

VEICHI

Solar Pump Inverter



VEICHI

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Drive For Ever



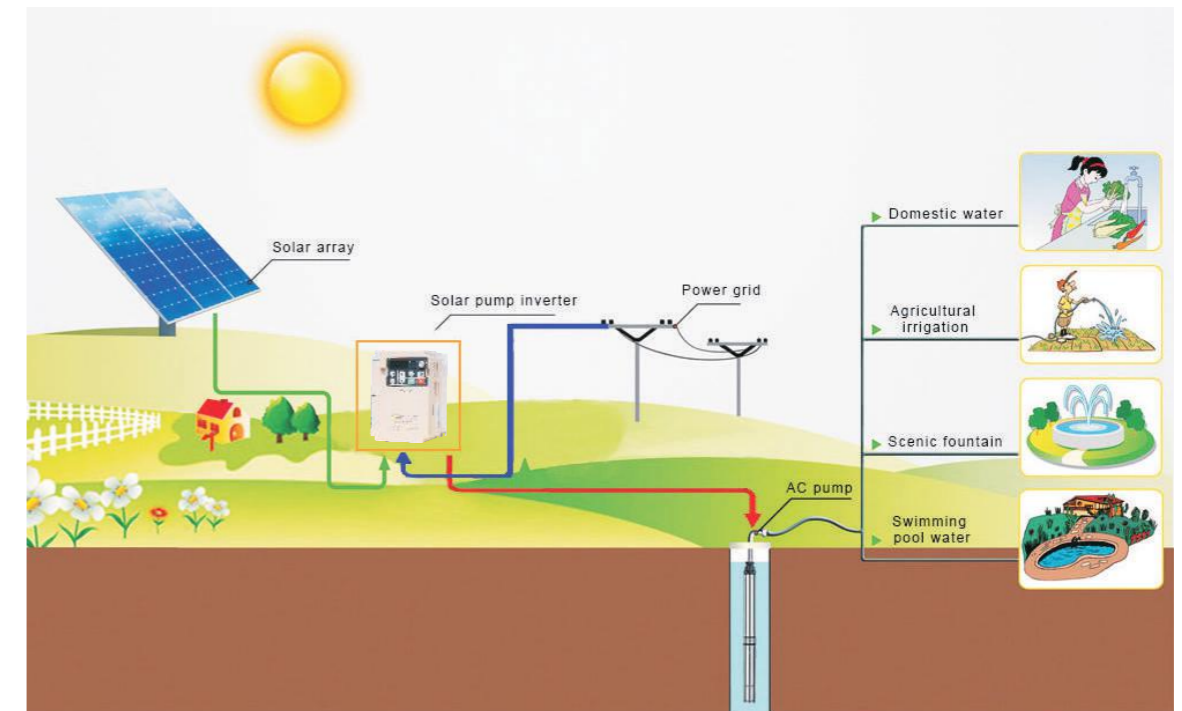
Shenzhen Veichi Electric Co., Ltd. is a high-tech enterprise that is professionally engaged in the development, manufacturing and marketing of industrial automation control products, and committed to becoming a global leading provider of industrial automation control products and system solutions.

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



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

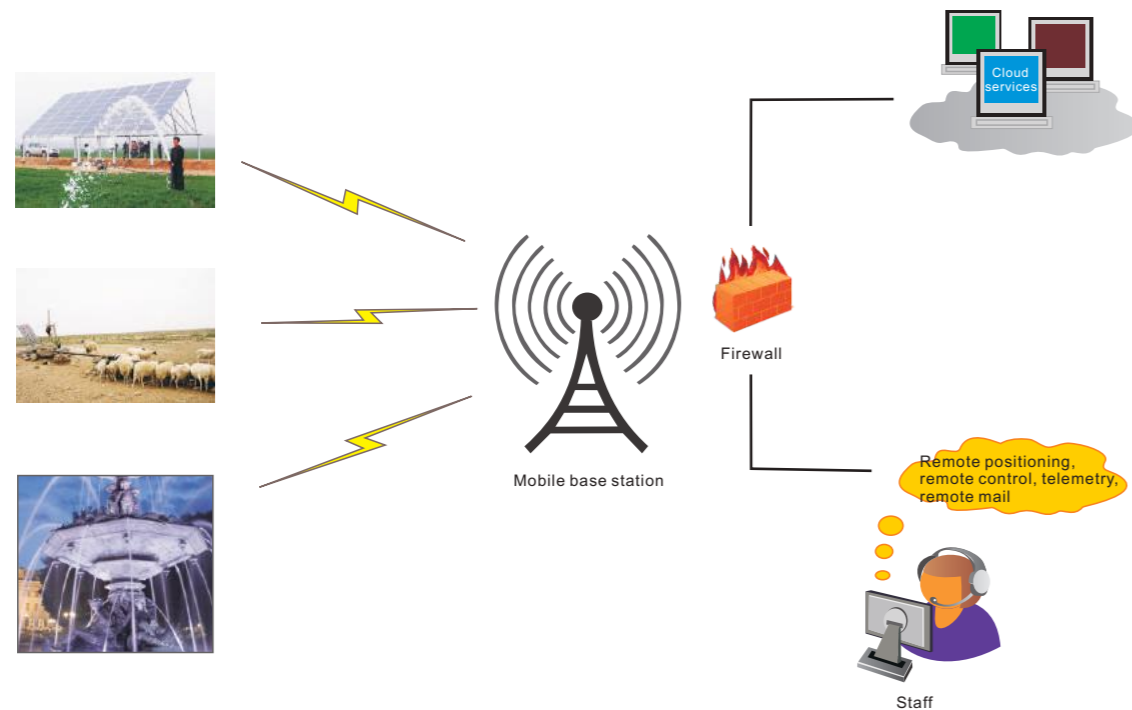


Solar pump drive



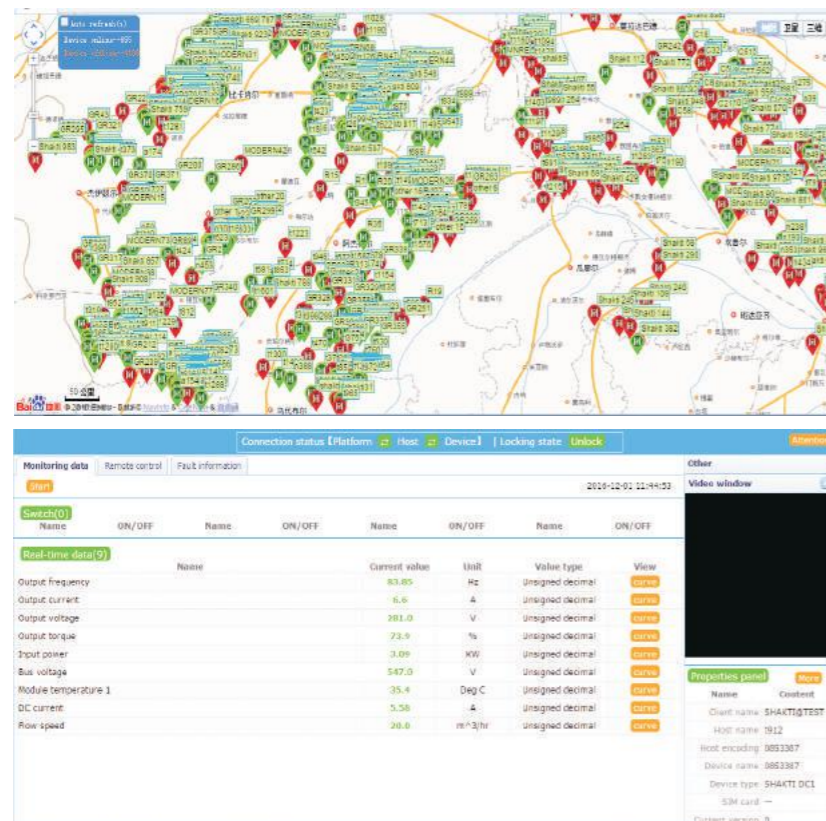
Solar pump

Solar pump IOT monitoring system



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.



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.



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



Model Analysis

Model Analysis of three - phase AC PMSM 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

Technical Specification

Solar Pump Inverter Power(KW)	Pump		Maximum Input Power of Solar panel(KW)	Maximum Input DC Voltage(V)	Total Voc range (V) of Recommended Panels	Rated Output Current(A)	Output Frequency Range(Hz)
	Rated Power (KW)	Rated Voltage(V)					
SI20-D0 Series: Input30-300VDC, 3 Phase 90-230VAC Output, Suitable for AC110V Pumps							
1.5	1.5	110	1.95	300	30-300	10A	0-320
SI20-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
SI20-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
4.0	4.0	220	4.81	450	360-430	16A	0-320
SI20-D5 Series: Input 250-780VDC, 3 Phase230-460VAC Output, Suitable for AC380V Pumps							
0.75	0.75	380	1.0	780	620-750	2.3A	0-320
1.5	1.5	380	2.2	780	620-750	3.7A	0-320
2.2	2.2	380	3.3	780	620-750	5.0A	0-320
4.0	4.0	380	5	780	620-750	10A	0-320
5.5	5.5	380	8	780	620-750	13A	0-320
7.5	7.5	380	10	780	620-750	17A	0-320
11	11	380	14.3	780	620-750	25A	0-320
15	15	380	19.5	780	620-750	32A	0-320
18.5	18.5	380	23.4	780	620-750	38A	0-320
22	22	380	28.6	780	620-750	45A	0-320
30	30	380	39	780	620-750	60A	0-320
SI20-T3 Series: Input 350-780VDC, 3Phase230-460VAC Output, Suitable for AC380V Pumps							
37	37	380	48.1	780	620-750	75A	0-320
45	45	380	58.5	780	620-750	90A	0-320
55	55	380	71.5	780	620-750	110A	0-320
75	75	380	97.5	780	620-750	150A	0-320
93	93	380	120	780	620-750	180A	0-320
110	110	380	143	780	620-750	210A	0-320
132	132	380	171.6	780	620-750	250A	0-320
160	160	380	208	780	620-750	310A	0-320
185	185	380	240.5	780	620-750	340A	0-320
200	200	380	260	780	620-750	380A	0-320

Technical Specification

Items	Specification	
Input Power Supply	voltage, frequency	D0 Type:30-300VDC/1*90~240VAC 50/60Hz D1 Type:90-400VDC/1*110VAC 50/60Hz D3 Type:150-450VDC/1*220VAC 50/60Hz D5:Type:250-750VDC/3*380VAC 50/60Hz T3: Type:350-780VDC/3*380VAC 50/60Hz
	Allowable Fluctuations	Voltage Imbalance Rate: < 3% Frequency Fluctuating: ±5% Distortion Rate: confirm to IEC 61800-2
	VFD Efficiency	≥96%
	Total Voc range (V) of recommended panels	D0 Type: 30-300VDC D1Type: 175-360VDC D3Type: 360-430VDC D5Type: 620-750VDC T3Type: 620 -750 VDC
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
	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
	Servo control	Support synchronous and asynchronous servo control, perform pulse tracking, zero servo, indexing positioning and other basic servo functions, and support the orthogonal pulse given
	Communication network	Support 485 / Modbus protocol, CANopen protocol, and profibus-DP protocol; Support Modbus free protocol and CAN customize 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°C 20%~95%RH (No condensation)
	Vibration	Less than 0.5g when frequency less than 20Hz
	Storage Temperature	-20~60°C
	Installation mode	Hanging machine, cabinet machine
	Ingress Protection	IP20
	Cooling Method	Forced air-cooling
International Certificate	CE	

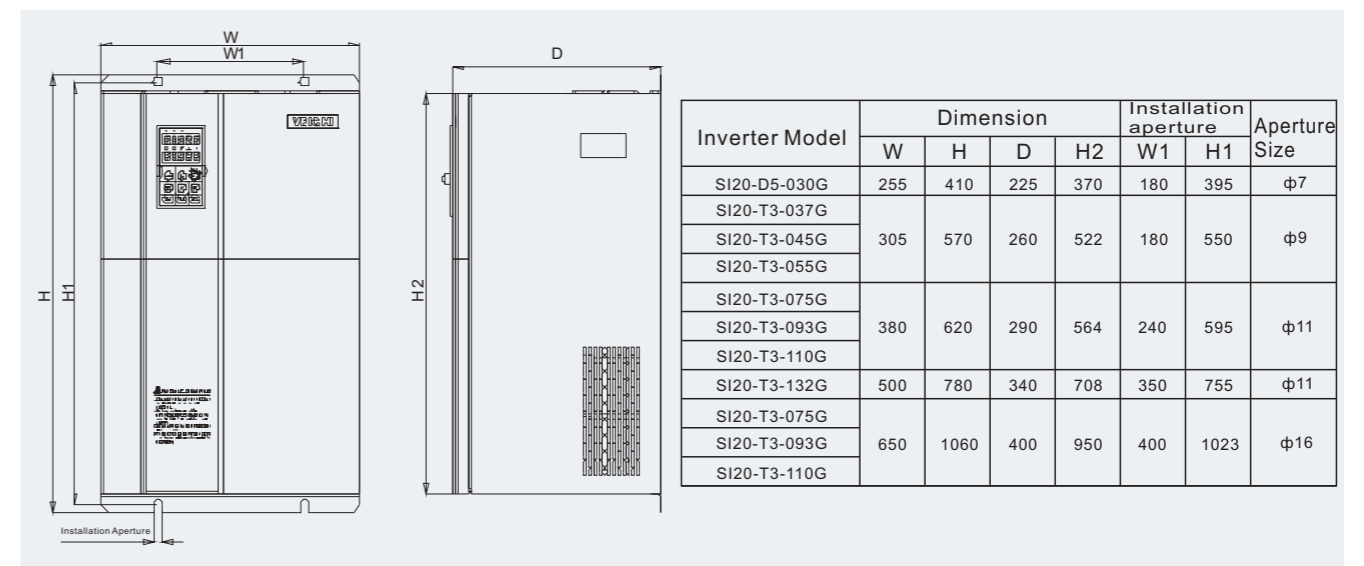
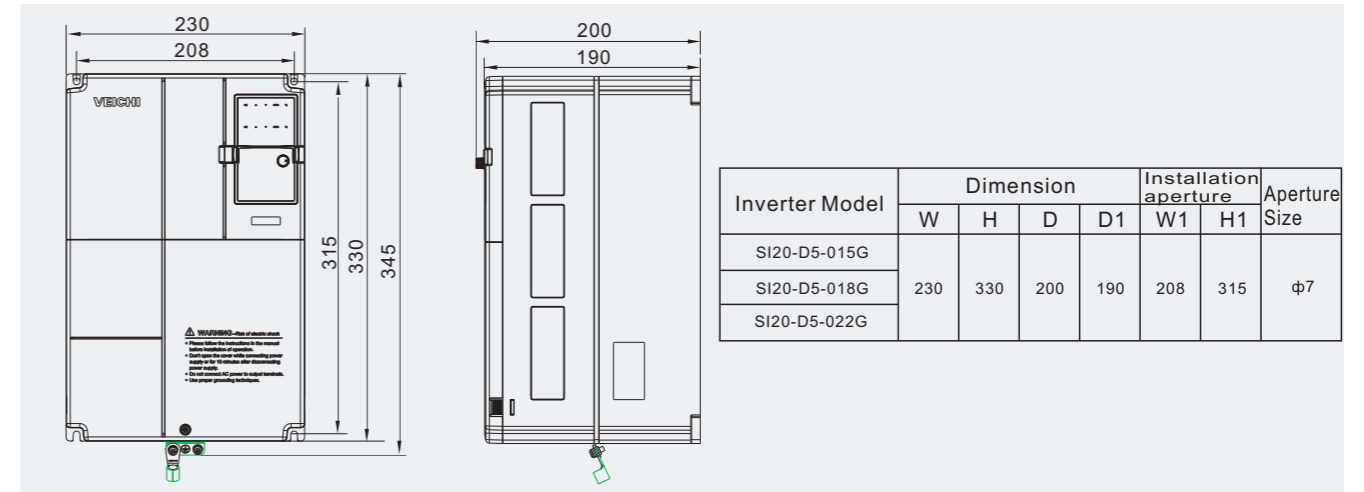
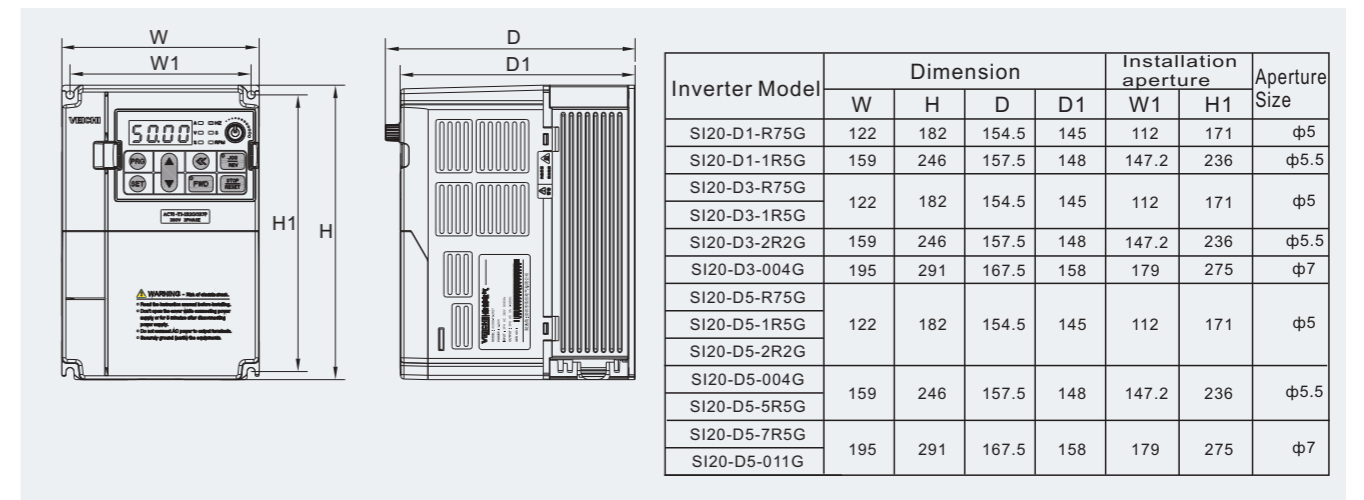
Solar panels recommended configuration

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

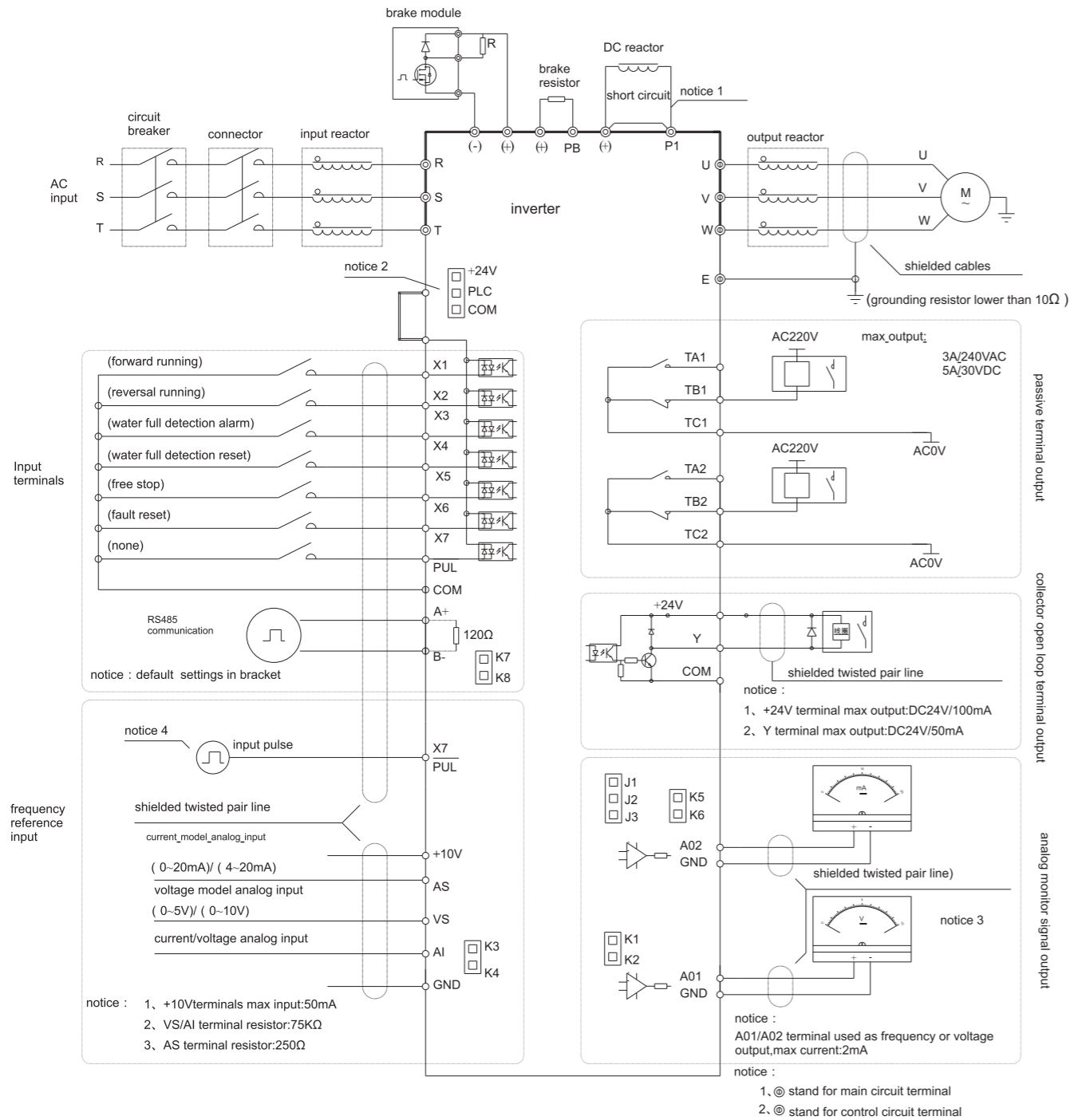
Note:

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



Standard Wiring Diagram



Application cases of VEICHI photovoltaic pump system

