



# PRODUCT CATALOG



SOLAR PUMPS INVERTER



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**Shenzhen Kewo Electric Technology Co., Ltd**

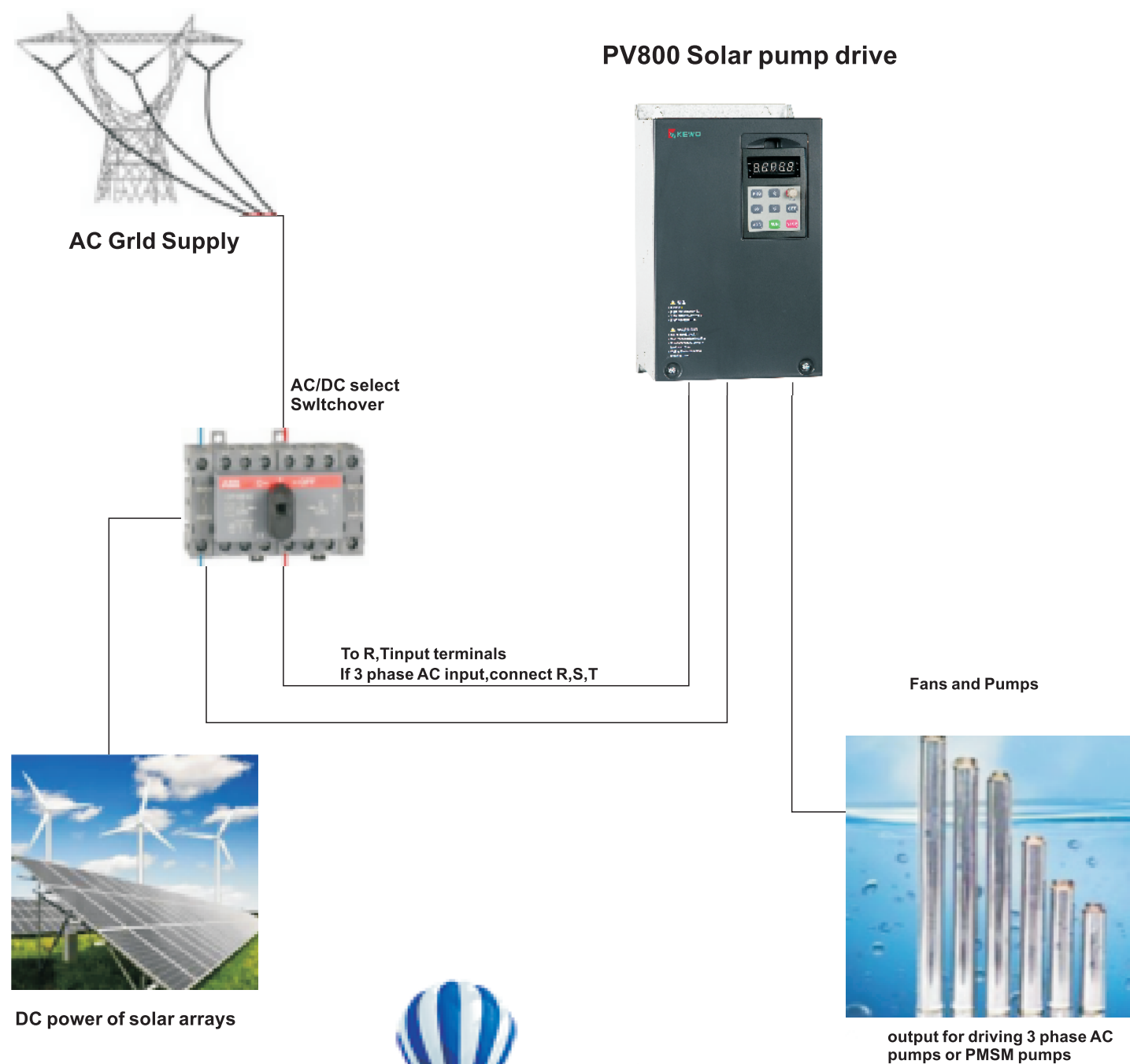
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**SHENZHEN KEWO ELECTRIC TECHNOLOGY CO., LTD**

## Solar Pump inverters-With MPPT, flow/generated energy measurement



## SOLAR PUMPS SYSTEM—SOLAR PANELS SOLAR PUMP INVERTER, PUMPS

### Main Features of solar pump system

- Low carbon economy
- In-built MPPT with high efficiency
- Pump specific protection
- Remote monitoring
- Best off grid solution
- Perfect stable frequency output



### Applications

1. Ground water lowering,
2. Irrigation systems
3. Industrial Application
4. Drip irrigation& sprinkler
5. Tank/ cistern filling
6. Wildlife refuge
7. Rural water supply for ranches, cabins, and cottages
8. Fountains.





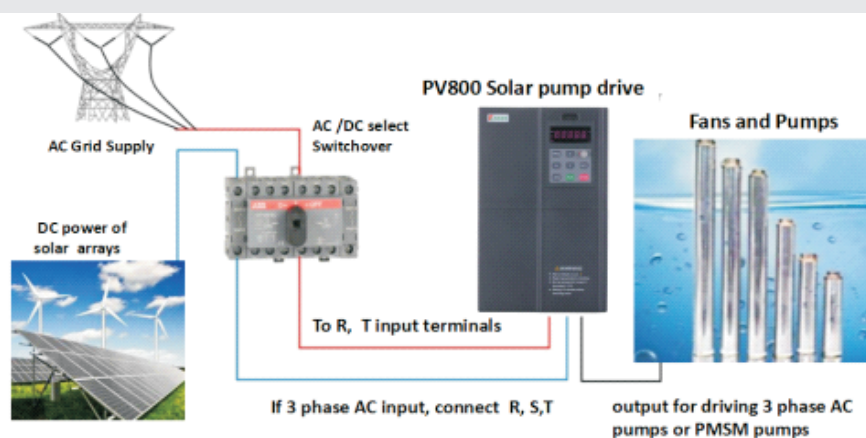
## SOLAR PUMP SYSTEM INTRODUCTION

Solar Pumping system becomes more and more popular, it can be applied to daily ( underground water), agriculture irrigation, forestry irrigation, desert control, pasture animal husbandry, water supply for islands, wastewater treatment engineering , and so on.

In recent years, with the promotion of the utilization of new energy resources, solar pumping systems are more and more used in municipal engineering, city center squares, parks, tourist sites, resorts and hotels, the landscapes and fountain systems in the residential areas. This system is composed of a solar array, a pump and solar pumping inverter, or GPRS remote control model.

Based on the design philosophy that it is better to store water than electricity, there is no energy storing device such as store battery in the system.

The solar array, an aggregation of many solar modules connected n series and parallel. Absorbs sunlight radiation and converts into electrical energy, providing dynamical water for the whole system. The pump inverter controls and adjusts the system operation and converts the DC produced by solar array into AC to drive the pump, and adjust the output frequency in real-time according to the variation of sunlight intensity to realize the maximum power point tracking( MPPT). The pump, driven by 3-phase AC motor, can draw water from the deep wells or rivers and lakes to pour into the storage tank or reservoir, or directly connect to the irrigation system, fountain system, etc. According to the actual system demand and installation conditions, different types of pump such as centrifugal pump, axial flow pump, mixed-flow pump or deep-well pump can be used.



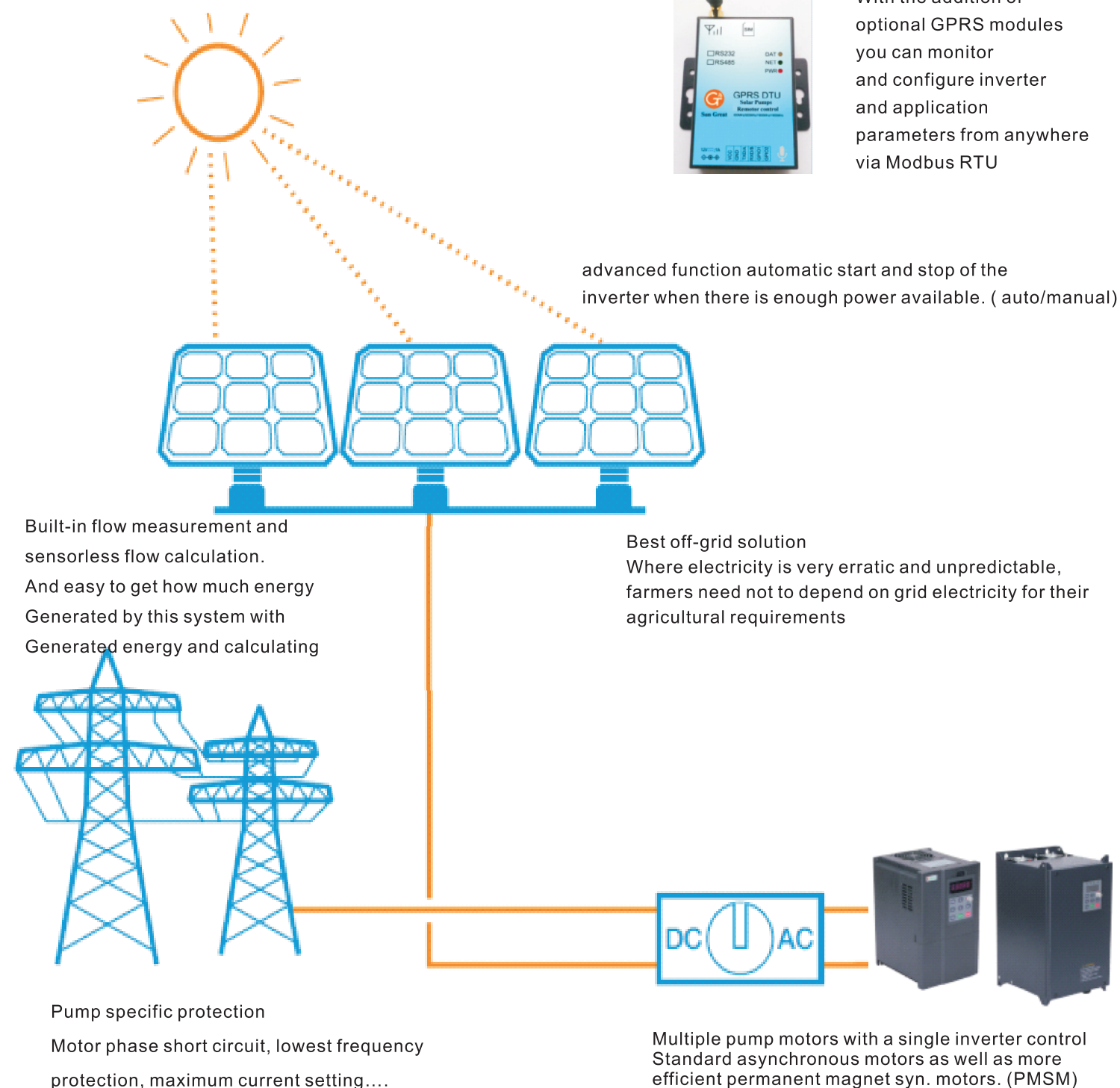
### Applications

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## FEATURES OF SOLAR PUMP INVERTER

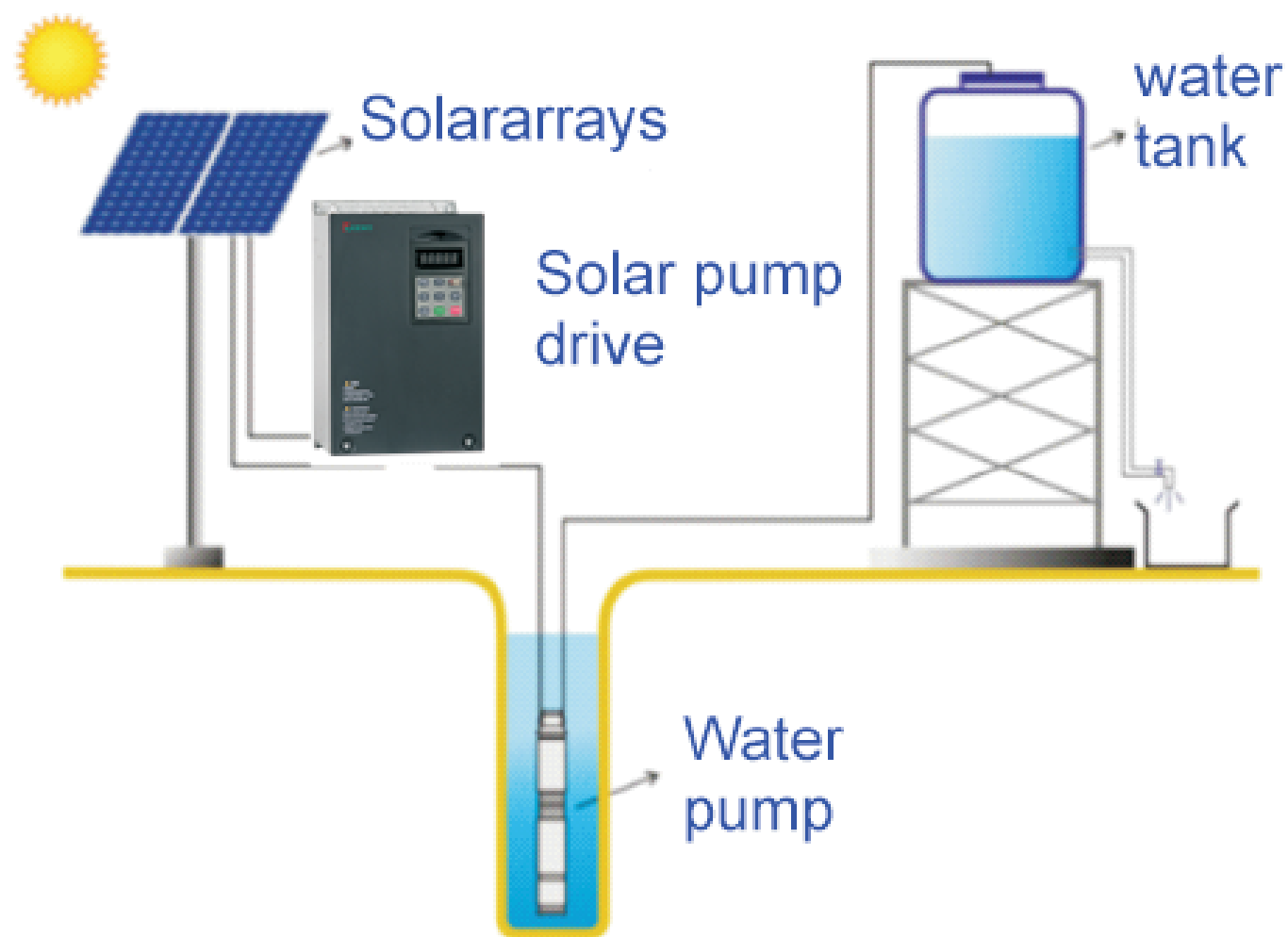
### Built-in MPPT

Maximum power point tracking functionality ensures that you get the most power output possible from your solar panel and maximizes the performance of your pump throughout the day



Save in energy costs and maximize productivity solar pump inverters ensure reliable power supply throughout the day with on and off-grid compatibility

Reduce maintenance costs  
The inverters can be equipped with remote monitoring options, reducing maintenance trips to the site



Easy install and operation and little parameters Configuring.  
End user ,who never used inverter before, can Install and operation it very well.

## TECHNICAL SPECIFICATION

Recommended MPPT voltage range	Vmpp 131 to 350 VDC for 1S (80V to 350VDC input, 3PH 110 to 220VAC output) Vmpp 280 to 375VDC for 2T ( 150V to 350VDC input, 3PH 220 to 240VAC output) Vmpp 486 to 750 VDC for 4T ( 350V to 800VDC input, 3PH 380 to 460VAC output)
Recommended input voltage (Voc and Vmpp)	Voc 180(VDC), Vmpp 155(VDC) for 1S model or 110V AC pumps Voc 355(VDC), Vmpp 310(VDC) for 2T model or 220V AC pumps Voc 620(VDC), Vmpp 540(VDC) for 4T model or 380V AC pumps
Motor type	Control for permanent magnet servo motor and asynchronous motor pumps.
Input power	DC power from solar arrays or AC grid power
Maximum DC power input	450VDC for 220AC output /800VDC for 380V AC output
Rated output voltage	3-phase , 110V/160V/220V. 3-phase, 220V/380V/480V
Output frequency range	0~50/60Hz
MPPT efficiency	97%,
Ambient temperature range	(G-type inverter with submersible pumps, and P type for general pumps.
Solar pump control special performance	MPPT ( maximum power point tracking), CVT (constant voltage tracking), auto/manual operation, dry run protection, low stop frequency protection, minimum power input, motor maximum current protection, flow calculating, energy generated calculating.
Protection function	Phase loss protection, phase short circuit protection , ground to phase circuit protection , input and output short circuit protection. Stall protection
Protection degree	IP20, Air Force Cooling
Running mode	MPPT or CVT
Altitude	Below 1000m; above 1000m, derated 1% for every additional 100m.
Standard	CE, Design based on vector control inverter AD800 series, more specification please refer to Ad800 series vector control inverter operation manual





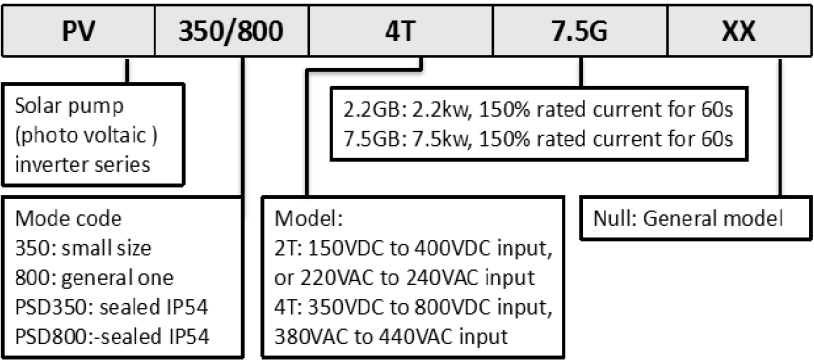
PV350/PV800 SOLAR PUMP INVETER MODELS LIST

SN	Models	Rate current	Output voltage ( 3PH VAC)	Applicable for pumps	Packing size	MPPT voltage (VDC)	Weight (kg)
2T series : 150 to 400 VDC or 200 to 240VAC input, Vmp 310VDC, Voc 350VDC, output 3 phase 0-230VAC							
1	PV50-2T0.75GB	4A	220V/240V	0.75KW	21 5*170 *19 0	260 to 375	2
2	PV350-2T1.5GB	7A	220V/240V	1.5KW	21 5*170 *19 0	260 to 375	2
3	PV350-2T2.2GB	10A	220V/240V	2.2kw	21 5*170 *19 0	260 to 375	2
4	PV800-2T3.7GM	16A	220V/240V	3.7kw	28 0*180 *21 5	260 to 375	3
4T series : 350 to 800 VDC or 380 to 460 VAC, Vmp 540VDC, Voc620VDC, ouput 0-380VAC.							
5	PV350-4T0.75GB	2.5A	380V-440V	0.75KW	215 *170 *19 0	486 to 750	2
6	PV350-4T1.5GB	3.7A	380V-440V	1.5KW	21 5*170 *19 0	486 to 750	2
7	PV350-4T2.2GB	5A	380V-440V	2.2KW	21 5*170 *19 0	486 to 750	2
8	PV350-4T3.7GB	8.5A	220V/240V	3.7KW	21 5*170 *19 0	260 to 375	2
9	PV800-4T5.5GB	13A	380V-440V	5.5KW	32 0*215 *250	486 to 750	4.3
10	PV800-4T7.5GB	16A	380V-440V	7.5KW	32 0*215 *250	486 to 750	4.5
11	PV800-4T11GB	25A	380V-440V	11KW	39 0*275 *285	486 to 750	6.5
12	PV800-4T15GB	32A	380V-440V	15KW	39 0*275 *285	486 to 750	7
13	PV800-4T18.5GB	38A	380V-440V	18.5KW	445 *205 *315	486 to 750	10
14	PV800-4T22GB	45A	380V-440V	22KW	445 *205 *315	486 to 750	11
15	PV800-4T30GB	60A	380V-440V	30KW	54 5*395 *37 0	486 to 750	14
16	PV800-4T37GB	75A	380V-440V	37KW	66 0*420 *415	486 to 750	16
17	PV800-4T45GB	90A	380V-440V	45KW	66 0*420 *415	486 to 750	27
18	PV800-4T55GB	110A	380V-440V	55KW	70 0*480 *410	486 to 750	35
19	PV800-4T75GB	150A	380V-440V	75KW	70 0*48 0*410	486 to 750	35
20	PV800-4T93GB	170A	380V-440V	93KW	70 0*48 0*49 0	486 to 750	45
21	PV800-4T110GB	210A	380V-440V	110KW	70 0*48 0*49 0	486 to 750	51
22	PV800-4T132GB	260A	380V-440V	132KW	78 0*540 *510	486 to 750	65
23	PV800-4T160GB	300A	380V-440V	160KW	78 0*540 *510	486 to 750	136
24	PV800-4T185GB	340A	380V-440V	185KW	113 0*58 0*57 0	486 to 750	141
25	PV800-4T200GB	380A	380V-440V	200KW	113 0*580 *57 0	486 to 750	180
26	PV800-4T220GB	415A	380V-440V	220KW	113 0*580 *57 0	486 to 750	185
27	PV800-4T250GB	470A	380V-440V	250KW	125 0*780 *58 0	486 to 750	225
28	PV800-4T280GB	510A	380V-440V	280KW	125 0*78 0*58 0	486 to 750	225
29	PV800-4T315GB	600A	380V-440V	315KW	125 0*78 0*58 0	486 to 750	230
30	PV800-4T355GB	670A	380V-440V	355KW	138 0*78 0*58 0	486 to 750	310



PSD350/PSD800 SOLAR PUMP INVETER MODELS LIST

2T series : 150 to 400 VDC or 200 to 240VAC input, Vmp 310VDC, Voc 350VDC, output 3 phase 0-230VAC (IP54)							
SN	Models	Rate current	Output voltage ( 3PH VAC)	Applicable for pumps	Packing size	MPPT voltage (VDC)	Weight (kg)
1	PSD350-2T0.75GB	4A	220V/240V	0.75KW	26 5*180 *21 0	260 to 375	2
2	PSD350-2T1.5GB	7A	220V/240V	1.5KW	26 5*180 *21 0	260 to 375	2
3	PSD350-2T2.2GB	10A	220V/240V	2.2kw	265 *180 *21 0	260 to 375	2
4	PSD800-2T3.7G	16A	220V/240V	3.7kw	26 5*180 *21 0	260 to 375	3
4T series : 350 to 800 VDC or 380 to 460 VAC, Vmp 540VDC, Voc620VDC, ouput 0-380VAC. ( IP54)							
4	PSD350-4T0.75GB	2.5A	380V-440V	0.75KW	26 5*180 *21 0	486 to 750	2
5	PSD350-4T1.5GB	3.7A	380V-440V	1.5KW	26 5*180 *21 0	486 to 750	2
6	PSD350-4T2.2GB	5A	380V-440V	2.2KW	26 5*180 *21 0	486 to 750	2
7	PSD350-4T3.7GB	8.5A	220V/240V	3.7KW	26 5*180 *21 0	486 to 750	2
8	PSD800-4T5.5GB	13A	380V-440V	5.5KW	40 0*270 *29 0	486 to 750	4.3
9	PSD800-4T7.5GB	16A	380V-440V	7.5KW	40 0*270 *29 0	486 to 750	4.5
10	PSD800-4T11GB	25A	380V-440V	11KW	440 *33 0*31 0	486 to 750	6.5
11	PSD800-4T15GB	32A	380V-440V	15KW	440 *33 0*31 0	486 to 750	7
12	PSD800-4T18.5GB	38A	380V-440V	18.5KW	540 *40 0*365	486 to 750	10
13	PSD00-4T22GB	45A	380V-440V	22KW	540 *400 *365	486 to 750	11
14	PSD800-4T30GBH	60A	380V-440V	30KW	540 *400 *365	486 to 750	14



Nameplate illustration



PV800

PV350

PSD800

## PV350/800 SOLAR PUMP INVERTER - HARDWARE DESIGN

### High cost performance and very strong practicability

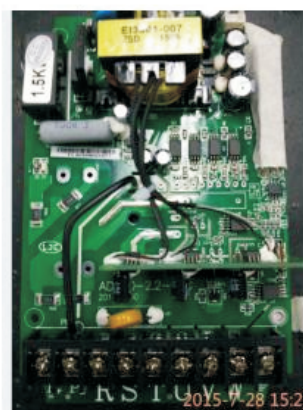
Solar pump inverter developed based on PV800 high performance vector control AC inverter with software MPPT and hardware updated. The PV800 vector control inverter is renowned for his excellent hardware design and powerful software performance, long service life design.

#### Excellent hardware design

- Latest generation Infineon of Fuji IGBT using (Fuji brand for back up)
- Hot temperature working available design.
- Good quality components selecting
- Independent cooling duct for lower temperature rising.
- PV350 small size design
- PV800 high performance design
- PSD800 Sealed IP54 design



Controller board of PV800's



PV350 POWER BOARD



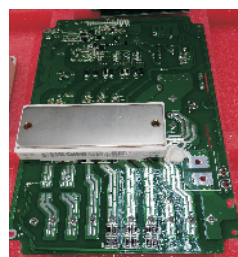
Power board of pv800, 11KW



Good ventilation



Infineon igbt using for good quality



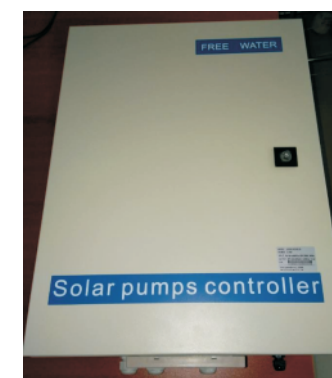
## PSd800 KEWO OUTDOOR USING IP54 WATER PROOF SOLAR PUMP INVERTER

#### Brief Introduction:

This PSD800 sealed frequency inverter is enhanced version of AD800 series solar pump inverter, built in with IP54 protection grade. With excellent in anti-dust, water proof, anti-grease and anti-corrosion properties, this inverter can using in outdoor without waterproof cabinet.

Hardware enhanced features.

1. Ti 's 32 bit DSP (28034/35), Germany Infineon intelligent modules;
2. Sealed cabinet, conformal coating on PCB;
3. Adopt using aviation plugs that have good quality water proof, gas and oil proof. (options)
4. Imported high-speed ventilation fan with 24V DC power supply, good cooling effect;
5. Lower failure rate and long service life.



Solar pump cabinet



water proof, dust proof  
outdoor using-low price design



## PV350/800 SOLAR PUMP INVERTER-SOFTWARE DESIGN

Software updated with MPPT design based on following solar inverter, ABBDanfoss, Delta, Lorentz, INVT, VEICHI, SAJ.

Control mode: VF, vectorization VF, sensorless vector control 1, sensorless vector control 2

MPPT function: always performance MPPT for gain highest efficiency

CVT: When sunlight is good, can select CVT control for excellent stable frequency output.

Dry run function: When little water or no water for pumping to protect pumps.

Maximum current protection: set maximum current protection is available

Minimum solar input power: When low power input, inverter no work

Stop frequency: Lower than stop frequency, inverter no work

Sleep mode: if lower than sleep voltage, inverter go to sleep, it will wake up when DC voltage rise.

Flow and generated energy calculating and monitoring

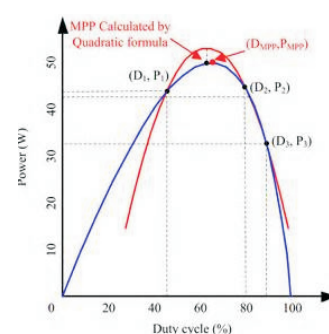
A lot of fault protection. Short circuit, ground short circuit, phase loss, over current, overheat...

Built in RS485 interface, it is easy to connect GPRS remote controller.

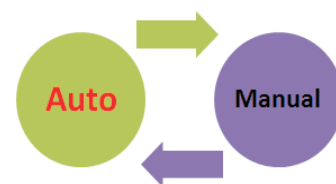
We developed it base on ABB, Lorentz, Delta, Danfoss, INVT and VEICHI- That is why we are, Good performance and better.



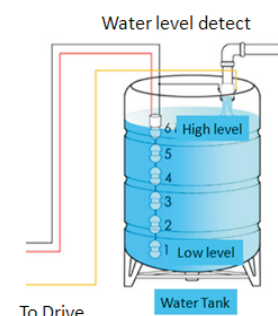
GPRS remote control,



MPPT function



Auto start at morning



water tank level control

Solar pump control software developed

Based on AD800 high performance

Vector control AC frequency inverter

Dual mode DC and AC input.



PV800 solar drive developed based on AD800 high performance vector control drive.

When it used for solar pump control, the PID and vector control can't work.



## WIRING AND COMMISSIONING

1. Connect DC power supply to P+, P-, and take care carefully polarity. otherwise will cause damage serious.(

DC power supply also can wire to R, T , no need consider polarity connection)

a. Voc 350VDC for 2T model, (220V, pumps)

b. Voc 620VDC for 4T model, (380V pumps)

c, Total power should be 1.3 to 1.5 times of rated of pumps.

2. Check Voc input, if correct, switch on power

3. Set motor parameters as pumps nameplate.

4. confirmed the solar pump control mode and MPPT function mode. (H900=1)

5. Trail running with press RUN button to check running direction.

6. Set dry run function, lowest stop

frequency, maximum current, flow PQ

curve if need.

If need auto start and stop, you can

select to terminals control X, and

COM.

a). X1 and COM, (P5.00=1, forward running)

b), X2 and COM, (P5.01=2, reverse running)

c), X3 and COM, ( P5.02=6, free

stop, also can use to water level

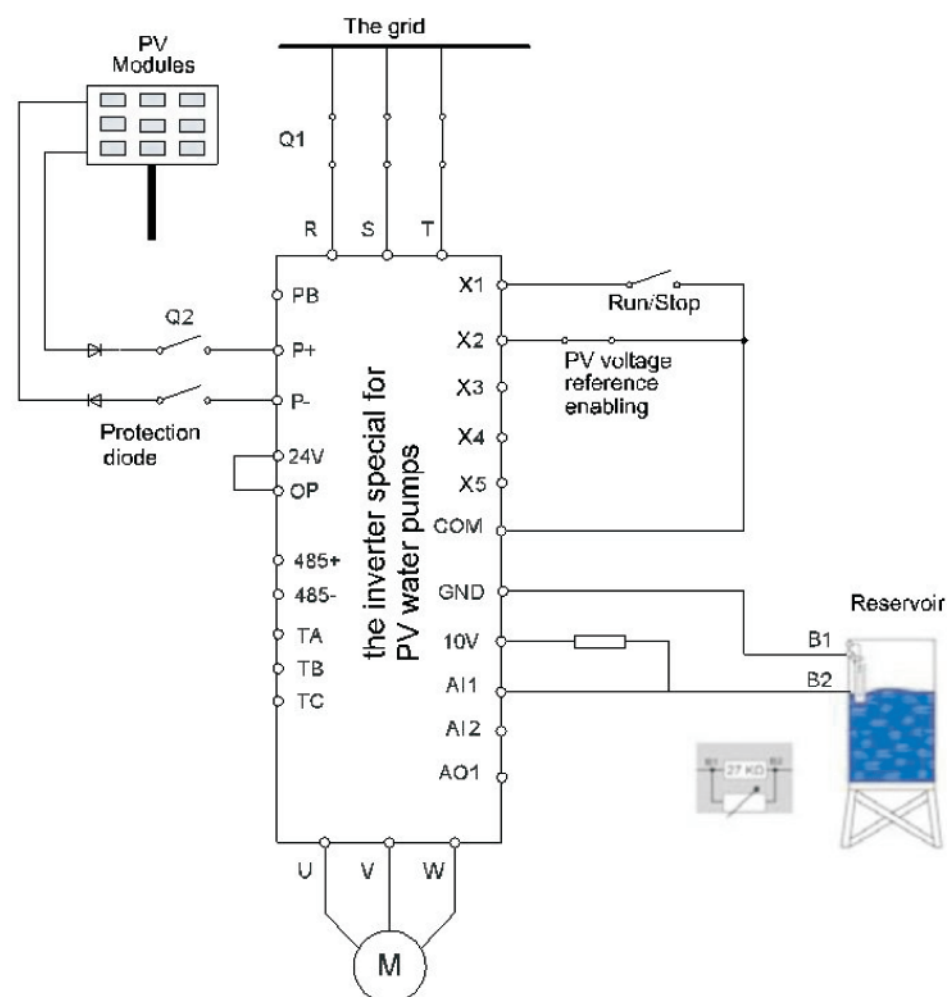
detecting)

d), X4 and COM ( P5.04=51, solar

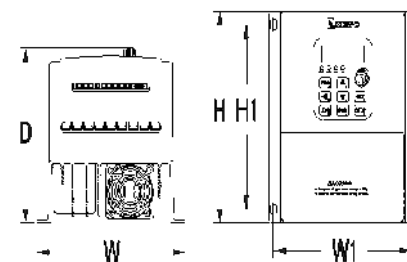
pump control mode disable. when X4

and COM is ON, the solar pump

control mode will be disable).

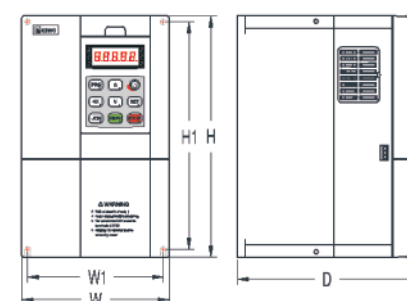


PV800 SOLAR PUMP INVERTER



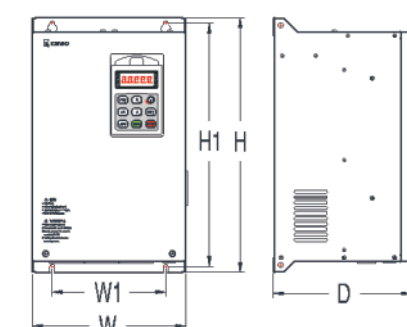
PV350

Fig 1



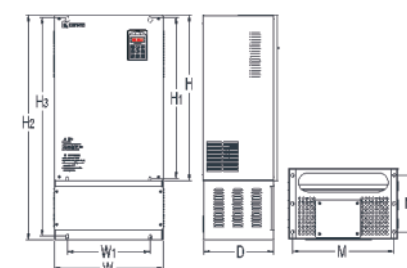
PV800

Fig 2



PV800

Fig 3

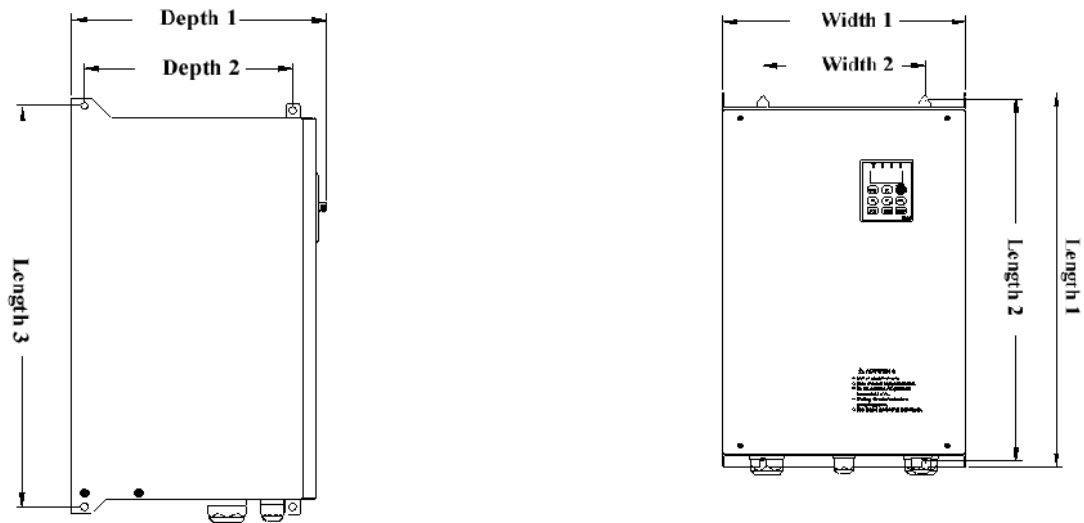


PV800

Fig 4

Inverter model	Installation hole site mm		Outline dimension mm			Mounting bolt(mm)	Fig / Dim.
	W1	H1	W	H	D		
PV350 series 220V and 380V							
PV350-2T0.4GB PV350-2T2.2GB	117	135	125	155	130	M4	Fig 1
PV350-4T0.75GB PV350-4T2.2GB	117	135	125	155	130	M4	Fig 1
PV350-4T3.7GB	117	135	125	155	155	M4	Fig 1
PV800 series 3 phase 220V/240V							
PV800-2T0.75GB	117	135	125	155	130	M4	Fig 2
PV800-2T1.5GB							
PV800-2T2.2GB							
PV800-2T3.7GB	140	260	160	270	165	M5	Fig 2
PV800 Series 3 phase 380V/440V							
PV800-4T1.5GB PV800-4T2.2GB PV800-4T3.7GB	117	135	125	155	130	M4	Fig 2
PV800-4T11GB, PV800-4T15GB	185	302	200	320	200	M6	Fig. 2
PV800-4T18.5GB PV800-4T22GB	170	365	230	380	210	M6	Fig. 3
PV800-4T30G	200	410	270	430	240	M6	Fig. 3
PV800-4T37GPV800-4T45G	220	500	350	580	275	M8	Fig. 3
PV800-4T55GPV800-4T75G	280	560	350	580	275	M8	Fig. 3
PV800-4T93GPV800-4T110G	300	600	400	620	300	M8	Fig. 4
PV800-4T132GPV800-4T160G	350	680	460	700	320	M8	Fig. 4
PV800-4T200PV800-4T220	530	--	590	1270	390	M12	Fig. 4
PV800-4T250G,PV800-4T280GPV800-4T315G	660	--	710	1450	410	M12	Fig. 4
PV800-4T355GPV800-4T400G	770	--	832	1850	410	M16	Fig. 4





PSD350/SD80(IP54)

Models	Power	L1	W1	D1	L2	W2	L3	D2	Hole
		External size			Install size 1		Install size 2		
PSD350-4T0.7/3.7GBSD350-2T0.7/2.2GB	0.75-3.7kw,380V0.75kw-2.2220v	230	130	177	215	90	215	140	M5
PSD350-4T0.7/3.7GBSD350-2T0.7/2.2GB	0.75-3.7kw,380V0.75kw-2.2220v	230	130	177	215	90	215	140	M5
PSD800-4T5.5/7.5GB	5.5-7.5KW,380V	320	180	210	305	120	305	170	M5
PSD800-4T11.0/15GB	11-15kw, 380V	390	230	225	375	160	375	180	M6
PSD800-18.5/22/30G	18.5-30kw, 380V	430	230	225	375	160	375	180	M6

Outdoor using, water proof, dust proof and sealed solar pump inverter-IP54

Applications of solar pump inverter.







## Solar Living Water Supply



## Solar City Water Landscape



## Solar Drought Control

