40˚C ambient		100amps continuous @ 40˚C ambient
GENERAL SPECIFICATION	Radiating Mode	Fan cooling				
DISPLAY & PROTECTION	Protections	Solar high voltage disconnect Solar high voltage reconnect Battery high voltage disconnect Battery high voltage reconnect High temperature disconnect High temperature reconnect				
MECHANICAL SPECIFICATIONS	Mounting	Wall mount				
	Machine Dimension (W*H*D)	152*85*294 mm (per pcs)				175*82.9*257.1
	G.W (kg)	3kg/pcs				
	Package Dimension (W*H*D)	625*366*232 mm (4pcs / Carton)				/
	Gross Weight (kg)	14kg				
OTHER	Environmental Rating	Indoor				
	Operation Temperature Range	-10~55˚C				
	Ambient Humidity	0~90% relative humidity (non-condensing)				
	Altiude	≤3000m				

Photovoltaics

MPPT CONTROLLERS

PCM60X

ELECTRICAL SPECIFICATIONS			
Max PV Input Voltage		145VDC (Open Circuit)	
System Voltage	12V	24V	48V
MPPT Range	15 ~ 115VDC	30 ~ 115VDC	60 ~ 115VDC
Max PV Input Power	800W	1600W	3200W
Max Input Current		50A	
Recommended Battery Type		Flooded, GEL, or AGM Lead Acid	
Max Charging Current		60A	
Charging Schemes		3-step, Bulk, Absorption, Float	
Flooded Absorb/Float	14.6V, 13.5V	29.2V, 27V	58.4V, 54V
AGM, Gel Absorb/Float	14.1V, 13.5V	28.2V, 27V	56.4V, 54V
Max Equalization Charge	15.5V	31V	62V
Battery Temp. Compensation		-5.0mV/°C/cell (25°C reference)	
BTC range		25—50°C	
Protections		Overinput current, high temperature disconnect/reconnect, high PV & high/low battery voltage disconnect/reconnect	
LED Indicator		3, Power ON/Charging, Fault/Warning, Wiring Fault	
GENERAL SPECIFICATIONS			
Certification / EMC		CE	
Ambient / Storage Temp.		0°C—50°C / -30°C—70°C	
Enclosure Type		Indoor , IP31	
Working Humidity		0-90%RH Max Non-Condensing	
Dimension		315*165*128mm	
Weight		4.5kg	

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KEY FEATURES

- Maximum Power Point Tracking (MPPT)
- Max 60amp output
- Compatible with 12, 24 or 48V systems.
- 3-stage charging scheme
- Max equalization charge up to 62V
- Supports programmable charging voltages
- Built-in COM port for bundled monitoring software (MPPTracker®)
- Support wide range of lead-acid batteries including flooded, AGM, and gel batteries.
- Max PV array support up to 3.2kw (for 48V only).
- Maximum efficiency up to 98%
- System protections include: over input current or power, high temperature protection, battery HVD/HVR/LVD/LVR
- Built-in BVS (battery voltage sensing)

Optional accessories:
- BTS wire
- SNMP web box

can be ordered separately

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PIP-GK *PF1.0* SERIES

Off-Grid Solar Inverter

MAIN FEATURES

- NEW! Batteryless Operation Support
- NEW! Improved Monitoring Features (Removable USB / RS232, RS485, Bluetooth)
- NEW! Removable LCD Control Display (20m)
- NEW! Reserved BMS port (battery)
- 3KW / 5KW continuous output model
- Special high-voltage MPPT built-in solar charger
- High frequency pure sine wave design
- Max 500VDC open circuit input
- Max 80A solar charging (up to 4KW PV)
- Max charging voltage 31.5V @ 24V, or 61V @ 48V
- Suitable for Off-Grid or with Grid backup
- Generator starter dry contact port
- Programmable parameters on LCD
- Max up to 60A utility charging
- Lightweight, easy to install
- 2X surge capacity
- FREE monitoring software
- LCD Display + LED indicators

REMOVABLE DISPLAY

MOBILE MONITORING VIA BLUETOOTH

BMS COMMUNICATION PORT (BATTERY)

BATTERYLESS SUPPORT

PIP-GK SERIES	3024GK	5048GK
ELECTRICAL SPECIFICATION		
Continuous Output	3KW	5KW
Surge Rating	6KVA	10KVA
Input Power Factor	1	
Input Voltage Range	90~280VAC (Appliance), 170~280VAC (UPS)	
Input/Output Frequency	50Hz / 60Hz	
Output Voltage	230VAC±5%	
Output Waveform	Pure Sine Wave	
Output Short Circuit	Circuit Breaker	
Peak Efficiency	93%	
Nominal DC Voltage	24V	48V
Max DC Input	33V	63V
Transfer Time	〈10ms (UPS mode), <20ms (Appliance mode)	
Charging Mode	3-stage	
Max AC Charging Current	60A	
Equalization Charge	31.5V	61V
SOLAR CHARGER SPECIFIATIONS		
Charging Algorithm	**MPPT**	
Max Charging Current (PV power)	**80A (~4KW PV)**	
Max PV Input Voc	**500VDC**	
MPPT Range	**120 - 450VDC**	
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS		
Certification	CE	
Communication Interface	Removable USB, RS232/RS485, Bluetooth, Dry Contact	
Operating/Storage Temp.	0°C ~ 50°C / -15°C~ 60°C	
Operating Humidity	20~90%RH Non-Condensing	
Dimension	400*300*115mm	
Net Weight	11KG	13KG

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PIP-HSE PF1.0 PWM SERIES

Off-Grid Solar Inverter

1012HSE
2024HSE

3024HSE

5048HSE

HIGH DC VOLT 16V/33/63V

EQUALIZATION CHARGING

FUSE PROTECTION (DC REVERSE POLARITY)

PF 1.0 Efficient Design

MAIN FEATURES

- NEW! energy-efficient power factor 1.0 design
- Special designed for price sensitive consumers
- Lighter in weight, 1-5KW available
- Equalization charging available
- Increased DC limit up to 63V max
- Increased bulk/float voltage 61V max
- Fuse protection against reverse battery
- High frequency pure sine wave design
- 3-stage 50A PWM built-in solar charger
- Suitable for Off-Grid or with Grid
- Programmable parameters
- Max up to 60A utility charging
- Adjustable charging voltage
- Wide AC input range
- Lightweight, easy to install
- FREE monitoring software
- LCD Display + LED indicators
- USB / RS232 communication interface

PIP-HSE SERIES	1012HSE	2024HSE	3024HSE	5048HSE
ELECTRICAL SPECIFICATION				
Continuous Output	1000W	2000W	3000W	5000W
Surge Rating	2X			
Input Power Factor	1			
Input Voltage Range	90~280VAC (Appliance mode), 170~280VAC (UPS mode)			
Input/Output Frequency	50Hz / 60Hz			
Output Voltage	230VAC±5%			
Output Waveform	Pure Sine Wave			
Output Short Circuit	Circuit Breaker			
Peak Efficiency	93%			
Nominal DC Voltage	12V	24V		48V
Max DC Input	16V	31V	33V	63V
Transfer Time	<10ms (UPS mode), <20ms (Appliance mode)			
Charging Mode	3-stage			
Max AC Charging Current	20A	20A	25A	60A
Max Equalization Charge	15V	30V	31.5V	61V
No Load consumption	<25W			<55W
SOLAR CHARGER SPECIFIATIONS				
Charging Algorithm	PWM			
Max Charging Current	50A			
Max PV Input Voc	55V	80V	80V	105V
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS				
Certification	CE			
Operating/Storage Temp.	0°C ~ 55°C / -15°C~ 60°C			
Operating Humidity	20~90%RH Non-Condensing			
Dimension	320*225*88mm		334*285*100mm	440*300*100mm
Net Weight	5.0Kg	5.8Kg	6.5Kg	9.0Kg

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PIP-MSE PF1.0 MPPT SERIES

Off-Grid Solar Inverter

1012MSE
2024MSE

3024MSE

3024MSXE
5048MSE

HIGH DC VOLT 16V/33/63V

EQUALIZATION CHARGING

FUSE PROTECTION (DC REVERSE POLARITY)

MPPT TECHNOLOGY

MAIN FEATURES

- NEW! energy-efficient power factor 1.0 design
- Special designed for price sensitive consumers
- Lighter in weight, 1-5KW available
- Equalization charging available
- Increased DC limit up to 63V max
- Increased bulk/float voltage 61V max
- Fuse protection against reverse battery
- High frequency pure sine wave design
- Max up to 80A MPPT built-in solar charger
- Suitable for Off-Grid or with Grid
- Programmable parameters
- Max up to 60A utility charging
- Adjustable charging voltage
- Wide AC input range
- Lightweight, easy to install
- FREE monitoring software
- LCD Display + LED indicators
- USB / RS232 communication interface

PIP-MSE/MSXE SERIES	1012MSE	2024MSE	3024MSE	3024MSXE	5048MSE
ELECTRICAL SPECIFICATION					
Continuous Output	1000W	2000W	3000W	3000W	5000W
Surge Rating	2X				
Input Power Factor	1				
Input Voltage Range	90~280VAC (Appliance mode), 170~280VAC (UPS mode)				
Input/Output Frequency	50Hz / 60Hz				
Output Voltage	230VAC±5%				
Output Waveform	Pure Sine Wave				
Output Short Circuit	Circuit Breaker				
Peak Efficiency	93%				
Nominal DC Voltage	12V	24V	24V		48V
Max DC Input	16V	31V	33V		63V
Transfer Time	<10ms (UPS mode), <20ms (Appliance mode)				
Charging Mode	3-stage				
Max AC Charging Current	20A	25A	25A	60A	60A
Max Equalization Charge	15V	30V	31.5V		61V
No Load consumption	<25W				<55W
SOLAR CHARGER SPECIFIATIONS					
Charging Algorithm	MPPT				
Max Charging Current	40A	40A	40A	60A	60A
Max PV Input Voc	105V	105V	105V	145V	145V
MPPT Range	15 ~ 80V	30 ~ 80V	30 ~ 80V	30 ~ 115V	60 ~ 115V
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS					
Certification	CE				
Operating/Storage Temp.	0°C ~ 55°C / -15°C~ 60°C				
Operating Humidity	20~90%RH Non-Condensing				
Dimension	320*225*88mm		334*285*100mm	400*300*100mm	
Net Weight	5.0Kg	5.1Kg	6.5Kg	9.5Kg	10Kg

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PIP-HSE1/MSE1 SERIES

Off-Grid Solar Inverter

2424HSE1
2424MSE1

GREAT FEATURES + LOW COST = BEST VALUE

EQUALIZATION CHARGING

FUSE PROTECTION (DC REVERSE POLARITY)

MPPT TECHNOLOGY

MAIN FEATURES

- Maximum 2.4KW output @ 24Vdc system
- Special designed for price sensitive markets
- Light weight design
- MPPT / PWM models available
- Equalization charging up to 30V
- Max bulk + float voltage 30V max
- Fuse protection against reverse battery
- High frequency pure sine wave design
- Suitable for Off-Grid or with Grid input
- Programmable parameters to extend possible support to non-lead acid type batteries
- Max up to 25A utility charging
- Wide AC input range
- Easy to install
- FREE monitoring software
- LCD Display + LED indicators
- USB / RS232 communication interface

HSE1/MSE1 SERIES	2424HSE1	2424MSE1
ELECTRICAL SPECIFICATION		
Continuous Output	3KVA / 2400W	
Surge Rating	2X	
Input Power Factor	0.8	
Input Voltage Range	90~280VAC (Appliance mode), 170~280VAC (UPS mode)	
Input/Output Frequency	50Hz / 60Hz	
Output Voltage	230VAC±5%	
Output Waveform	Pure Sine Wave	
Output Short Circuit	Circuit Breaker	
Peak Efficiency	95%	
Nominal DC Voltage	24V	
Max DC Input	31V	
Transfer Time	〈10ms (UPS mode), <20ms (Appliance mode)	
Charging Mode	3-stage	
Max AC Charging Current	25A	
Max Equalization Charge	30V	
No Load consumption	〈25W	
SOLAR CHARGER SPECIFIATIONS		
Charging Algorithm	PWM	MPPT
Max Charging Current	50A	40A
Max PV Input Voc	80V	105V
MPPT Range	N/A	30 ~ 80V
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS		
Certification	CE	
Operating/Storage Temp.	0°C ~ 55°C / -15°C~ 60°C	
Operating Humidity	20~90%RH Non-Condensing	
Dimension	320*258*88mm	
Net Weight	5.5Kg	5.8Kg

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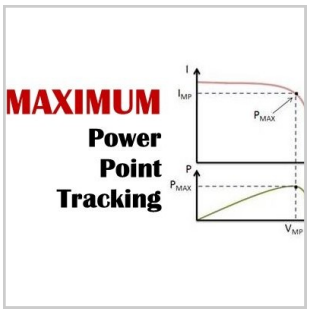
PIP-HSP/MSP SERIES

24V Parallel-Ready Solar Inverter

24VDC ONLY

PARALLEL SUPPORT



MPPT OR PWM INSIDE

FREE MONITORING

MAIN FEATURES

- 24Vdc battery based solar inverter
- Parallel-ready up to 6 units max!
- Single phase (230VAC) or 3 phase (400VAC)
- High frequency pure sine wave design
- 50A PMW & max 80A MPPT models available
- Suitable for Off-Grid or with Grid
- Programmable parameters
- Max up to 60A utility charging
- Adjustable charging voltage
- Wide AC input range
- Lightweight, easy to install
- 2X surge capacity max 5s
- FREE monitoring software
- LCD Display + LED indicators
- USB, RS232 communication interface

PIP-HSP, MSP 24V	2424HSP	2424MSP	4024HSP	4024MSP
ELECTRICAL SPECIFICATIONS				
Max Continuous Power	2400W		4000W	
Parallel Capability	Max up to 6 units (single phase or 3 phase)			
Input Voltage Range	90~280VAC (Appliance mode), 170~280VAC (UPS mode)			
Input/Output Frequency	50Hz/60hz Auto sensing			
Output Voltage	230VAC ± 5%			
Output Waveform	Pure Sine Wave			
Peak Efficiency	91%			
Nominal DC Voltage	24V			
Max DC Voltage (battery)	30V			
Transfer Time	〈10ms (UPS mode), <20ms (Appliance mode)			
Charging Mode	3-stage			
AC Recharging Current	60A			
SOLAR CHARGER				
Algorithm	PWM	MPPT	PWM	MPPT
Max PV Input / Output	1200W	1000W	1200W	2000W
Max Charging Current	50A	40A	50A	80A
Max PV Input Voc	75V	100V	105V	145V
MPPT Range	N/A	30~80V	N/A	30~115V
Standby Power	2W			
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS				
Operating/Storage Temp.	0°C ~ 50°C / -15°C~ 60°C			
Operating Humidity	10~90%RH Non-Condensing			
Dimension	355*272*100mm		475*310*180mm	
Net Weight	7Kg	8Kg	12Kg	13Kg

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PIP-MK *PF1.0* SERIES

Off-Grid Solar Inverter

MAIN FEATURES

- NEW! Zero Transfer Time
- NEW! Improved Monitoring Features (Removable USB / RS232, RS485, Bluetooth)
- NEW! Removable LCD Control Display (20m)
- NEW! Reserved BMS port (OEM required)
- Parallel Support up to 9 units!
- Max 3KW / 5KW continuous output
- High frequency pure sine wave design
- Max up to 80A MPPT solar charging (up to 4KW PV)
- Max PV input 145V
- Equalization Charging up to 64V
- Max DC input 66V
- Suitable for Off-Grid or with Grid backup
- Generator starter dry contact port
- Programmable parameters on LCD
- Max up to 60A utility charging
- Easy to install
- FREE monitoring software

REMOVABLE DISPLAY

MOBILE MONITORING VIA BLUETOOTH

ZERO TRANSFER TIME

PARALLEL SUPPORT

PIP-MK SERIES	3024MK	5048MK
ELECTRICAL SPECIFICATION		
Continuous Output	3KVA/3KW	5KVA/5KW
Parallel Capability	Yes, up to 9 units	
Input Power Factor	1	
Input Voltage Range	110-280VAC	
Input/Output Frequency	50Hz / 60Hz	
Output Voltage	230VAC±5%	
Output Waveform	Pure Sine Wave	
Output Short Circuit	Circuit Breaker	
Peak Efficiency	>94% (line mode) / >90% (inverter mode)	
Nominal DC Voltage	24V	48V
Max DC Input	34V	66V
Transfer Time	0 ms	
Equalization Charge	32V	64V
SOLAR + AC CHARGER SPECIFIATIONS		
Charging Algorithm	MPPT	
Max Charging Current (PV power)	60A (1.5KW)	80A (4KW)
Max PV Input Voc	145VDC	
MPPT Range	30-115VDC	60-115VDC
Max AC Charging Current	60A	60A
Max System Charging	120A	140A
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS		
Certification	CE	
Communication Interface	Removable USB, RS232/RS485, Bluetooth, Dry Contact	
Operating/Storage Temp.	0°C ~ 50°C / -15°C~ 60°C	
Operating Humidity	10~90%RH Non-Condensing	
Dimension	525*300*140mm	
Net Weight	13Kg	14Kg

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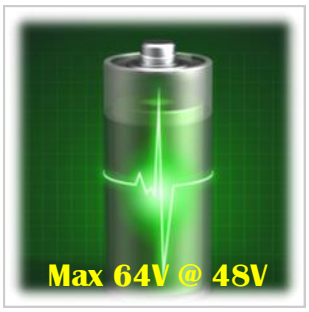
PIP-MS/MG *PF1* SERIES

Off-Grid Solar Inverter

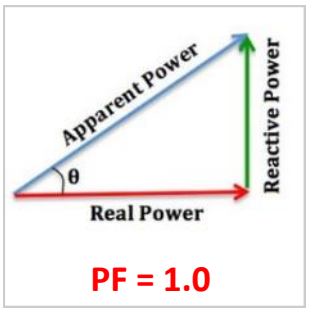
*available on 5048MG only

HIGH DC INPUT 66V



EQUALIZATION CHARGING

PARALLEL SUPPORT*



ENERGY EFFICIENT

MAIN FEATURES

- NEW! energy-efficient power factor 1.0 design
- Parallel-ready up to 9 units (4-5K only)
- Equalization charging up to 64V (MS 4-5K only)
- Max DC limit up to 66V (MS 4-5k only)
- High PV 450V input + Batteryless Operation (MG 5k only)
- Bulk charge (C.V.) setting time
- Built-in MPPT solar charger up to 80A
- High frequency pure sine wave design
- Suitable for with or without grid input
- Programmable parameters
- Max up to 80A utility charging
- Adjustable bulk/float voltage
- Wide AC input range
- Lightweight, easy to install
- FREE monitoring software
- LCD Display + LED indicators

PIP-MS/MG SERIES	1012MS	2024MS	3024MS	4048MS(1)	5048MS	5048MG
ELECTRICAL SPECIFICATIONS						
Continuous Output	1000W	2000W	3000W	4000W	5000W	5000W
Parallel-ready	NO			YES, MAX 9 UNITS		
Batteryless Operation	NO					YES
Input Power Factor	1					
Input Voltage Range	90~280VAC (Appliance mode), 170~280VAC (UPS mode)					
Input/Output Frequency	50Hz / 60Hz					
Output Voltage	230VAC±5%					
Output Waveform	Pure Sine Wave					
Output Regulation	〈 3% RMS for battery voltage range					
Output Short Circuit	Circuit Breaker					
Peak Efficiency	95% (line mode) / 91% (inverter mode)					
Transfer Time	〈10ms (UPS mode), <20ms (Appliance mode) **					
Charging Mode	3-stage					
Nominal DC Voltage	12V	24V		48V		
Bulk Volt (Flooded, AGM)	14.6, 14.1V	29.2, 28.2V		58.4, 56.4V		
Float Volt	13.5V	27.0V		54.0V		54.0V
Max DC Volt	15.5V	31.0V		66.0V		63.0V
Max AC Charging Current	20Amp	30Amp		60Amp		80A
No Load Consumption	〈15W	〈25W		〈50W		〈50W
Power Saving Mode	〈5W	〈10W		〈15W		〈15W
Solar Charger						
Algorithm	MPPT					
System DC Voltage	12V	24V		48V		48V
Max PV Input Voc	102V	75V		145V		450V
MPPT Range	15 - 80V	30 - 66V		60 - 115V		120 - 430V
Max Charging Amp/Watt	40A, 500W	25A, 600W		80A, 4000W		80A, 4500W
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS						
Certification	CE					
Operating/Storage Temp.	0°C ~ 55°C / -15°C~ 60°C					
Operating Humidity	20~90%RH Non-Condensing					
Dimension	355*272*100mm			468*295*120mm		
Net Weight	7.0Kg	7.0Kg	7.5Kg	12.5Kg	13.5Kg	11Kg

*MPP Solar Inc. reserves the right to change product specification without notice. MPP Solar is a registered trademark.
**Parallel Mode transfer time is 30ms

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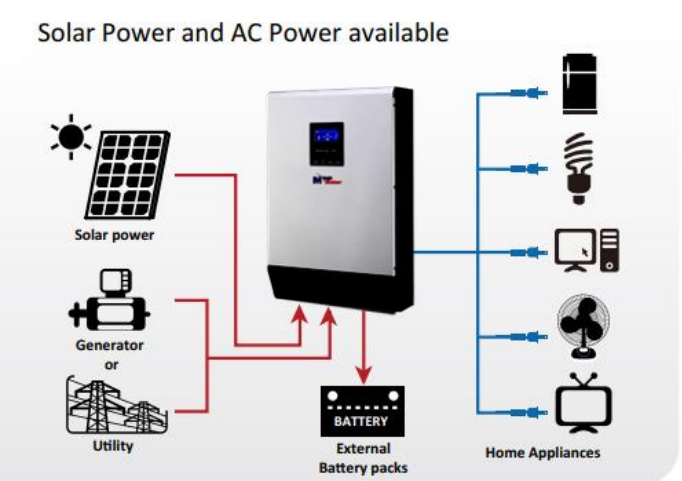
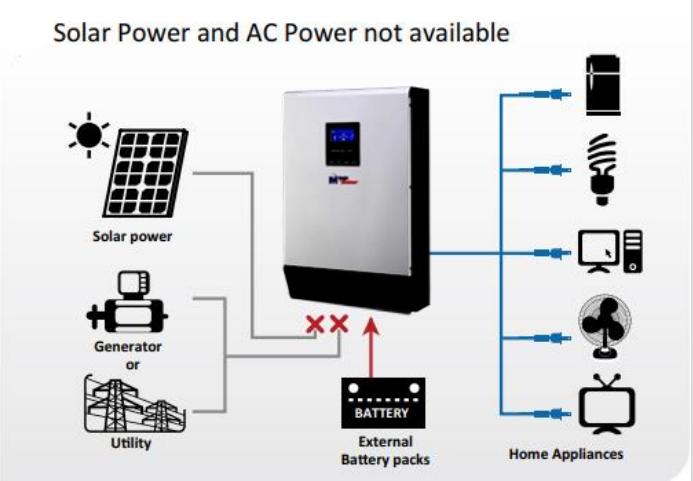
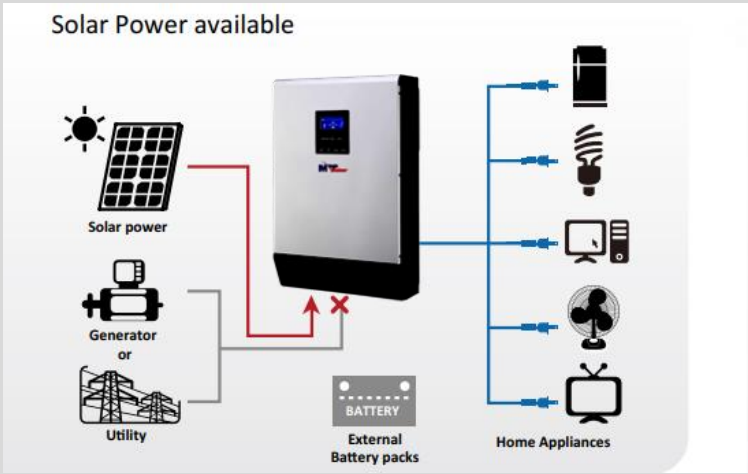
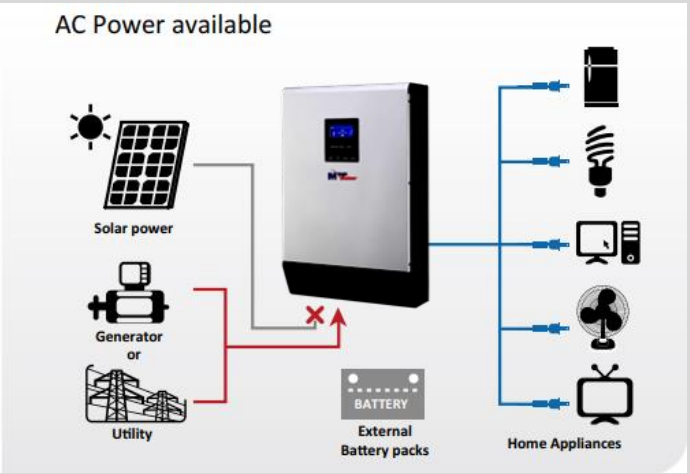
Operation with Battery connected





Operation without Battery connected





Optional Accessories

PARALLEL KIT

This accessory is applicable to select 48VDC models of HS and MS series inverters. It is a required component to be installed in every unit of a parallel system. A parallel kit includes:

- 1 X PARALLEL BOARD
- 1 X PARALLEL COMM CABLE
- 1 X CURRENT SHARING CABLE

*IMPORTANT: please do not attempt to parallel non-parallel-ready inverters together, as this will result instant damage of all units!

REMOTE CONTROL DISPLAY MODULE

This device is an extension of the HS/MS inverter's LCD module and allows user to implement control on settings and monitoring from a distance away, one unit at a time.

This remote module can coexist with the built-in LCD display and is compatible with most models in the HS/MS inverter series. Default operating distance: 15m via RJ45 network cable (fixed length cable included)

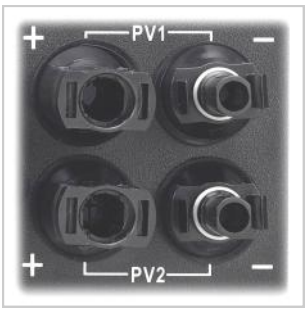
*For more details on pricing, availability and installation guide, please contact us directly.

PIP-MSD/MST SERIES

Off-Grid Solar Inverter

AC/DC CABLE GLAND*

ENHANCED PCB COATING



MC4 PV CABLE GLAND*

MAX 3X PV MPPT INPUT

MAIN FEATURES

- **Multiple MPPT input up to 3X**
- **MC4 PV connectors**
- **Enhanced PCB coating and resistance against harsh environment**
- **Solar charging up to 180A!**
- High frequency pure sine wave design
- Suitable for Off-Grid or with Grid
- Programmable parameters
- Parallel operation (48V only)
- Max 60A utility charging
- Adjustable charging volt
- Wide AC input range
- Lightweight, easy to install
- 2X surge capacity max 5s
- FREE monitoring software
- LCD Display + LED indicators
- Genset starter dry contact (inverter-type generator recommended)
- USB communication interface

*AC/DC & MC4 cable gland features currently available only on 1200w & 2400w models.

PIP-MSD/MST	1212MSD	2424MSD	2448MSD	5048MSD	5048MST
ELECTRICAL SPECIFICATION					
Continuous Output	1200W	2400W	2400W	5000W	5000W
Surge Rating	2X				
Input Power Factor	0.8	0.8	0.8	1.0	1.0
Input Voltage Range	90~280VAC (Appliance mode), 170~280VAC (UPS mode)				
Input/Output Frequency	50Hz / 60Hz				
Output Voltage	230VAC±5%				
Output Waveform	Pure Sine Wave				
Output Short Circuit	Circuit Breaker				
Peak Efficiency	>93%				
Nominal DC Voltage	12V	24V	48V	48V	48V
Max DC Input	16V	32V	62V	60V	
Transfer Time	<10ms (UPS mode), <20ms (Appliance mode)				
Charging Mode	3-stage				
Max AC Charging Current	60 amp				
SOLAR CHARGER SPECIFIATIONS					
MPPT Port	2	2	2	2	3
Max Charging Current	80A	80A	40A	120A	180A
Max PV Input Voc	100V	100V	100V	145V	
MPPT Range	15 ~ 80V	30 ~ 80V	60 ~ 90V	60 ~ 115V	
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS					
Certification	CE				
Operating/Storage Temp.	0°C ~ 55°C / -15°C~ 60°C				
Operating Humidity	20~90%RH Non-Condensing				
Dimension	400*272*124mm			455*295*194mm	
Net Weight	8Kg			16Kg	17Kg

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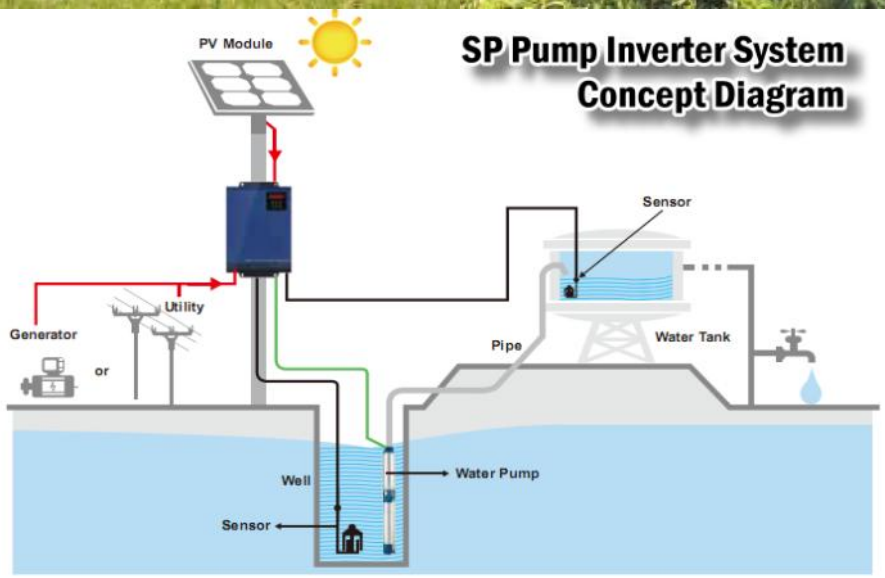
SP INVERTER SERIES

Solar Pump Inverter



MAIN FEATURES

- Battery-less design Single/3-phase SOLAR pump inverter (run from Solar or AC)
- Built in MPPT solar charger
- High PV Input Voc 800V!
- 2.2KW, 7.5KW, or 11KW models to choose
- Compatible with IEC standard 3-phase asynchronous motor
- Peak 97% efficiency!
- 50Hz or 60Hz supported (programmable)
- Alternative AC Input — compatible with utility or generator
- Auto-restart feature after PV reconnect or AC return
- Automatic derating at high temperature
- Soft start feature available
- Full feature system protection
- RS232 / RS485 monitoring feature
- Large LCD / LED display
- (optional) Monitoring of water tank level through input dry contact signal

SP Solar Pump Inverter	SP-2.2K LS	SP-2.2K	SP-7.5K	SP-11K
INPUT POWER				
Max PV array	3500W(3-Phase) 7000W(Single Phase)	3,500W	12,000W	17,600W
Max PV Input Voc	450VDC	800Vdc		
MPPT Range	120~420Vdc	250 - 780Vdc		
Startup Voltage	120Vdc	250Vdc		
Max Input PV current	7.4A(3-Phase) 15A(Single Phase)	4.3A	14.5A	21.3A
Recommend PV input voltage	>330V(for 220v)	>560v@380v, >585v@400v, >606v@415v, >642v@440v		
(Optional) AC Input Power	4,000VA	4,000VA	11,000VA	16,500VA
(Optional) AC Input Voltage	220,230,240VAC (Single Phase) 380,400,415,440VAC (3 phase)	380, 400, 415, 440VAC (3 phase)		
(Optional) AC Input Max Current	18.18A	5.8A	20.5A	27A
OUTPUT POWER				
Power Phase	Single or 3 Phase	3 Phase only		
Output Voltage	220,230,240VAC(Single Phase) 380,400,415,440VAC (3 phase)	380, 400, 415, 440VAC (3 phase)		
Max Output Power	2200W	2,200W	7,500W	11,000W
Water pump power support	0.75~3 HP	0.75~3 HP	3~10 HP	10~15 HP
Peak Efficiency	97%			
Max Output Current	14A (Single Phase) 10A (3 Phase)	5A	17A	26A
Motor Type	Single /3 Phase asynchronous motor	3-Phase asynchronous motor		
Output Frequency	50Hz / 60Hz, adjustable			
ENVIRONMENTAL / MECHANICAL SPECIFICATIONS				
Protections	Over/Under-Voltage, Over Current, Over Temp, Short Circuit, Surge			
Communication	RS-232, RS-485			
Operating Temp.	-20°C~ 45°C (100% load, power derate >45°C)			
Operating Humidity	0~95%RH Non-Condensing			
Dimension	110*230*330mm			
Weight/Packing	**5.0kg**	**5.5Kg**	**6Kg**	**6.5Kg**

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