VEICHI

SI30 Series Solar Pump Inverter

VEICHI

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Drive For Ever

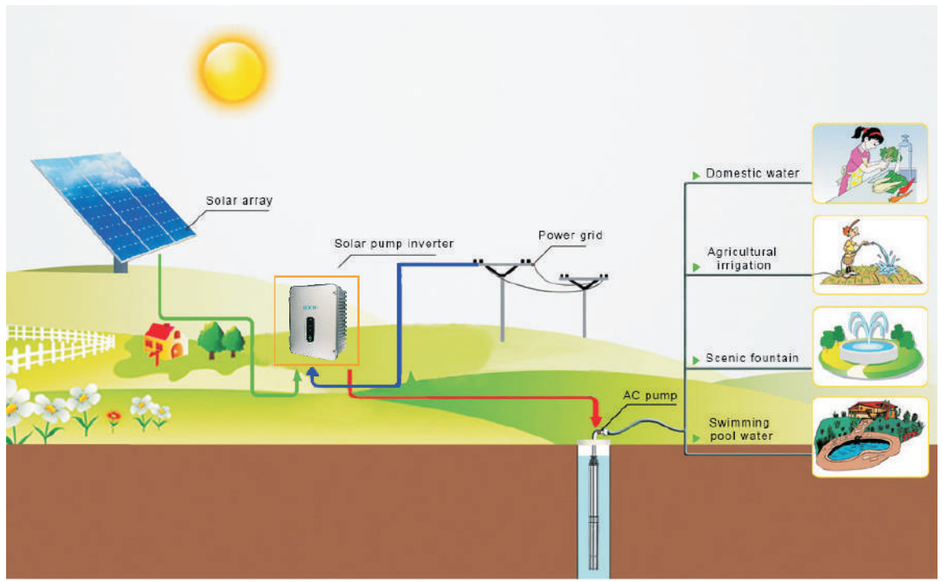
Shenzhen Veichi Electric Co., Ltd. is a high-tech enterprise that is professionally engaged in the development, manufacturing and marketing of industrial automation control products, and committed to becoming a global leading provider of industrial automation control products and system solutions.

The company owns powerful R&D team, relatively perfect production system, independent intellectual property and manufacturing bases in Shenzhen and Suzhou. To improve our R&D strength, we keep on introducing advanced overseas technology and broadening our partnerships with first-class universities and research institutions.

The main products of Veichi Electric include a variety of Variable Frequency Drive (VFD), Servo Drive System, Photovoltaic Inverter, PLC, HMI, automation equipment, etc, which are widely used in industries such as oil & gas, chemical industry, ceramic, crane & hoist, metallurgy, electrical cable and wire, plastic, print and package, textile, metal work and cable, coal mining and municipal engineering. Suitable solutions and products are always ready to meet the demands and improve comprehensive competitiveness of users.

With the spirit of "Innovation is the lifeblood of Veichi", 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 branch offices in China and dozens of partners in Asia, Europe and Africa. Veichi has been named Chinese Electric Industry's Top Ten National Brands, Chinese Electric Industry Top Ten Satisfying Brands and Top Ten National Brands of Inverter Industry. Veichi products have become the first choice of many enterprises.

Solar pump system



Zero carbon new energy system with the max investment value

Clean energy — Stable and efficient — Simple operation

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.

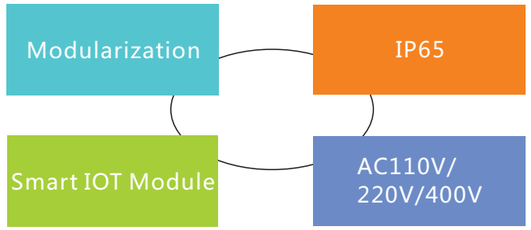
Solar pump system components

Solar modules

Solar pump drive

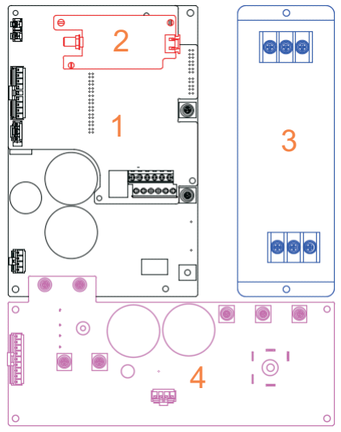
Solar pump

Four features of solar pump inverter



Solar pump inverter-Product introduction

Modular Design



Ingenious design: Small and exquisite inverter modules

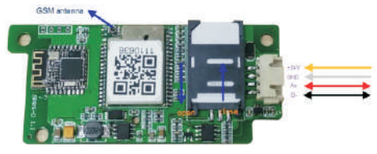
Industry 4.0 : GPRS , Bluetooth, cloud platform to build the IOT module

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 unnion of fshion sense and technology

Solar pump IOT system



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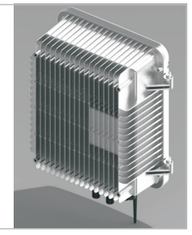
The global cumulative online volume of more than 100000 units

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.

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 achieverapid 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

Solar pump drive model analysis

Model analysis of three phase AC PMSM pump drive				
Product model	Voltage level	Input power		Power range
		DC	AC	
SI30-D1-xxG	110V	90-400VDC	Single-phase 110VAC	0.75-1.5kW
SI30-D3-xxG	220V	150-450VDC	Single-phase 220VAC	0.75-2.2kW
SI30-D5-xxG	380V	300-800VDC	Three-phase 380VAC	0.75-5.5kW

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, 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, 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 300-800VDC, 3 Phase230-460VAC Output, Suitable for AC380V Pumps							
0.75	0.75	380	1.0	800	620-750	2.3A	0-320
1.5	1.5	380	2.2	800	620-750	3.7A	0-320
2.2	2.2	380	3.3	800	620-750	5.0A	0-320
4.0	4.0	380	5	800	620-750	10A	0-320
5.5	5.5	380	8	800	620-750	13A	0-320

Technical Specification

Items		Specification
Power Supply Input	voltage, frequency	D0 Type:90-450VDC/1*110VAC 50/60Hz D3 Type:150-450VDC/1*220VAC 50/60Hz D5:Type:300-800VDC/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, single-phase water pump
	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	Indoor, altitude less than 1000m, free corrosive gases and direct sunlight
	Temperature, humidity	-10～+50℃, 20% to 95% RH (No condensation)
	Vibration	Less than 0.5g when frequency less than 20Hz
	Storage Temperature	-20~60℃
	Installation mode	Hanging machine
	Ingress Protection	IP65
	Cooling Method	Natural cooling / forced air cooling
International Certificate	CE	

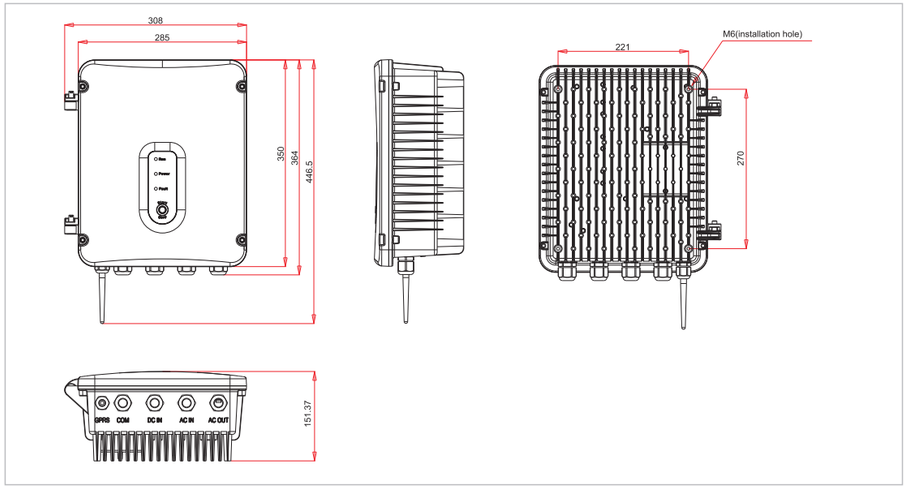
Solar panel recommended configuration

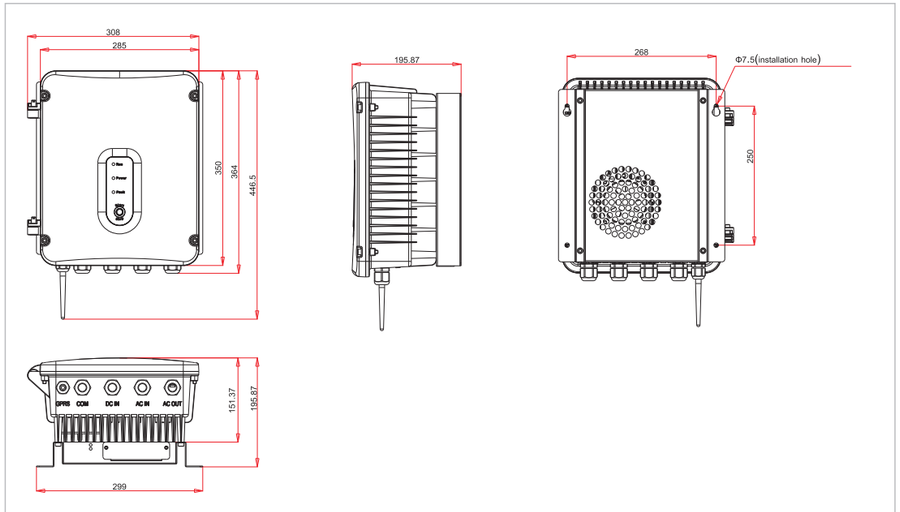
Solar pump inverter model	Solar panel model 1			Solar panel model 2			Solar panel model 3			
	Voc: 21V±2V			Voc: 33V±2V			Voc: 43V±2V			
	P±3W	Isc	configuration	P±3W	Isc	configuration	P±3W	Isc	configuration	Inverter rated current
SI30-D1-R75G	30W	2.75A	11*3							7A
SI30-D1-1R5G	60W	3.48A	10*3							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

Note:

1. 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*1.15=621V (620V);
   As in the D3 series, the minimum Voc voltage is 311*1.15=357V (360V);
   As in the D1 series, the minimum Voc voltage is 155*1.15=178V (175V);
2. 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;
3. The maximum withstand voltage of D1 model products is 400VDC; of D3 model products is 450VDC;and of D5 model products is 800VDC;

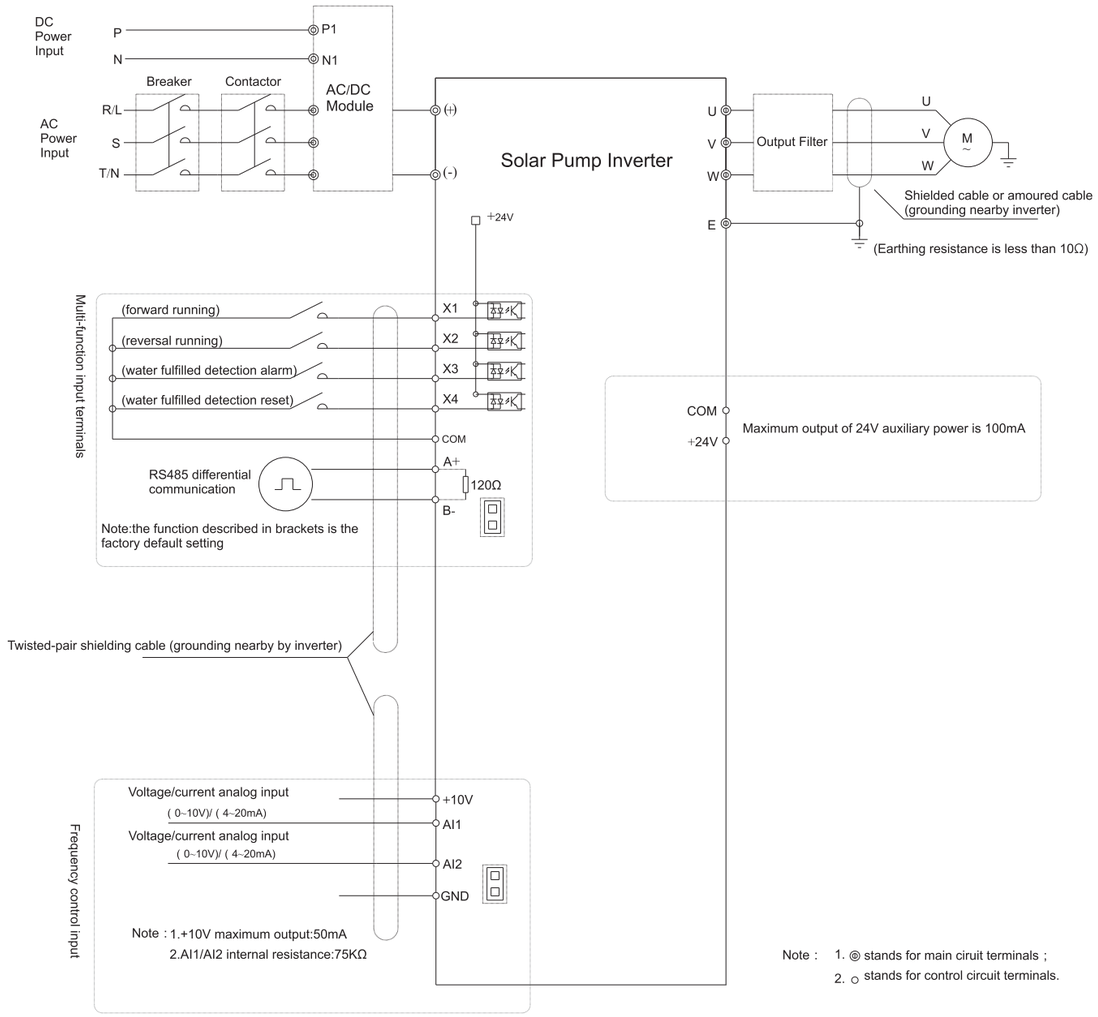
Dimension of solar pump inverter





Inverter model	Inverter size				Installation hole		Aperture Size
	W	H	D	D1	W1	H1	
SI30-D1-R75G	308	446.5	151.37	151.37	221	270	ϕ6
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	308	446.5	195.87	195.87	221	270	ϕ7.5

Solar pump inverter Standard Wiring Diagram



Note : 1. ◎ stands for main ciruit terminals ;
2. ○ stands for control circuit terminals.

Application cases of solar pump system