

# VEICHI

## Renewable Energy Products



# VEICHI

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# VEICHI

## Make It Simple

VEICHI Solar Products  
Better Life & Brighter Future

VEICHI Electric Co., Ltd. is a high-tech enterprise that is professionally engaged in the development, manufacturing and marketing of industrial automatic control products, and we are committed to becoming a global leading provider of industrial automatic control products and system solutions.

VEICHI is a competitive company and adopts the dual-base operating mode, which contains the Shenzhen VEICHI and Suzhou VEICHI. Suzhou VEICHI Electric Co., LTD is located in Suzhou Wuzhong Economic and Technological Development Zone, which covers 50 acres. The total construction area is approximately 80 thousand square meters and all properties are privately run. Additionally, VEICHI is always at the forefront of the domestic industrial automation field.

VEICHI has become the flagship company of industrial automation, which owns an innovative R&D team and establishes a good corporation relationship with famous universities and research institutions. Currently, VEICHI owns more than 110 patents of invention, and many of them are in the leading position both at home and abroad, which completely has independent intellectual property rights.

VEICHI produces a variety of core products, including Variable Frequency Drive (VFD), Servo Drive System, Photovoltaic Inverter, PLC, HMI, and Automation Equipment, which are widely used in industries such as oil & gas, chemical, ceramic, crane & construction hoist, lathe, Auto making, metallurgy, electrical cable and wire, plastic, print and package, textile, chemical fiber, metal work and , coalmining and municipal engineering. Suitable solutions and products are always ready to meet the demands and improve comprehensive competitiveness of customers.

"Innovation is the lifeblood of VEICHI", therefore we're committed to becoming one of the leading providers of electric drives, industrial control and green energy products. VEICHI has set up more than 40 brand offices in China and dozens of partners in Asia, Europe and Africa.

VEICHI has been named Chinese Electrical Industry's Top Ten National Brands, Chinese Electrical Industry Top Ten Satisfying Brands and Top Ten National Brands of Inverter Industry. VEICHI products have become the first choice of many enterprises.



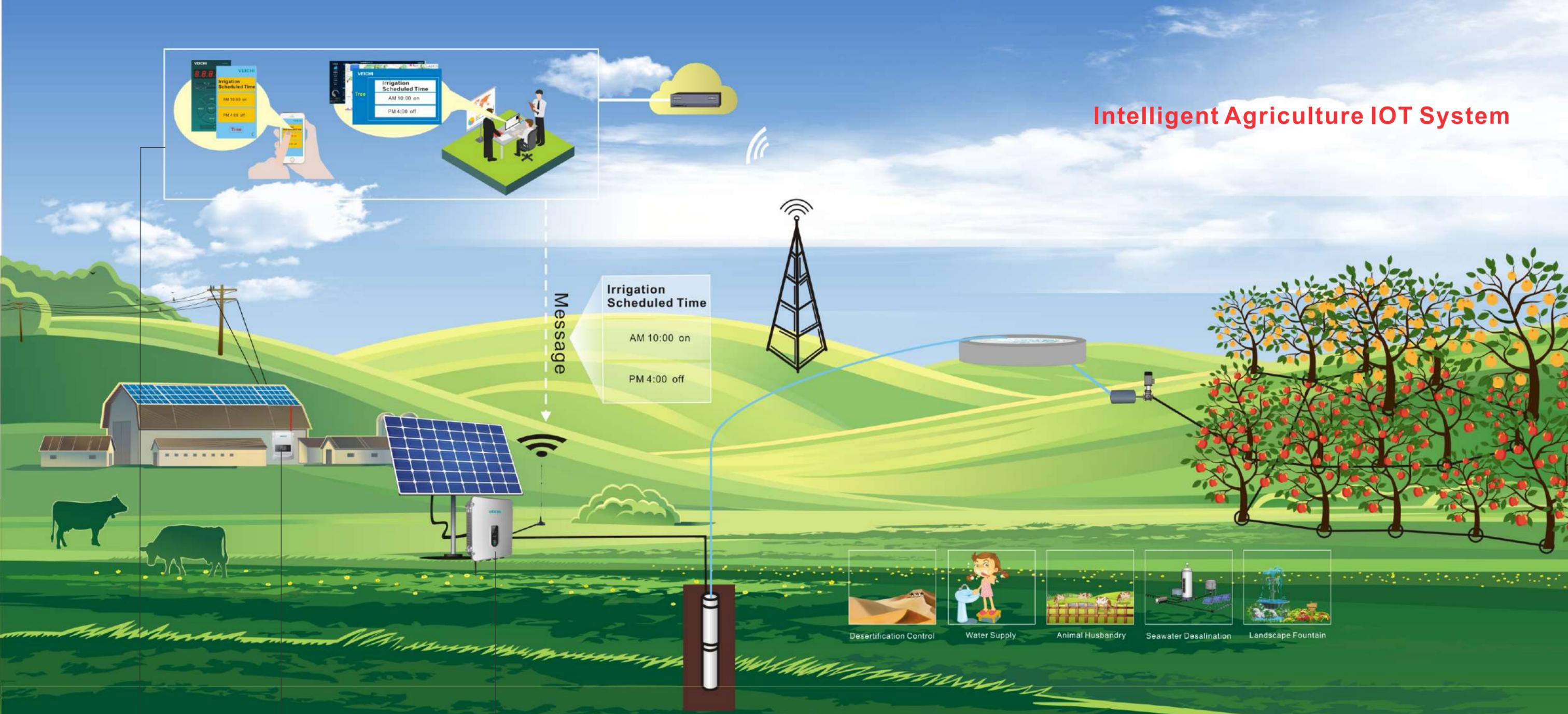
**Intelligent Agriculture IOT System**

**Smart Solar Pump System**

**PV Series Solar Inverter**



# Intelligent Agriculture IOT System



**Irrigation Scheduled Time**  
 AM 10:00 on  
 PM 4:00 off

- Desertification Control
- Water Supply
- Animal Husbandry
- Seawater Desalination
- Landscape Fountain

PV Series Solar Inverter

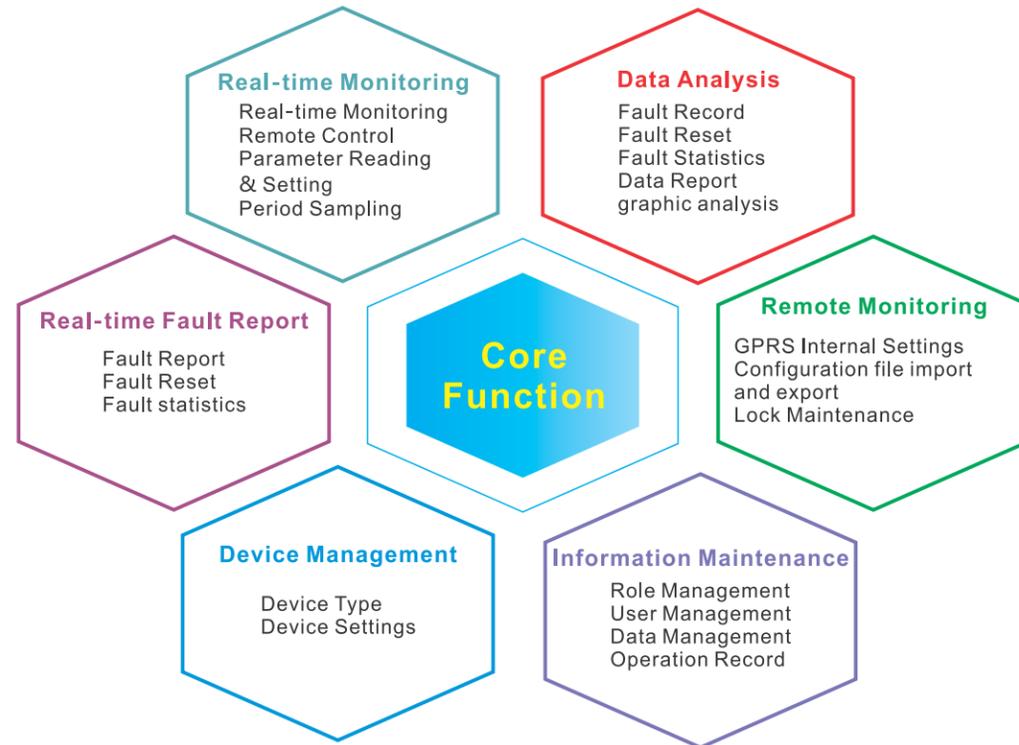


Smart Solar Pump Inverter

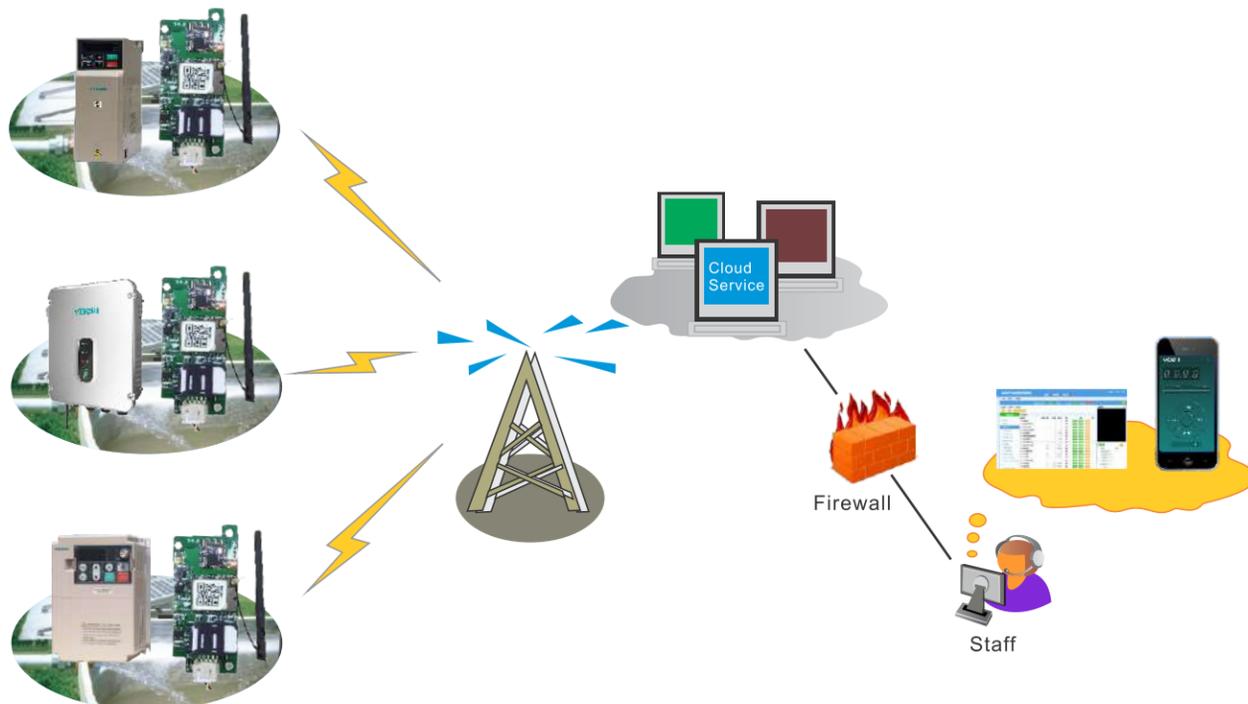


Intelligent Agriculture IOT System

## Core Functions of IOT Products and System

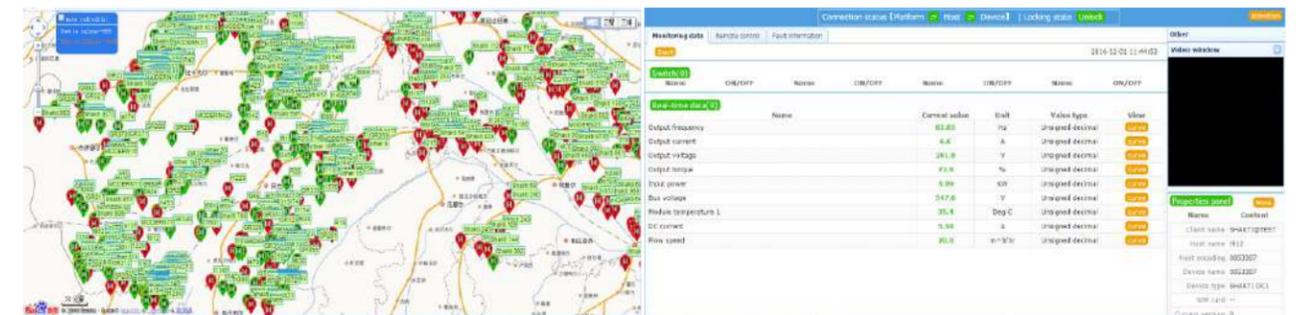


## Topological Graph of GPRS and Cloud Platform



## Application of GT89-V in Solar Pump

The global cumulative online volume of more than 110000 units



Real-time monitoring, remote expert consultation, large data automatic calculation of the power generation and pumping capacity and other energy-saving status, PC support, mobile APP query.



# Smart Solar Pump System

- SI30 Series Solar Pump System
- SI23 Series Solar Pump System
- SI20 Series Solar Pump System

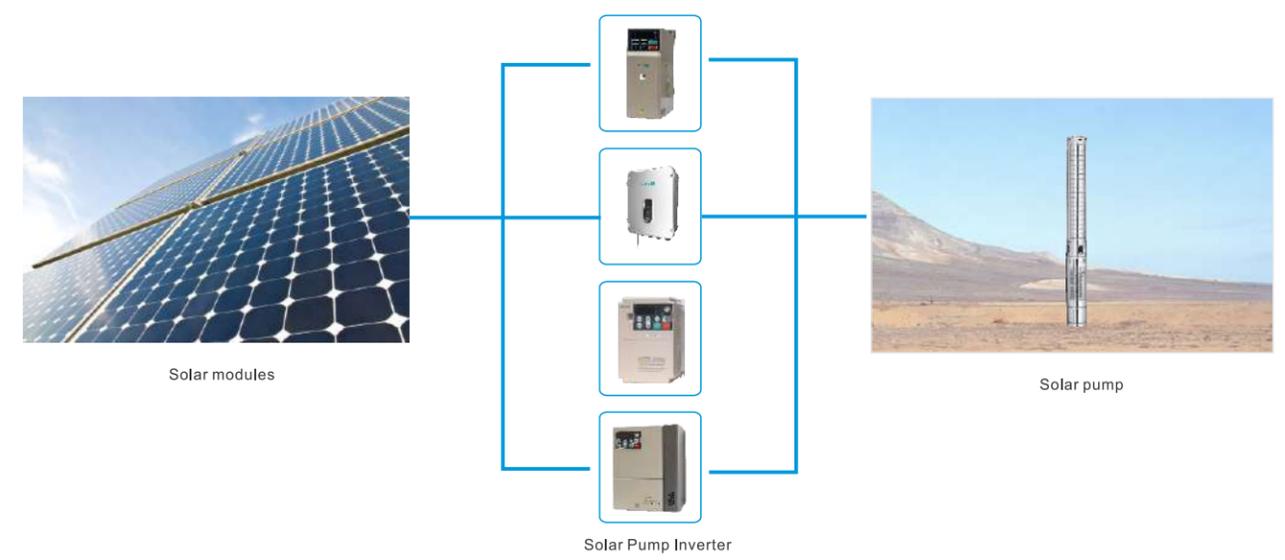


## Zero carbon new energy system with the max investment value



It rises with the new century concept of sustainable development, which is highly respected by governments, to benefit the global areas lack of electricity and water. Solar pumps are the most attractive water supply method in the sunny areas today, especially in remote areas without electricity. Using the inexhaustible solar energy, the system automatically works at sunrise and stops at sunset and has no need of personal care, which is a perfect green energy system with economy, reliability and environmental benefits.

## Solar pump system components



## Solar modules



**10 years** product warranty  
**25 years** warranty of linear performance



High conversion efficiency



5 Watt positive tolerance



Strong endurance capacity of wind and snow



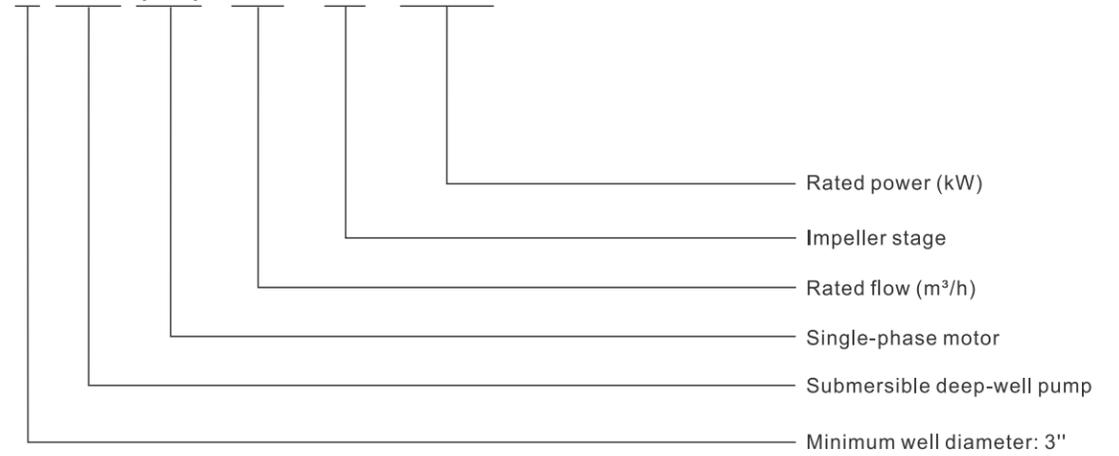
Excellent performance with poor light

## Polycrystalline solar modules: 100W-300W

Model	Peak power (Pmax)[Wp]	Peak power voltage (Vmp)[V]	Peak power current (Imp)[A]	Open circuit voltage (Voc) [V]	Short circuit current (Isc) [A]	Modules efficiency	Power error	Size (mm)	Weight (kg)	Maximum system voltage (V)	Fuse rating [A]
SZYL-P100-18	100	18.8	5.32	22.4	5.69	15%	0/+5	1010*660*35	7.88	DC1000	10
SZYL-P120-18	120	18.8	6.38	22.4	6.79	15.3%	0/+5	1190*660*35	8.8	DC1000	10
SZYL-P150-18	150	19	7.89	22.7	8.4	15.1%	0/+5	1480*670*35	12	DC1000	15
SZYL-P200-30	200	30.1	6.64	36.4	7.22	13.5%	0/+5	1500*990*35	17	DC1000	10
SZYL-P200-36	200	36.1	5.54	43.7	6.02	13.5%	0/+5	1500*990*35	17	DC1000	10
SZYL-P250-30	250	31.7	7.89	37.7	8.43	15.4%	0/+5	1640*990*40	17.7	DC1000	15
SZYL-P260-30	260	32	8.13	38.2	8.74	16%	0/+5	1640*990*35	17.7	DC1000	15
SZYL-P300-36	300	38.1	7.87	45.2	8.42	15.5%	0/+5	1960*990*40	23.3	DC1000	15

## Solar pump model analysis

3 XR (m) 1.8/ 10- 0.25



## Solar pump



Submersible pump (deep well pump) with its exceptional natural advantages, is widely used in water resources extraction situations, such as groundwater, deep well or rivers, which is the best choice of solar pump system.

### Application environment

- Suitable for water pumping from deep well or water tank.
- Household, civil and industrial applications.
- Suitable for garden irrigation.

### Application conditions

- The maximum water temperature :35°C.
- The maximum sediment concentration : 0.25%
- The maximum immersed depth : 80m.
- The minimum well diameter: 3".

### Motor and pump

- Winding motor or full enclosed motor.
- Three phase: 380V-415V/50Hz.
- Single phase: 220V-240V/50Hz.
- The tube column design.
- The tolerance curve conforms to ISO9906.

Constitution	Material
Pump shell	AIS1304SS
Guide housing	Castings-Cu ASTM280
Suction device	Castings-Cu ASTM280
Diffuser	PC
Impeller	POM
Pump shaft	①AIS1316SS ②AIS1304SS
coupling	①AIS1316SS ②AIS1304SS
Wear ring	AIS1304SS
Motor housing	AIS1304SS
Cover	Cast-Cu ASTM280
base	AIS1304SS
Mechanical seal	Special seal for deep well (carbon -SIC/TC)
Pump shaft	AIS1304SS-C1045
Bearing	NSK
Sealing lubricant	Food grade machinery and medicinal oils

Model		Power		Flow and corresponding head															
1~220V/240V	3~380V/415V	kW	HP	Q m³/h 1/min	H (m)														
					0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6		
3XRm1.8/27-0.75	3XR1.8/27-0.75	0.75	1	113	111	109	106	101	92	82	67	51	32						
3XRm1.8/37-1.1	3XR1.8/27-1.1	1.1	1.5	155	153	150	145	133	127	112	92	69	43						
3XRm1.8/47-1.5	3XR1.8/27-1.5	1.5	2	197	194	190	184	175	161	142	117	88	55						
3XRm2.5/28-1.1	3XR2.5/28-1.1	1.1	1.5	117	116	114	112	109	104	100	93	86	76	65	51	37			
3XRm2.5/36-1.5	3XR2.5/36-1.5	1.5	2	151	149	144	144	140	134	128	120	110	98	83	66	48			
3.5XRm3/20-1.1	3.5XR3/20-1.1	1.1	1.5	148	146	142	140	135	129	121	111	99	86	71	54	36			
3.5XRm3/26-1.5	3.5XR3/26-1.5	1.5	2	194	191	186	183	177	169	158	146	130	112	92	70	47			
4XRm2/16-0.75	4XR2/16-0.75	0.75	1	116	116	114	112	109	105	99	92	83	73	61	50				
4XRm2/22-1.1	4XR2/22-1.1	1.1	1.5	160	159	157	154	150	144	136	126	114	100	84	68				
4XRm2/28-1.5	4XR2/28-1.5	1.5	2	204	202	200	196	191	183	173	161	145	127	107	87				
4XRm2/38-2.2	4XR2/38-2.2	3.3	3	276	275	271	266	259	249	235	218	197	173	145	118				

Model		Power		Flow and corresponding head															
1~220V/240V	3~380V/415V	kW	HP	Q m³/h 1/min	H (m)														
					0	0.6	1.2	1.8	2.4	3	3.6	4.2	4.8	5.4	6				
3.5XRm4/20-1.5	3.5XR4/20-1.5	1.5	2	118	115	112	108	104	99	92	81	70	55	35					
4XRm3/17-1.1	4XR3/17-1.1	1.1	1.5	138	126	122	116	108	96	80	60	38							
4XRm3/21-1.5	4XR3/21-1.5	1.5	2	145	140	136	129	120	107	89	67	42							
4XRm3/30-2.2	4XR3/30-2.2	2.2	3	217	210	203	193	180	160	133	100	63							
--	4XR3/40-3	3	4	289	280	271	258	240	213	178	133	85							
4XRm4/17-1.5	4XR4/17-1.5	1.5	2	131	126	123	120	116	109	100	90	77	62	46					
4XRm4/24-2.2	4XR4/24-2.2	2.2	3	186	178	174	169	163	153	141	127	109	88	66					
--	4XR4/32-3	3	4	247	238	231	225	218	204	188	170	145	117	87					
--	4XR4/40-4	4	5.5	309	297	289	281	272	255	235	212	181	117	109					

Model		Power		Flow and corresponding head															
1~220V/240V	3~380V/415V	kW	HP	Q m³/h 1/min	H (m)														
					0	1.2	2.4	3.6	4.8	6	7.2	8.4	9.6	10.8					
4XRm6/21-2.2	4XR6/21-2.2	2.2	3	135	132	123	114	105	89	69	44								
--	4XR6/28-3	3	4	180	176	164	152	139	119	92	59								
--	4XR6/36-4	4	5.5	232	226	210	195	179	153	118	76								
--	4XR6/44-5.5	5.5	7.5	283	277	257	239	219	187	145	93								
--	4XR6/52-7.5	7.5	10	335	327	304	282	259	221	171	110								
4XRm8/18-2.2	4XR8/18-2.2	2.2	3	109	103	96	90	84	79	72	61	45	28						
--	4XR8/24-3	3	4	155	145	135	127	119	112	101	85	63	39						
--	4XR8/30-4	4	5.5	188	183	171	158	150	142	128	110	85	55						
--	4XR8/38-5.5	5.5	7.5	258	242	225	212	198	187	168	143	105	65						
--	4XR8/46-7.5	7.5	10	288	281	262	243	230	217	197	168	131	85						

Model		Power		Flow and corresponding head															
1~220V/240V	3~380V/415V	kW	HP	Q m³/h 1/min	H (m)														
					0	2.4	3.6	5.4	7.2	9	10.8	12.6	14.4	16.2					
--	4XR10/18-3	3	4	111	107	102	96	90	79	65	47	26							
--	4XR10/22-4	4	5.5	136	131	124	118	110	97	80	57	32							
--	4XR10/28-5.5	5.5	7.5	173	166	158	150	140	124	101	72	40							
--	4XR10/34-7.5	7.5	10	210	202	192	182	170	150	123	88	49							
--	4XR12/19-4	4	5.5	121	116	109	102	94	85	75	62	47	28						
--	4XR12/23-5.5	5.5	7.5	147	140	132	124	114	102	90	75	56	33						
--	4XR12/29-7.5	7.5	10	185	177	166	156	144	129	114	95	71	42						

## Solar pump system assembly

### Common system configuration

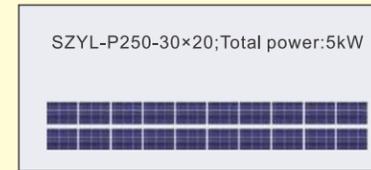
Water pump power ( kW)	Inverter Model	Solar modules and configurations					
		Module type	Series-connection quantity	Parallel-connection quantity	Total quantity	Total power (W)	Total input voltage ( V)
2.2	SIXX-D5-2R2G	SZYL-P100-18	30	1	30	3000	564
4	SIXX-D5-004G	SZYL-P250-30	20	1	20	5000	634
5.5	SIXX-D5-5R5G	SZYL-P200-30	19	2	38	7600	571.9

Adaptive MPPT search, the best operating voltage range 530-650VDC

The recommended configuration of 2.2kW deep-well pump system



The recommended configuration of 4.0kW deep-well pump system



The recommended configuration of 5.5kW deep-well pump system



## Application cases of solar pump system



## SI23 Series Solar Pump Inverter



### Power Range

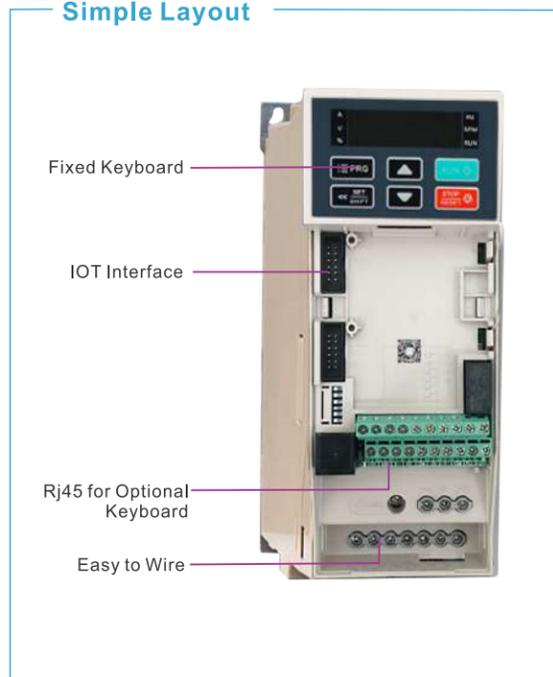
- ◎ SI23-D1-XXXG : For AC110V pumps,0.75-1.5kw
- ◎ SI23-D3-XXXG : For AC220V pumps, 0.75-4.0kw
- ◎ SI23- D5-XXXG : For AC380V pumps, 0.75-30.0kw
- ◎ SI23-T3-XXXG: For AC380V pumps, 37.0-200.0kw

### Features

- ◎ AM/PMSM
- ◎ Fashion Appearance
- ◎ High Performance
- ◎ MPPT Technology
- ◎ Smart IOT
- ◎ IP20

## Fashion Appearance

### Simple Layout

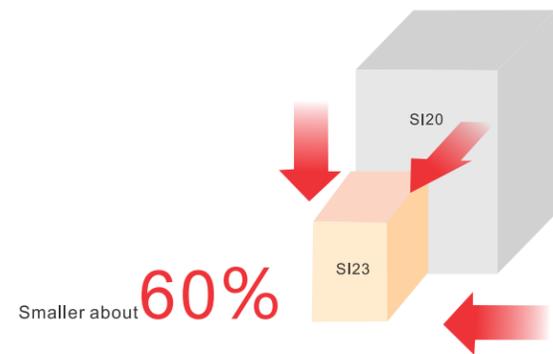


### Concise Keyboard

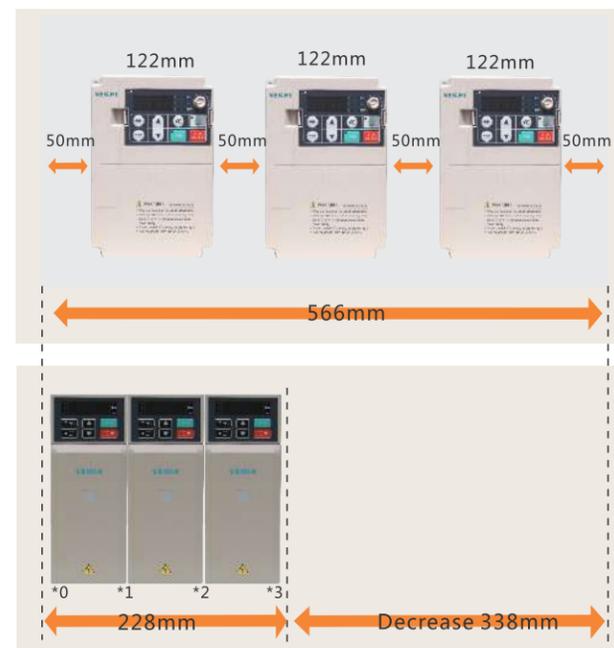


## Narrow body

SI23 series all adopt book narrow-body design, and the volume is 60% smaller than the original, which is the real "book-body machine" of inverter.



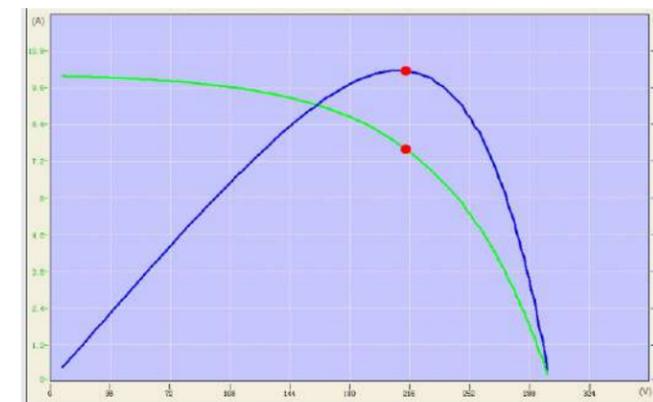
380V 2.2kW demonstration



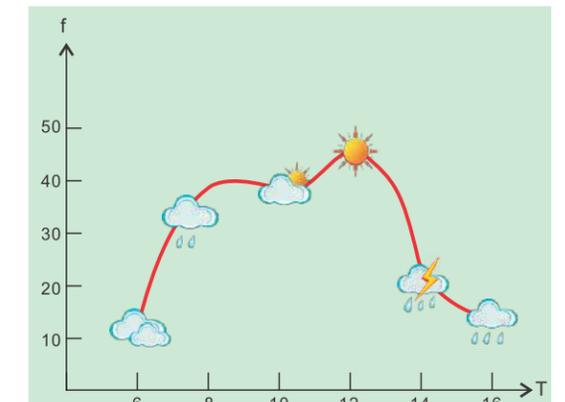
## Various Types



## Advanced MPPT Technology



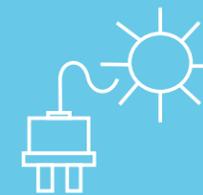
High MPPT Efficiency Max. is 99.9%



Auto-Track at any daytime

## High Performance & Multi-functions

### High Overload Capacity



150% rated current 1min  
180% rated current 10s  
200% rated current 0.5s

### Excellent Control Performance



Open-loop torque response < 20ms,  
steady speed accuracy 0.2%(PMSM),  
0.5%(AM)

### High Frequency



Max. output frequency is 600Hz  
under VC control

## Driving Multiple Types of Pumps



## SI23 Product Model

### SI 23 - D5 - 004G

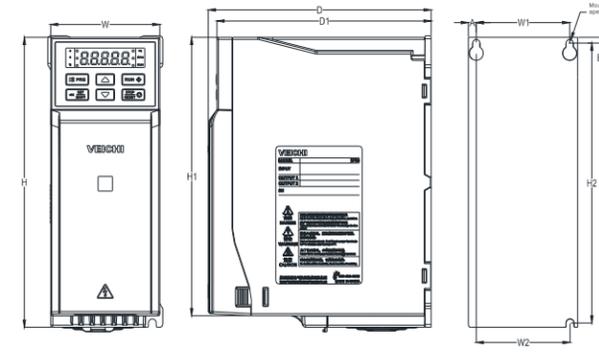
- Suitable water pump power
  - 1R5 : 1.5kW
  - 2R2 : 2.2kW
  - 004 : 4.0kW
  - 5R5 : 5.5kW
  - .....
- D5 : DC540V , Suitable for driving pumps within 380VAC
- D3 : DC311V , Suitable for driving pumps with 220VAC
- D1 : DC155V , Suitable for driving pumps with 110VAC
- 23 : The third generation product
- SI : Renewable Energy Product

## Solar Pump Drive Model Analysis

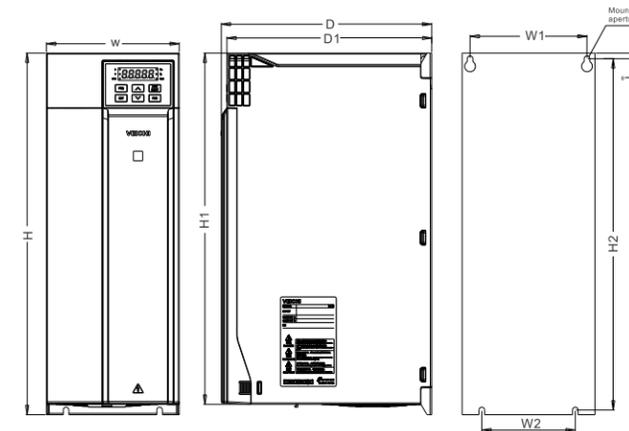
Model analysis of three phase AC PMSM Pump Drive				
Product model	Voltage level	Input power		Power range
		DC	AC	
SI23-D1-xxG	110V	60-400VDC	single-phase 110VAC	0.75-1.5kW
SI23-D3-xxG	220V	150-450VDC	single-phase 220VAC	0.75-4kW
SI23-D5-xxG	380V	250-780VDC	three-phase 380VAC	0.75-30kW
SI23-T3-xxG	380V	350-780VDC	three-phase 380VAC	37.0-200kW

## Installation dimension

### Plastic model

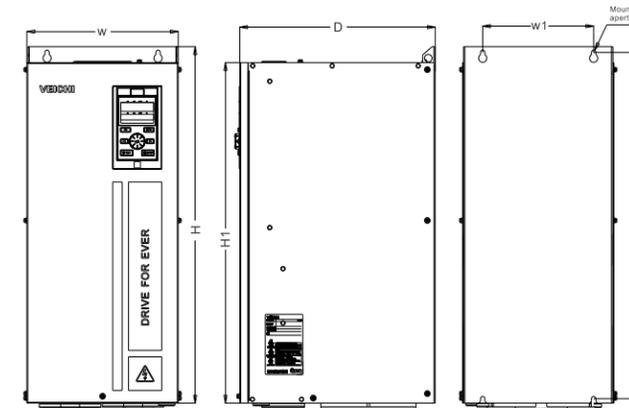


Model	Overall dimension(mm)					Installation dimension (mm)					Installation aperture
	W	H	H1	D	D1	W1	W2	H2	A	B	
SI23-D3-R75G	76	200	192	155	149	65	65	193	5.5	4	3-M4
SI23-D3-1R5G											
SI23-D3-2R2G	100	242	231	155	149	84	86.5	231.5	8	5.5	3-M4
SI23-D3-004G											
SI23-D5-R75G	76	200	192	155	149	65	65	193	5.5	4	3-M4
SI23-D5-1R5G											
SI23-D5-2R2G	100	242	231	155	149	84	86.5	231.5	8	5.5	3-M4
SI23-D5-004G											
SI23-D5-5R5G	116	320	307.5	175	169	98	100	307.5	9	6	3-M5
SI23-D5-7R5G											
SI23-D5-011G											



Model	Overall dimension(mm)					Installation dimension (mm)				Installation aperture	
	W	H	H1	D	D1	W1	W2	H2	B		
SI23-D5-015G											
SI23-D5-018G	142	383	372	225	219	125	100	372	6		4-M5
SI23-D5-022G											
SI23-D5-030G	172	430	/	225	219	150	150	416.5	7.5		4-M5
SI23-T3-037G											

### Steel model



Model	Overall dimension(mm)				Installation dimension(mm)		Installation aperture
	W	H	H1	D	W1	H2	
SI23-T3-045G							
SI23-T3-055G	240	560	535	310	176	544	4-M6
SI23-T3-075G							



# SI30 Series Solar Pump Inverter

## IP65——360 degrees, no dead angle, waterproof and dustproof

- ◉ Shell material —— using shell specialized die-casting aluminum Ai-Si-Cu alloy, code ADC12
- ◉ Die casting —— molten metal to achieve rapid casting in high pressure and speed, special casting method without cutting



Human computer interface —— support end user "one key start and stop"



- ◉ High-end protection —— "three proofings": waterproof panel, waterproof joint, waterproof enclosure.
- ◉ Surface treatment —— high speed sand blasting, electrochemical anodic oxidation



## Four features of solar pump inverter

Modularization

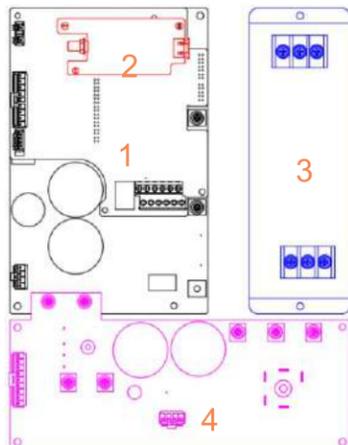
Smart IOT Module

IP65

AC110V/  
220V/400V

## Solar pump inverter-Product introduction

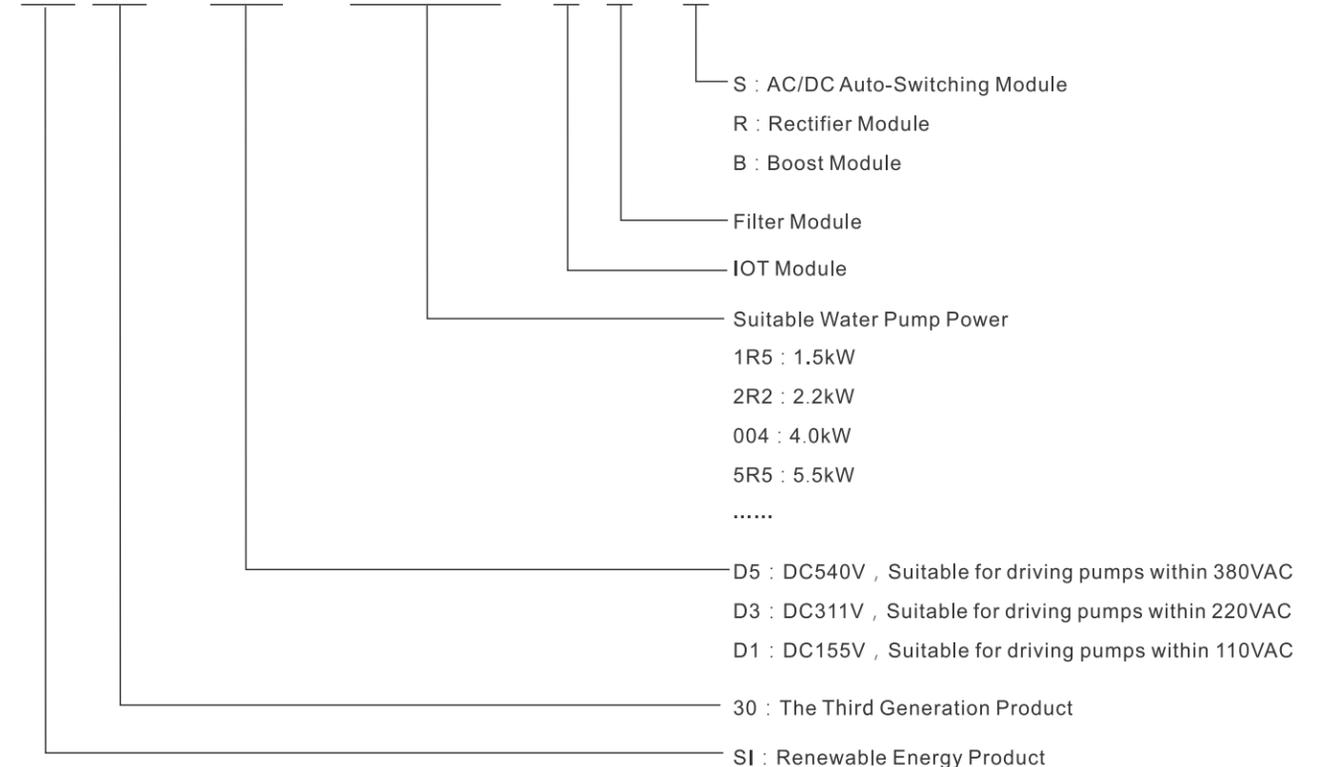
### Modular Design



- Ingenious design: Small and exquisite inverter modules
- Industry 4.0 : GPRS , Bluetooth, cloud platform to build the IOT module
- Well pump assistant: Special filter takes you to interpret the world of deep well pumps
- Variety modules----AC/DC integrated (Boost) module
- IP65 protection----cool appearance, a perfect union of fashion sense and technology

## SI30 Product Model

# SI30 - D5 - 004G - I F S



## Technical Specification

Solar Pump Inverter Power (KW)	Pump		Maximum Input Power of Solar panel (KW)	Maximum Input DC Voltage(V)	Total Voc Range of Recommended Panels(V)	Rated Output Current(A)	Output Frequency Range(Hz)
	Rated Power (KW)	Rated Voltage (V)					
SI30-D1 Series: Input 90-400VDC, 3 Phase 110-230VAC Output, MPPT Voltage Range 90-400VDC, Suitable for AC110V Pumps							
0.75	0.75	110	1.0	400	175-380	7A	0-320
1.5	1.5	110	1.95	400	175-380	10A	0-320
SI30-D3 Series: Input 150-450VDC, 3 Phase150-230VAC Output, MPPT Voltage Range 150-450VDC, Suitable for AC220V Pumps							
0.75	0.75	220	1.0	450	360-430	4A	0-320
1.5	1.5	220	1.95	450	360-430	7A	0-320
2.2	2.2	220	2.86	450	360-430	10A	0-320
SI30-D5 Series: Input 300-850VDC, 3 Phase230-460VAC Output, MPPT Voltage Range 450-800VDC, Suitable for AC380V Pumps							
0.75	0.75	380	1.0	850	620-750	2.3A	0-320
1.5	1.5	380	2.2	850	620-750	3.7A	0-320
2.2	2.2	380	3.3	850	620-750	5.0A	0-320
4.0	4.0	380	5	850	620-750	10A	0-320
5.5	5.5	380	8	850	620-750	13A	0-320
7.5	7.5	380	10	850	620-750	17A	0-320
11	11	380	14.3	850	620-750	25A	0-320
15	15	380	19.5	850	620-750	32A	0-320

## Solar panel recommended configuration

Solar pump inverter model	Solar panel model 1			Solar panel model 2			Solar panel model 3			
	Voc: 21V±2V			Voc: 33V±2V			Voc: 43V±2V			
	P±3W	Isc	configuration	P±3W	Isc	configuration	P±3W	Isc	configuration	Inverter rated current
SI30-D1-R75G	30W	2.75A	11*3							7A
SI30-D1-1R5G	60W	3.48A	10*3							10A
SI30-D3-R75G	30W	2.75A	17*2							4A
SI30-D3-1R5G	60W	3.48A	17*2							7A
SI30-D3-2R2G	90W	5.5A	17*2							10A
SI30-D5-R75G	30W	2.75A	30*1							2.3A
SI30-D5-1R5G	60W	3.48A	30*1							3.7A
SI30-D5-2R2G	90W	5.5A	30*1				150W	4.45A	16*1	5A
SI30-D5-004G	85W	4.7A	28*2				300W	8.00A	16*1	10A
SI30-D5-5R5G				180W	6.82A	19*2	200W	6.12A	16*2	13A
SI30-D5-7R5G				240W	8.81A	20*2	200W	7.32A	15*3	17A
SI30-D5-011G				180W	7.33A	20*4	240W	7.32A	15*4	25A
SI30-D5-015G				240W	8.81A	20*4	240W	7.32A	15*5	32A

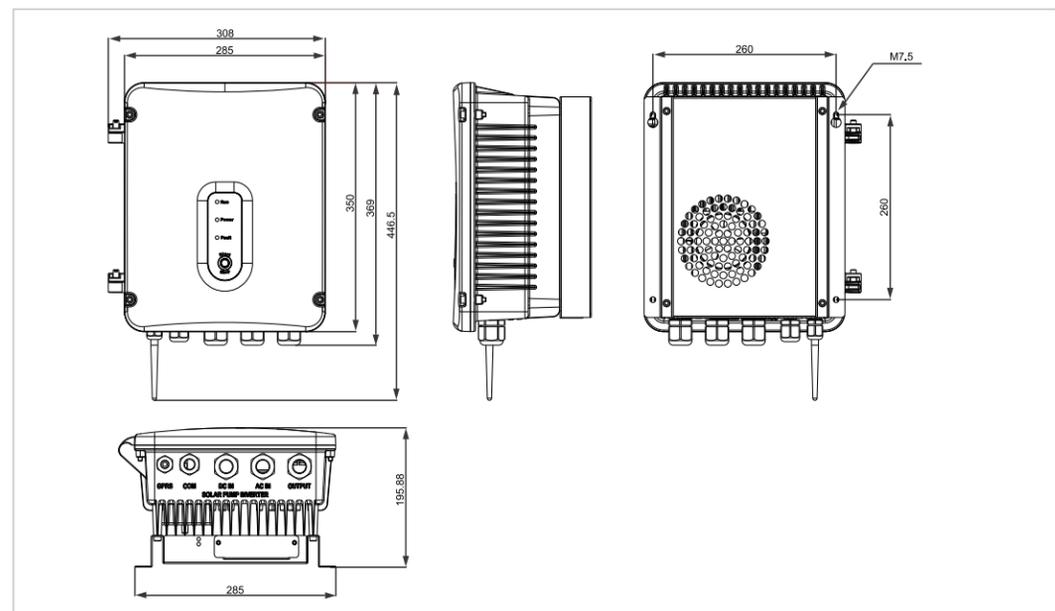
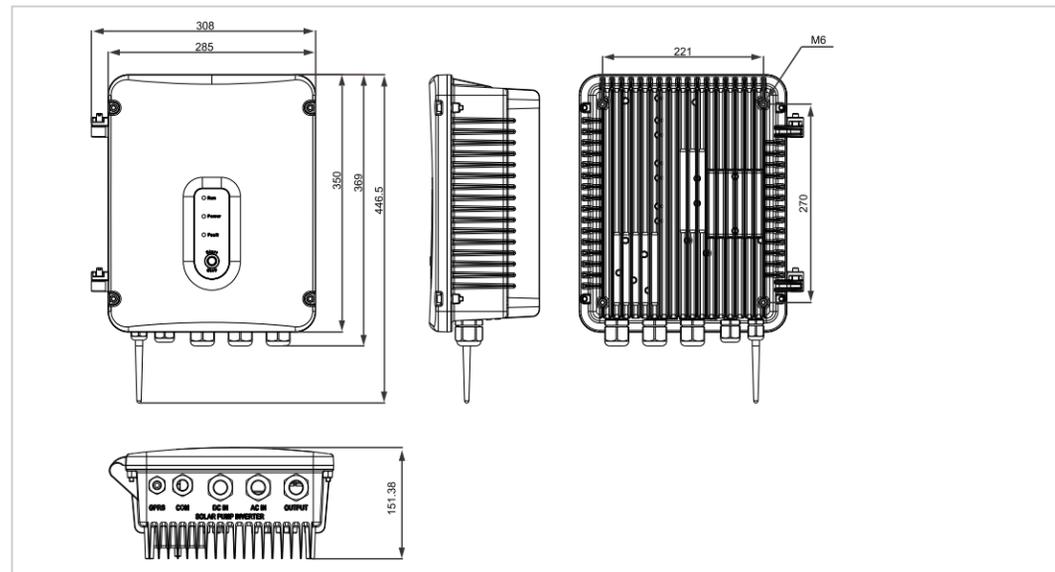
Note:

- The recommended solar panel total Voc is at least 1.15 times of inverter bus voltage  
As in the D5 series, the minimum Voc voltage is  $540V \times 1.15 = 621V$  (620V);  
As in the D3 series, the minimum Voc voltage is  $311 \times 1.15 = 357V$  (360V);  
As in the D1 series, the minimum Voc voltage is  $155 \times 1.15 = 178V$  (175V);
- The recommend total power of solar panel should be at least 1.2 times of the inverter power(drive the same power pump); such as the recommend total power of solar panel for 7.5kW water pump system:  $7500 \times 1.2 = 9000W$ ;
- The maximum withstand voltage of D1 model products is 400VDC; of D3 model products is 450VDC; and of D5 model products is 850VDC;

## Technical Specification

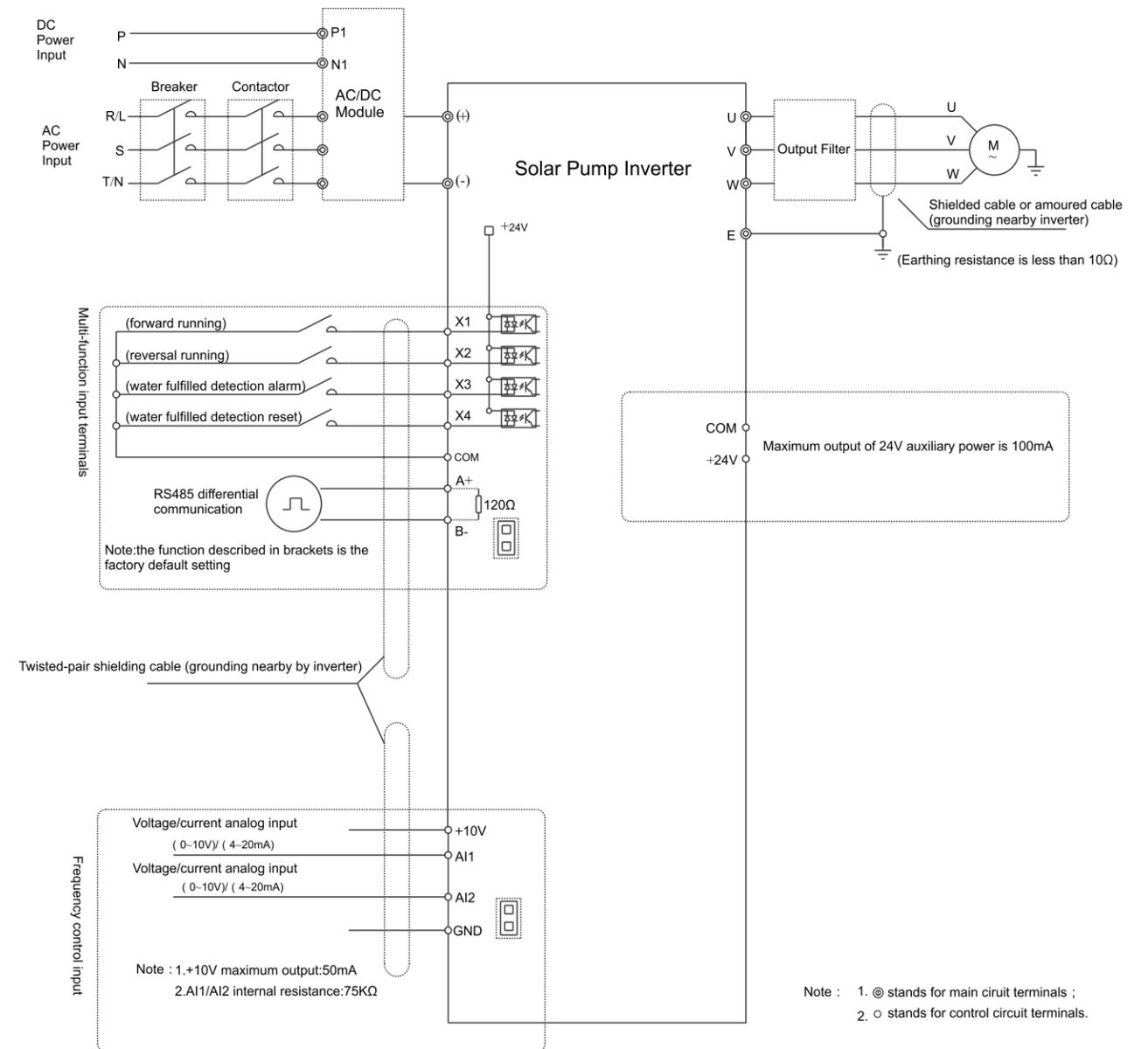
Items		Specification
Power Supply Input	voltage, frequency	D1 Type:90-400VDC/1*110VAC 50/60Hz D3 Type:150-450VDC/1*220VAC 50/60Hz D5:Type:300-850VDC/3*380VAC 50/60Hz
	Allowable Fluctuations	Voltage Imbalance Rate:<3% Frequency Fluctuation :±5% Distortion Rate: confirm to IEC 61800-2
	VFD Efficiency	≥97%
	Total Voc range (V) of recommended panels	D1 Type:175-380VDC D3 Type:360-430VDC D5 Type:620-750VDC
Output	MPPT efficiency	up to 99.9%
	Output frequency range	0 ~ 320Hz (320Hz or more can be customized)
	Overload capacity	150% of rated current for 1 minute; 180% of rated current for 10 seconds; 200% of rated current for 0.5 seconds
Protection function	Solar pump protection function	Dry run, low frequency, low power, dormancy, water full, pump over current protection
	AC/DC switching function	Self identification light intensity, automatic switching AC and DC power supply
	IOT function	Support VEICHI cloud service, scan code to connect APP keyboard
	Boost function	Only for D1, D3 models, support built-in Boost function
	Water pump type	Three-phase AC AM pump, three-phase AC PMSM pump, BLDC(5.5kW or below), single-phase water pump(2.2kW or below)
	Multi function input	Supports 4 way X input
	Analog input	Support 2 analog AI input, Can choose 0-10V/0-20mA
	Basic protection function	Bus overvoltage, under voltage, inverter over current, module fault, inverter overload, motor overload, current detection zero drift fault, hall fault, E2RCM fault, motor grounding short circuit fault, input phase loss, output phase loss, inverter overheat, communication fault, motor parameter self-tuning fault
	Motor grounding short-circuit detection	Automatically detect whether the motor is short-circuit to ground. Auto detection while electrify
	Communication network	Support 485 / Modbus protocolSupport Modbus free protocol; can realize the network, linkage control among VEICHI inverters
Remote and monitoring functions	Support remote program upgrade, remote monitoring, and remote lock function, can be connected to VEICHI GPRS module;support VEICHI virtual oscilloscope monitoring and debugging	
Environment	Installation site	Outdoor, altitude less than 1000m, free corrosive gases and direct sunlight
	Temperature, humidity	-10 ~ +60°C , 20% to 95% RH (No condensation)
	Vibration	Less than 0.5g when frequency less than 20Hz
	Storage Temperature	-20~60°C
	Installation mode	Hanging machine
	Ingress Protection	IP65
Cooling Method	Natural cooling / forced air cooling	
International Certificate	CE	

## Dimension of solar pump inverter



Inverter Model	Dimension			Installation Aperture		Aperture Size
	W	H	D	W1	H1	
SI30-D1-R75G	308	446.5	151.38	221	270	φ 6
SI30-D1-1R5G						
SI30-D3-R75G						
SI30-D3-1R5G						
SI30-D3-2R2G						
SI30-D5-R75G						
SI30-D5-1R5G						
SI30-D5-2R2G						
SI30-D5-004G						
SI30-D5-5R5G						
SI30-D5-7R5G	308	446.5	195.88	260	260	φ 7.5
SI30-D5-011G						
SI30-D5-015G						

## Solar pump inverter Standard Wiring Diagram





# SI20 Series Solar Pump Inverter

## SI20-D0-1R5G special type of solar pump inverter

- ⊙ **Ultra low voltage:** With the incredible ultra low input voltage of 30VDC, 300W three-phase AC pumps could be driven perfectly, "a panel, a pump, will no longer be a dream."
- ⊙ **Super compatibility:** Can drive three-phase AC AM and PMSM pumps.
- ⊙ **Ingenious design:** powerful Boost function and specialized sine wave output filter.
- ⊙ **Electrical parameters:** input power of 30-300V DC or 1 \* 90-240V AC; maximum output power of 1.5kW, maximum output current of 10A, output voltage of 3 \* 90-230V AC



## Four features of solar pump inverter



## Solar pump inverter introduction

### SI20 series solar pump inverter

- ⊙ **Clean energy:** inexhaustible energy supply, non-pollution, zero carbon dioxide emissions, actively contribute to curbing global warming.
- ⊙ **Economic and affordable:** One-time investment to get long-term returns, and enjoy government subsidies.
- ⊙ **Safe and reliable:** unattended, work at sunrise and stop at sunset.
- ⊙ **Simple operation:** One key operation
- ⊙ **Smart Internet of Things:** powerful GPRS Internet of Things, and users could master the system state at anytime and anywhere.
- ⊙ **Personal customized:** special model supports ultra low input voltage of 30-300VDC with a specialized sine wave filter.
- ⊙ **International standards:** in line with national standards, and access to CE certification.



## Model Analysis

Model Analysis of three - phase AC pump drive				
Product Model	Voltage Level	Input Power		Power Range
		DC	AC	
SI20-D0-xxG	110V	30-300VDC	Single Phase 110VAC	Maximum Power 1.5kW
SI20-D1-xxG	110V	90-400VDC	Single Phase 110VAC	0.75-1.5kW
SI20-D3-xxG	220V	150-450VDC	Single Phase 220VAC	0.75-4.0kW
SI20-D5-xxG	380V	250-780VDC	Three Phase 380VAC	0.75-30.0kW
SI20-T3-xxG	380V	350-780VDC	Three Phase 380VAC	37.0-200.0kW

## Solar panels recommended configuration

Solar pump inverter model	Solar panel model 1			Solar panel model 2			Solar panel model 3			
	Voc: 21V±2V			Voc: 31V±2V			Voc: 43V±2V			
	P±3W	Isc	configuration	P±3W	Isc	configuration	P±3W	Isc	configuration	Inverter rated current
SI20-D1-R75G										7A
SI20-D1-1R5G										10A
SI20-D3-R75G	30W	2.75A	17*2							4A
SI20-D3-1R5G	60W	3.48A	17*2							7A
SI20-D3-2R2G	90W	5.5A	17*2							10A
SI20-D3-004G	90W	5.5A	17*3							16A
SI20-D5-R75G	30W	2.75A	30*1							2.3A
SI20-D5-1R5G	60W	3.48A	30*1							3.7A
SI20-D5-2R2G	90W	5.5A	30*1							5A
SI20-D5-004G	85W	4.7A	28*2							10A
SI20-D5-5R5G				180W	7.33A	19*2				13A
SI20-D5-7R5G				240W	8.81A	20*2	200W	7.32A	15*3	17A
SI20-D5-011G				180W	7.33A	20*4	240W	7.32A	15*4	25A
SI20-D5-015G				240W	8.81A	20*4	240W	7.32A	15*5	32A
SI20-D5-018G				240W	8.81A	20*5	240W	7.32A	15*6	38A
SI20-D5-022G				240W	8.81A	20*6	270W	7.32A	15*7	45A
SI20-D5-030G				240W	8.81A	20*8	270W	7.32A	15*10	60A
SI20-T3-037G				270W	8.81A	20*9	270W	7.32A	15*11	75A
SI20-T3-045G				270W	8.81A	20*10	270W	7.32A	15*14	90A

**Note:**

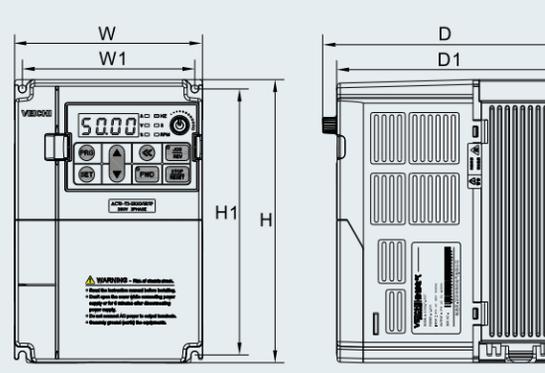
The recommended total Vmp of solar panel shall be 1.15 times of inverter bus voltage. For example, in D5 series, the recommended Vmp voltage is 540V\*1.15=621V; and in D3 series, the recommended Vmp voltage is 311\*1.15=357V;

For example, the D1 series recommended Vmp is 155\*1.15=178V.

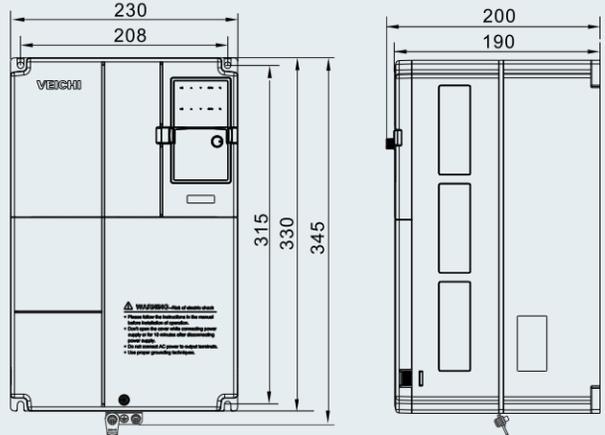
the recommend total power of solar panel should be at least 1.2 times of the inverter power(drive the same power pump); such as the recommend total power of solar panel for 7.5kW water pump system: 7500\*1.2=9000W;

The maximum withstand voltage of D1 model products is 400VDC; of D3 model products is 450VDC;and of D5 and T3 model products is 780VDC;

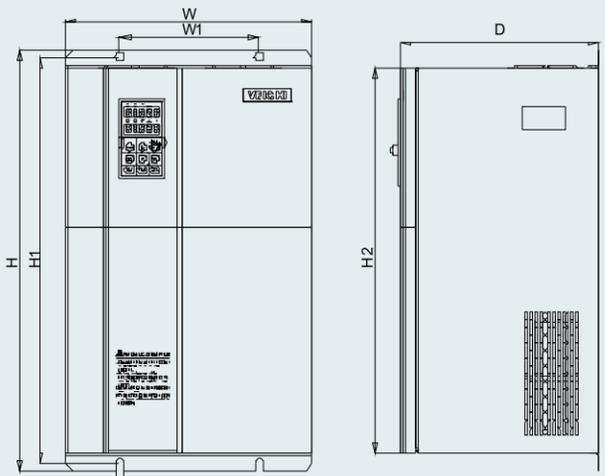
## Dimension of solar pump inverter



Inverter Model	Dimension				Installation aperture		Aperture Size
	W	H	D	D1	W1	H1	
SI20-D1-R75G	122	182	154.5	145	112	171	φ 5
SI20-D1-1R5G	159	246	157.5	148	147.2	236	φ 5.5
SI20-D3-R75G	122	182	154.5	145	112	171	φ 5
SI20-D3-1R5G	159	246	157.5	148	147.2	236	φ 5.5
SI20-D3-2R2G	159	246	157.5	148	147.2	236	φ 5.5
SI20-D3-004G	195	291	167.5	158	179	275	φ 7
SI20-D5-R75G	122	182	154.5	145	112	171	φ 5
SI20-D5-1R5G	122	182	154.5	145	112	171	φ 5
SI20-D5-2R2G	159	246	157.5	148	147.2	236	φ 5.5
SI20-D5-004G	159	246	157.5	148	147.2	236	φ 5.5
SI20-D5-5R5G	195	291	167.5	158	179	275	φ 7
SI20-D5-7R5G	195	291	167.5	158	179	275	φ 7
SI20-D5-011G	195	291	167.5	158	179	275	φ 7



Inverter Model	Dimension				Installation aperture		Aperture Size
	W	H	D	D1	W1	H1	
SI20-D5-015G	230	330	200	190	208	315	φ 7
SI20-D5-018G	230	330	200	190	208	315	φ 7
SI20-D5-022G	230	330	200	190	208	315	φ 7



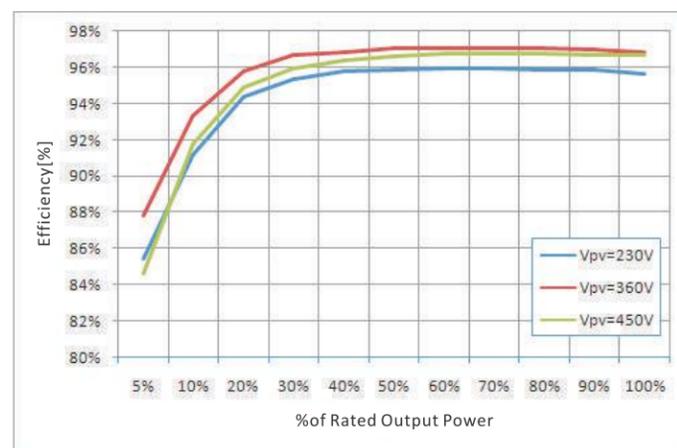
Inverter Model	Dimension				Installation aperture		Aperture Size
	W	H	D	H2	W1	H1	
SI20-D5-030G	255	410	225	370	180	395	φ 7
SI20-T3-037G	305	570	260	522	180	550	φ 9
SI20-T3-045G	305	570	260	522	180	550	φ 9
SI20-T3-055G	305	570	260	522	180	550	φ 9
SI20-T3-075G	380	620	290	564	240	595	φ 11
SI20-T3-093G	380	620	290	564	240	595	φ 11
SI20-T3-110G	380	620	290	564	240	595	φ 11
SI20-T3-132G	500	780	340	708	350	755	φ 11
SI20-T3-075G	650	1060	400	950	400	1023	φ 16
SI20-T3-093G	650	1060	400	950	400	1023	φ 16
SI20-T3-110G	650	1060	400	950	400	1023	φ 16



## Single-Phase String Inverter



### Efficiency Curve



Efficiency Curve

#### High-yield

- Max. 97.2% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range

#### All in one, flexible and economical system solution

- Free site selection due to IP65
- Easy installation and maintenance due to "Plug & Play" connection
- Interface selection – Wi-Fi / RS485 / GPRS
- 4" LCD display

#### Low maintenance cost

- Detachable cover for easy installation
- Rust-free Aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

#### Intelligent grid management

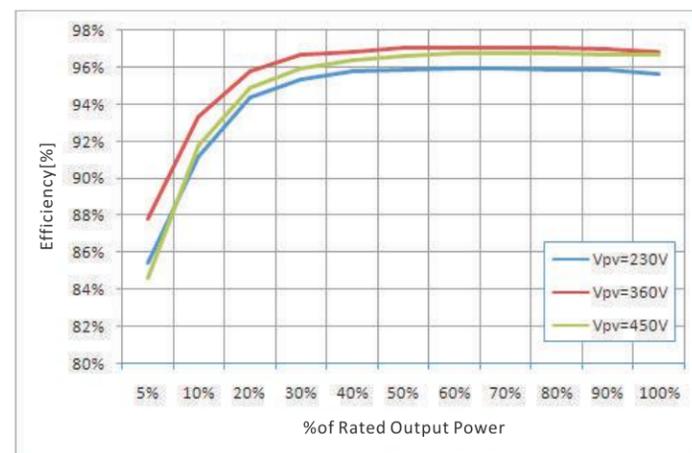
- Reactive power capability
- Self power reducer when over frequency
- Remote active/reactive power limit control

## 1100TL/1600TL/2200TL/2700TL/3000TL

Technical Data	SIS 3000TL
<b>Input(DC)</b>	
Max. Input Power	3000W
Number of MPPT/String per MPPT	1/1
Max. input voltage	550V
Start-up input voltage	120V
Rated input voltage	360V
MPPT voltage range	100-550 V
Full load DC voltage range	200-500 V
Max. input current	15A
<b>Output(AC)</b>	
Rated Power	2900VA
Max.AC Power	2900VA
Max.AC Output Current	13A
Nominal Grid Voltage	230V
Grid Voltage Range	180~270 V(According to local standard)
Nominal Frequency	50/60Hz
Grid frequency Range	47~53 / 57~63Hz (According to local standard)
THDi	<3%
Power factor	1 ( adjustable +/-0.8)
Grid connection	Single phase
Power Limit export	Zero export or adjustable power limit export
<b>Efficiency</b>	
Max. efficiency	97.2%
Euro. efficiency	96.5%
MPPT adaptation efficiency	>99.5%
<b>Standard</b>	
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
Safety standards	IEC 62109-1, IEC 62109-2
Grid standards	AS 4777, VDE V 0124-100, VDE V 0126-1-1, VDE-AR-N 4105, EN50438, G83/2, C10/11, RD1699
<b>Protection</b>	
Anti-Islanding Protection	Yes
DC Reverse Polarity Protection	Yes
Over Temp Protection	Yes
Leakage Current Protection	Yes
Over Voltage Protection	Yes
Over Current Protection	Yes
Earth Fault Protection	Yes
<b>Communication</b>	
Standard Communication Mode	wifi, RS485, GPRS (optional), SD card
Operation Data Storage	25 years
I/O	Yes
<b>General Data</b>	
DC Switch	optional
Ambient temperature range	-25°C...+60°C
Topology	Transformerless
Cooling	Natural
Allowable relative humidity range	0...95% no condensing
Max. operating altitude	2000m
Noise	<25db@1m
Degree of Protection(per IEC 60529)	IP65
Dimension	405*314*135 mm
Weight	12kg
Self-consumption at night	<1w
Display	LCD display
Warranty	5 years



## Efficiency Curve



Efficiency Curve

### High-yield

- Max. 97.6% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range

### All in one, flexible and economical system solution

- Free site selection due to IP65
- Easy installation and maintenance due to "Plug & Play" connection
- Interface selection – Wi-Fi / RS485 / GPRS
- 4" LCD display

### Low maintenance cost

- Detachable cover for easy installation
- Rust-free Aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

### Intelligent grid management

- Reactive power capability
- Self power reducer when over frequency
- Remote active/reactive power limit control

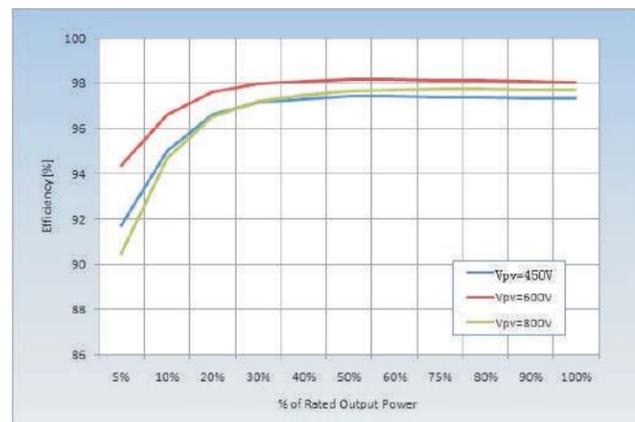
## 5000TLM

Technical Data	SIS 5000TLM
<b>Input(DC)</b>	
Max.Input power	5200W
Max.DC power for single MPPT	3000(200V-500V)
Number of independent MPPT	2
Number of DC inputs	1 for each MPPT
Max. input voltage	600V
Start-up input voltage	120V
Rated input voltage	360V
MPPT voltage range	100V-580V
Full load DC voltage range	175V-520V
Max. input current per MPPT	15A/15A
Input short circuit current for each MPPT	18A
<b>Output(AC)</b>	
Rated power	5000VA
Max. AC power	5000VA
Max. output current	22A
Nominal Grid Voltage	230V
Grid Voltage Range	180~270 V(According to local standard)
Nominal Frequency	50/60Hz
Grid frequency range	47~53 / 57~63Hz (According to local standard)
Active power adjustable range	0~100%
THDi	<3%
Power factor	1 (adjustable +/-0.8)
Power Limit export	Zero export or adjustable power limit export
<b>Performance</b>	
Max. efficiency	97.6%
Weighted eff. (EU/CEC)	97.1%/97.3%
Self-consumption at night	<1W
Feed-in start power	20W
MPPT efficiency	>99.5%
<b>Protection</b>	
DC reverse polarity protection	Yes
DC switch	optional
Protection class /overvoltage category	I/III
Input / output MOV (III)	Yes
Safety protection	Anti islanding, RCMU, Ground fault monitoring
Certification	CE, CGC, AS4777, AS3100, VDE4105, C10-C11, G83/G59 (more available on request)
<b>Communication</b>	
Power management unit	According to certification and request
Standard Communication Mode	wifi, RS485, GPRS (optional), SD card
Operation Data Storage	25 years
<b>General data</b>	
Ambient temperature range	-25°C...+60°C
Topology	Transformerless
Degree of protection	IP65
Allowable relative humidity range	0...95% no condensing
Max. operating altitude	2000m
Noise	<25dB
Weight	19kg
Cooling	Natural
Dimension	344*478*170mm
Display	LCD display
Warranty	5 years

## Three-Phase String Inverter



### Efficiency Curve



Efficiency Curve

#### High-yield

- Max. 98.2% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range from 250V to 960V

#### All in one, flexible and economical system solution

- DC switch
- DC surge protection device (option)
- AC surge protection device (option)
- Power management unit
- Optimum selection for big PV plants, commercial buildings...

#### Low maintenance cost

- Detachable cover for easy installation
- Rust-free aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

#### Intelligent grid management

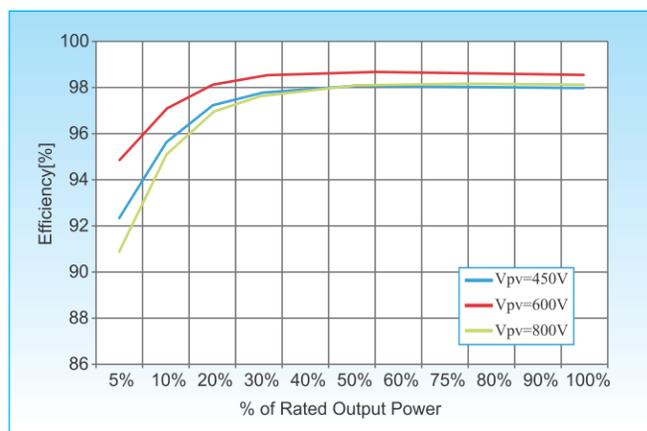
- ZVRT support
- Reactive power adjustable
- Self power reducer when over frequency
- Remote active/reactive power limit control

## 10000TL/15000TL/17000TL/20000TL

Technical Data	SIT 10000TL	SIT 15000TL	SIT 17000TL	SIT 20000TL
<b>Input(DC)</b>				
Max.Input power	10400W	15600W	17700W	20800W
Max.DC power for single MPPT	6750(450V-850V)	10500(500V-850V)	10500(500V-850V)	12000(500V-850V)
Number of independent MPPT	2			
Number of DC inputs	2 for each MPPT		2 for each MPPT	
Max. input voltage	1000V			
Start-up input voltage	350V			
Rated input voltage	600V			
MPPT voltage range	250V-960V			
Full load DC voltage range	350V-850V	370V-850V	420V-850V	430V-850V
Max. input current per MPPT	15A/15A	21A/21A	21A/21A	24A/24A
Input short circuit current for each MPPT	20A	27A	27A	30A
<b>Output(AC)</b>				
Rated power	10000VA	15000VA	17000VA	20000VA
Max. AC power	10000VA	15000VA	17000VA	20000VA
Max. output current	15A	22A	25A	29A
Nominal Grid Voltage	3/N/PE,220/380 or 3/N/PE,240/415 or 3/N/PE,230/400			
Grid Voltage Range	180V ~ 270V			
Nominal Frequency	50/60Hz			
Grid frequency range	47~53 / 57~63Hz (According to local standard)			
Active power adjustable range	0~100%			
THDi	<3%			
Power factor	1(Adjustable +/-0.8)			
<b>Performance</b>				
Max. efficiency	98.2%			
Weighted eff. (EU/CEC)	97.6%/97.8%	97.9%/98%	97.9%/98%	98%/98.1%
Self-consumption at night	<1W			
Feed-in start power	45W			
MPPT efficiency	>99.5%			
<b>Protection</b>				
DC reverse polarity protection	Yes			
DC switch	Yes			
Protection class /overvoltage category	I/III			
Input/output SPD(II)	Optional			
Safety protection	Anti islanding, RCMU, Ground fault monitoring			
Certification	CE, CGC, AS4777, AS3100, VDE 4105, C10-C11, G59 (more available on request)			
<b>Communication</b>				
Power management unit	According to certification and request			
Standard Communication Mode	RS485, Wifi (optional), GPRS(optional), SD card, Multi-function relay			
Operation Data Storage	25 years			
<b>General data</b>				
Ambient temperature range	-25°C...+60°C			
Topology	Transformerless			
Degree of protection	IP65			
Allowable relative humidity range	0...95% no condensing			
Max.operating altitude	2000m			
Noise	<45dB			
Weight	45kg	45kg	48kg	48kg
Cooling	Natural	Natural	Natural	Natural
Dimension	707*492*240mm			
Display	LCD display			
Warranty	5 years			



## Efficiency Curve



Efficiency Curve

### High-yield

- Max.98.7% efficiency
- Real time precise MPPT algorithm for max harvest
- Wide input voltage operation range from 250V to 960V

### All in one,flexible and economical system solution

- DC switch
- DC surge protection device (option)
- AC surge protection device (option)
- Built-in PV Combiner
- Power management unit
- Optimum selection for big PV plants, commercial buildings...

### Low maintenance cost

- Detachable cover for easy installation
- Rust-free aluminum covers
- Flexible monitoring solution
- Multi function relay can be configured to show various inverter information

### Intelligent grid management

- ZVRT support
- Reactive power adjustable
- Self power reducer when over frequency
- Remote active/reactive power limit control

## 30000TL/33000TL/40000TL

Technical Data	SIT 30000TL	SIT 33000TL	SIT 40000TL
<b>Input(DC)</b>			
Max.Input power	30720W	34000W	40800W
Max.DC power for single MPPT	18000W(480V-800V)	20000W(480V-800V)	20400W(570V-800V)
Number of independent MPPT	2		
Number of DC inputs	4 for each MPPT		
Max. input voltage	1000V		
Start-up input voltage	350V		
Rated input voltage	600V	600V	700V
MPPT voltage range	250V-960V		
Full load DC voltage range	480V-800V	480V-800V	560V-800V
Max. input MPPT current	64A(32A/32A)	70A(35A/35A)	70A(35A/35A)
Max. input current per string	12A		
<b>Output(AC)</b>			
Rated power	27600W	30000W	36000W
Max. AC power	30000VA	33000VA	40000VA
Max. output current	43A	48A	48A
Nominal Grid Voltage	3/N/PE,3/PE,230/400Vac	3/N/PE,3/PE,230/400Vac	3/N/PE, 277/480Vac OR 3/PE, 277/480Vac
Grid Voltage Range	180Vac-270Vac	180Vac-270Vac	245Vac-305Vac
Nominal Frequency	50/60Hz		
Grid frequency range	47~53 / 57~63Hz (According to local standard)		
Active power adjustable range	0~100%		
THDi	<3%		
Power factor	1(Adjustable +/-0.8)		
<b>Performance</b>			
Max. efficiency	98.5%	98.5%	98.7%
European weighted efficiency	98.2%	98.2%	98.4%
Self-consumption at night	<1W		
Feed-in start power	45W		
MPPT efficiency	>99.5%		
<b>Protection</b>			
DC reverse polarity protection	Yes		
DC switch	Yes		
Protection class /overvoltage category	I/III		
Input/output SPD(II)	Optional		
Safety protection	Anti islanding, RCMU, Ground fault monitoring		
Certification	CE,CGC,ZVRT,AS4777,AS3100,VDE4105,C10-C11,G59(more available on request)		
<b>Communication</b>			
Power management unit	According to certification and request		
Standard Communication Mode	RS485, Wifi (optional),GPRS(optional), SD card, Multi-function relay		
Operation Data Storage	25 years		
<b>General data</b>			
Ambient temperature range	-25°C...+60°C		
Topology	Transformerless		
Degree of protection	IP65		
Allowable relative humidity range	0...95% no condensing		
Max.operating altitude	3000m		
Noise	<30dB	<45dB	<45dB
Weight	50kg		
Cooling	Natural	Fan	Fan
Dimension	708.8*492*258mm		
Display	LCD display		
Warranty	5 years		