

For details, please visit
www.kevan.com.cn



KEVAN

Shenzhen KEVAN Electric Technology Co., Ltd.

Address : 6 / F, building 11, Nangang second industrial zone,
Xili street, Nanshan District, Shenzhen City
Tel : 0755-2306 9313
Tax : 0755-8259 2576
Website : www.kevan.com.cn



SV10 SV20 SERIES SOLAR PUMP INVERTER

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Kevan electrical



COMPANY PROFILE

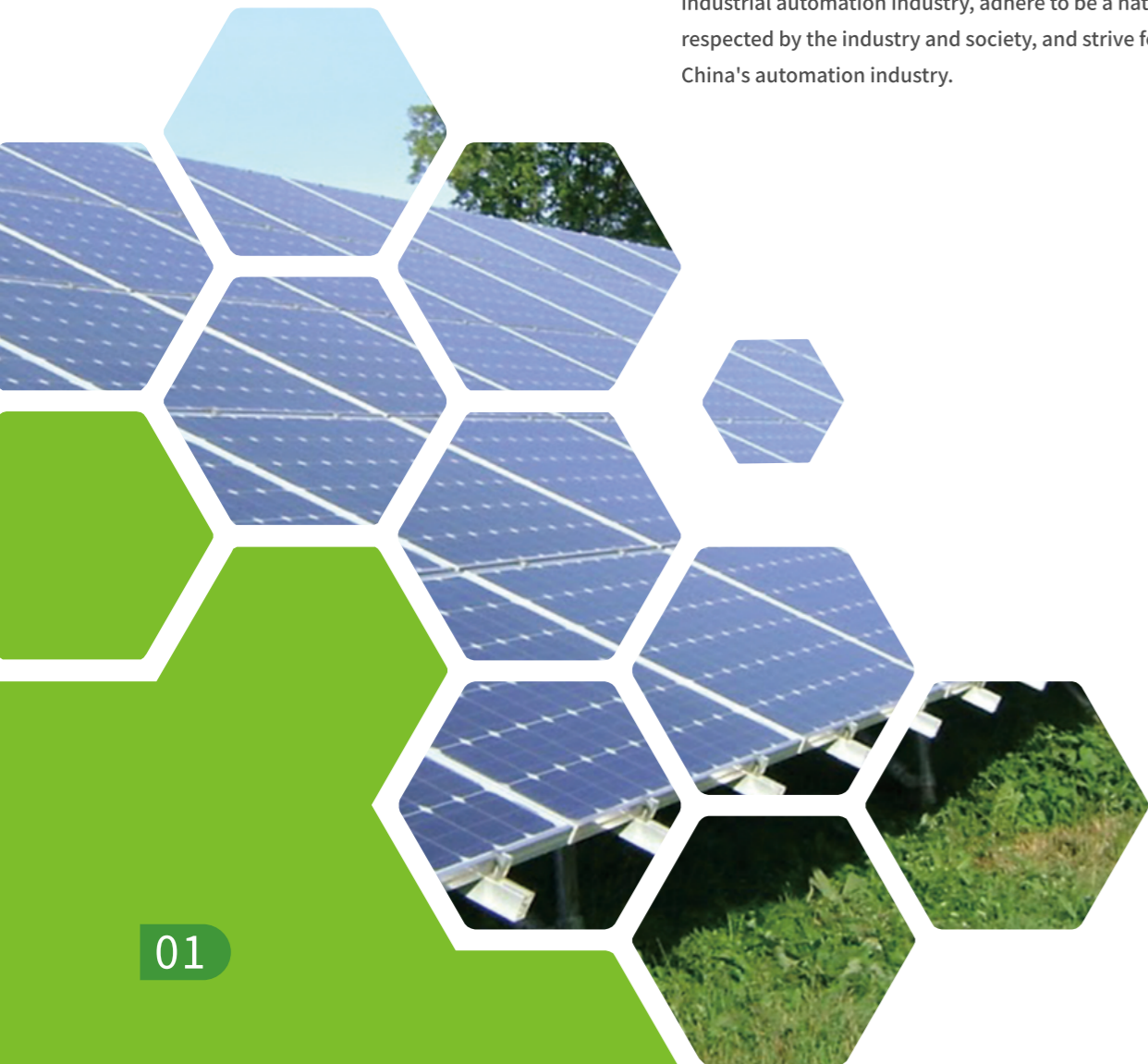
KEVAN ELECTRIC TECHCO., LIMITED

Shenzhen KEVAN Electric is a scientific and technological innovation enterprise integrating inverter, industry specific drive, control system R & D, production, sales and service. We have long been committed to providing users with reliable quality standardized products and personalized solutions.

KEVAN electric pursues the business philosophy of "cooperation, win-win, honest and integrity", adhere to the quality policy of "leading technology, excellent quality, quality control of all members, continuous improvement", and constantly expand the new direction of enterprise development. At present, KEVAN Electric has launched a full range of high-performance vector inverter products for the market, which are widely used in machine tools, textile, printing, plastics, paper making, lifting, cable, ceramics, building automation, fans, pumps and other industries.

Facing the future, KEVAN Electric will adhere to the concept of enterprise development, adhere to be a leading brand in China's industrial automation industry, adhere to be a national enterprise respected by the industry and society, and strive for the upgrading of China's automation industry.

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SV10 Series Solar Pump Inverter

SV10 series inverter is a new product developed by Shenzhen KEVAN Electric Technology Co., Ltd. SV10 products are based on the market demand of users for miniaturization, high reliability and high cost performance. They have many advantages, such as convenient installation, small size, low temperature rise, high protection and powerful software performance. As a book type narrow body inverter, SV10 pays attention to hardware, software, structure and test in every detail in the whole process of development, so as to ensure the Scientificity, preciseness and practicability of the product.



SV20 Series Solar Pump Inverter

SV20 series inverter is a new generation of high-performance general vector inverter designed by Kevan electric with years of in-depth exploration of inverter industry, continuous technological innovation and accumulation. Technical and performance problems encountered in cable, machine tool, metal products, petrochemical, natural gas, lifting equipment, pulping and papermaking, textile, printing and dyeing, ceramics and other industries can be easily solved.



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04
MPPT Maximum power output, multiple protection functions.



01
Support GPRS module to achieve remote control by using the APP;

02
Identify the light intensity and automatically switch the AC and DC input;



03
Support single-phase & 3 phase pump



05
Drive a variety of permanent magnet synchronous, asynchronous, BLDC motors.



06
In areas without electricity and water shortage, solve problems such as agricultural irrigation, daily water use and desert control.



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 .

International standards : in line with national standards , and access to CE certification .



Intelligent monitoring brings smart irrigation



Custom PQ curve : automatically calculate the parameters most concerned by users based on the curve , such as flow speed , daily flow , cumulative flow , daily power generation , and cumulative power generation .

Intelligent IOT system : IOT data platform , wireless transmission technology (GPRS , Bluetooth or WIFI), intelligent judgment of needs for water and fertilizer for achieving smart irrigation .

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)

Excellent Control Performance

Output frequency is 600Hz under
VC control

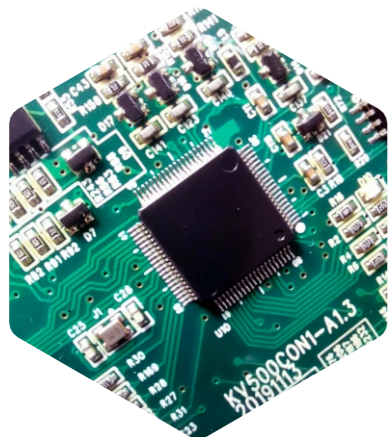
Remote control of mobile APP can be controlled home

Bluetooth , WIFI and GPRS wireless transmission technology .

Widely - used multi - language switching .
Drop - down menu for convenient parameter settings .
Digital display of current data are clear and accurate .
Ring operation button brings you a special experience .

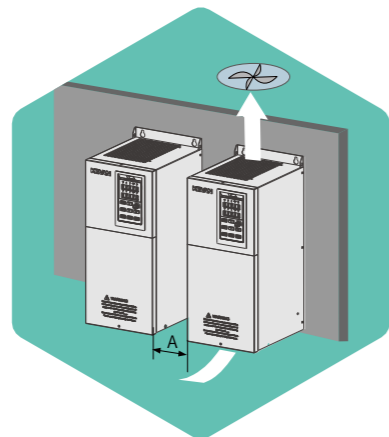
Application Industry

Agricultural irrigation Fountain Desert control Domestic water Seawater desalination Sewage disposal



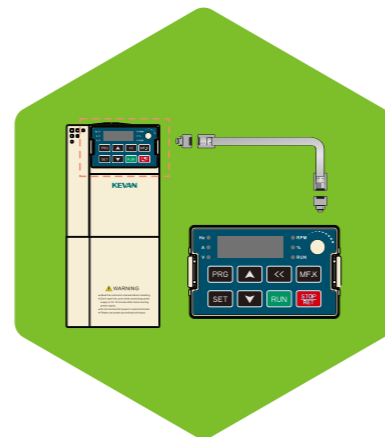
Solid process to ensure quality

Adopt imported quality three proofing paint and thick spraying to ensure long-term environmental pollution resistance



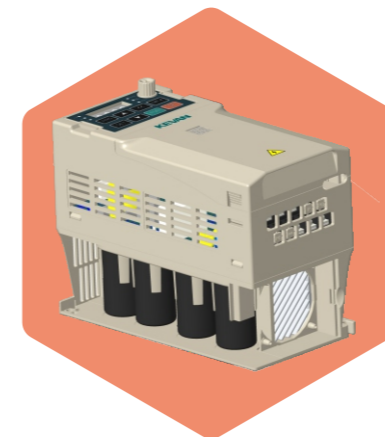
Independent air duct design

Adopt imported quality three proofing paint and thick spraying to ensure long-term environmental pollution resistance



Standard pluggable keyboard

The standard keyboard can be imported, which can easily meet the flexible requirements for the keyboard installation position on the site of various cabinets;



Independent air duct design

High protection : completely independent air duct , scientific layout inside the machine , taking into account the heat dissipation of high - power devices.



Layered structure design

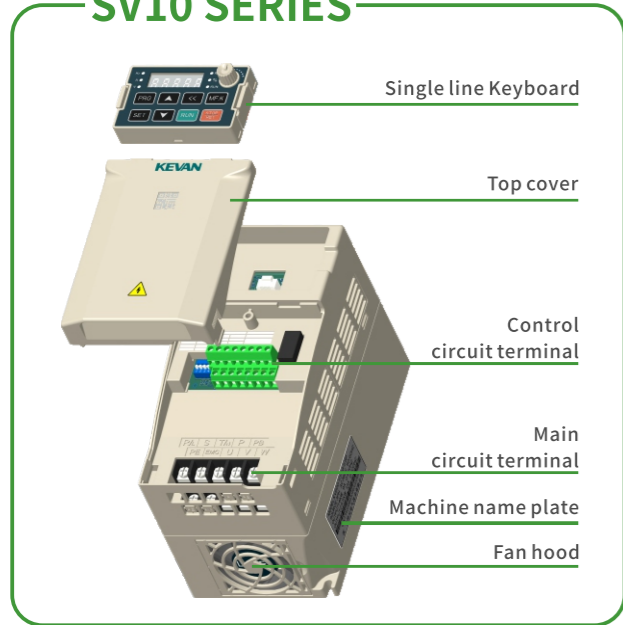
The electrical part is separated from the cooling air duct layer by layer, and each part is independent, which can effectively deal with the dust problem of circuit boards and sensitive devices.



Terminal block

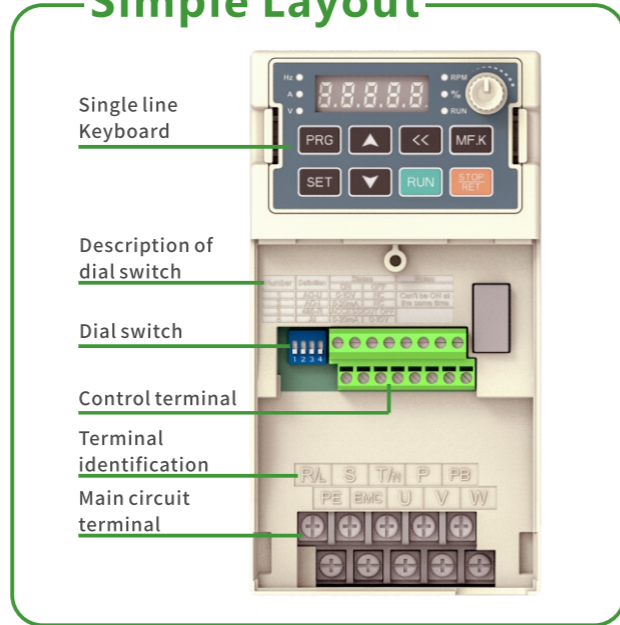
SV10 machine terminal layout is simple and beautiful , the overall style has the characteristics of calm atmosphere.

SV10 SERIES

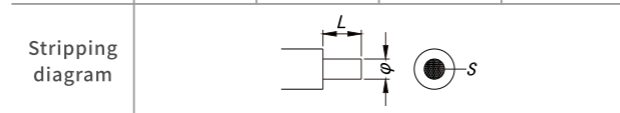


Reasonable parameters	Strip length (mm)	Wire gauge (AWG)	Screw
Specifications	4-5	16-26	M2

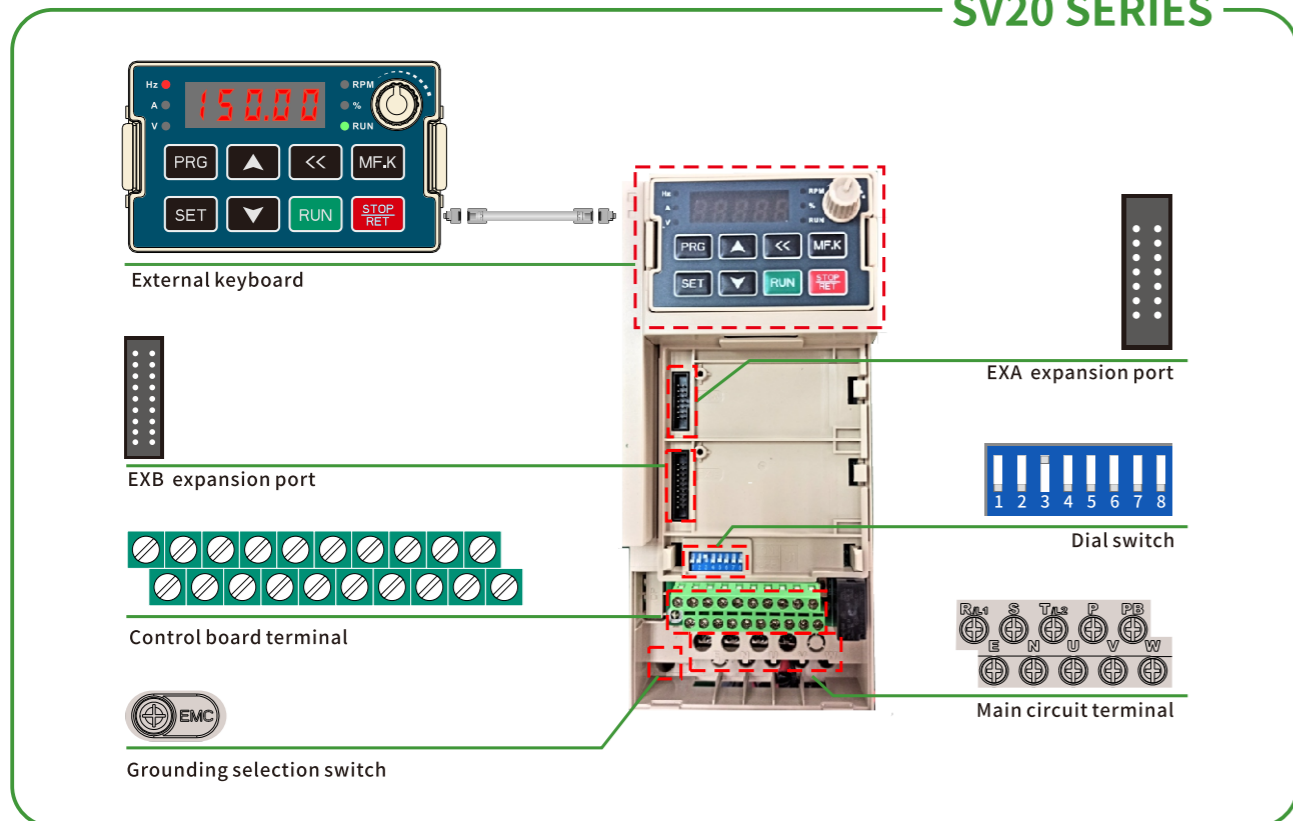
Simple Layout



	Kv10 power (KW)	Wire diameter (mm)	Wire cross section s (mm)	Stripping length L (mm)
Main circuit terminal	0.4-4	0.5-2.5	0.05-5.3	7-10



SV20 SERIES



Technical Specifications

Item	Specification
Power input	Voltage, frequency D1: 90V DC-400V DC or 110V±15% AC,50/60HZ; D2: 150V DC-450V DC or 220V±15% AC,50/60HZ; D3: 250V DC-750V DC or 380V±15% AC,50/60HZ; T3: 350V DC-750V DC or 380V±15% AC,50/60HZ;
	Allowable fluctuations Voltage Unbalance Rate:<3%; Frequency:±5%; Aberration Rate: Asiec61800-2
	Power factor ≥0.94(with DC reactor)
Output	Efficiency ≥96%
	Output voltage Output underrated condition: 3 phase, 0~input voltage, inaccuracy<5%
	Output frequency G type:0~600Hz Max frequency ±0.5%
Main control performance	Overload capacity G type: 150% rated current/1 min, 180% rated current/10s, 200% rated
	Motor control mode MPPT, V/F without PG, VC without PG, VC with PG
	Speed control range Vector control without PG, rated load 1:100; Vector control with PG, rated load 1:1000;
	Steady speed accuracy VC without PG: ≤2% rated synchronized speed; VC with PG: ≤0.05% rated synchronized speed
	Starting torque VC without PG: when 0.5Hz, 150% rated torque; VC with PG: when 0Hz, 200% rated torque
	Torque response VC without PG: ≤20ms; VC with PG: ≤10ms
	Frequency accuracy Digit setting: max frequency×±0.01%; Analog setting: max frequency×±0.2%
Product basic functions	Frequency resolution Digital setting: 0.01Hz; Analog setting: maximum frequency×0.05%
	Torque boost capacity Auto torque upgrade 0.0%~100.0%; Manual torque upgrade 0.0%~30.0%
	V/F curve 4 modes: one linearity torque characteristic curve, one self-setting V/F curvemode, one drop torque characteristic curve (1.1- 2.0 powers),and square V/F curve mode.
	Acceleration/Deceleration curve 2 modes: linear Acceleration/Deceleration and S curve Acceleration/Deceleration. 4 sets of ACC/DEC, time unit 0.01sselectable, longest time: 650.00s.
	Rated output voltage Rely on power supply voltage compensate function, while motor rated voltage is 100%,set it at the range of 50-100% (output can not over input voltage).
	Voltage auto-adjustment While power supply voltage fluctuates, it can auto-keep constant output voltage
	Auto energy-saving running While under V/F control mode, according to load situation, auto-optimize output voltage to save energy.
	Standard functions PID control, speed track, power off restart, jump frequency, upper/lower frequency limit control, program operation, multi-speed, RS485, analog output, frequency impulse output.
	Frequency setting channels Keyboard digital setting, keyboard potentiometer, Analog voltage/currentterminal AI1,AI2, Communication given and multi-channel terminal selection, Main and auxiliary channel combination, expansion card, supporting different modes switch.
	Feedback input channel Voltage/Current Terminal AI1, Voltage/Current Terminal AI2, Communication given, pulse input X5.
Running command channel Operation panel given, external terminal given, communication given, expansion card given	
Input command signal Start, stop, FWD/REV,JOG, multi-step speed, reset, ACC/DEC time selection, frequency given channel selection, exterior fault alarm.	
Protective function Over voltage, under-voltage, current limit, over-current, overload, electric thermal relay, overheat, over voltage stall, data protection, rapid speed protection, input/output phase failure protection.	
Environment	Install place altitude ≤ 1000m, above 1000m down the rated amount, each increase of 100m down the rated mount of 1%;no condensation, ice, rain, snow, hail; solar radiation below 700W/m², air pressure 70-106 kPa.
	Temperature, humidity -10 ~ +50 °C, derating above 40 °C, maximum temperature 60 °C (no-load operation) 5% to 95% RH (non-condensing)
	Vibration When 9~200Hz, 5.9m/s2(0.6g)
	Storage temperature -30 ~+60 °C
	Protection grade IP20
Cooling method Forced air cooling	

Name Plate Model Description

SV20-D 3-22 G/30 P-B

① ② ③ ④ ⑤ ⑥

Field	Identification	Label description
Inverter type	①	SV20 series vector control inverter
Voltage classification	②	D: DC input;T: AC380V input
Input Voltage level	③	1: DC90V-400V or AC110V, Suitable for driving pumps with 110VAC 2: DC150V-450V or AC220V, Suitable for driving pumps with 220VAC 3: DC250V-780V ,or AC380V, Suitable for driving pumps with 380VAC
Adaptive motor power	④	1R5:1.5KW 2R2:2.2KW 4:4KW 5R5:5.5KW 7R5:7.5KW 22:22KW
Inverter type	⑤	G:General purpose
Brake function	⑥	B: Equipped with brake function

Model Analysis

Model Analysis of three - phase AC pump drive

Product Model	Voltage Level	Input Power		Power Range
		DC	AC	
SV20-D1-XXG	110V	90-400VDC	Single Phase 110VAC	0.75-1.5KW
SV20-D2-XXG	220V	150-450VDC	Single Phase 220VAC	0.75-4.0KW
SV20-D3-XXG	380V	250-780VDC	Three Phase 380VAC	0.75-22.0KW
SV20-T3-XXG	380V	350-780VDC	Three Phase 380VAC	30.0-400.0KW

Comprehensive fault protection	Internal	Over current	Over voltage	Under voltage
	External	Rectifier overheating	Inverter overheating	Input phase loss
Current detection fault		CBC continuous overload	CPU timeout failure	
	Parameter storage		
	motor overload	External fault	Rapid failure	
	The fault deviation is too large	Output phase loss	Self learning failure	
	Load protection	Short circuit to ground	Motor overheating	
	Communication failure	Parameter setting error	

Superior control performance	Motor control mode	No PG V / F control, no PG vector control PG vector control,MPPT
	Speed control range	No PG vector control, rated load 1:100
Steady state speed accuracy	PG free vector control: $\leq 2\%$ of rated synchronous speed;	
Starting torque	No PG vector control :150% rated torque at 0.5Hz;	
Torque response	No PG vector control: < 20ms; with PG vector control: < 10ms	
Frequency accuracy	Digital setting: maximum frequency $\times \pm 0.01\%$; analog setting: maximum frequency $\times \pm 0.2\%$	
Frequency resolution	Digital setting: 0.01Hz; analog setting: maximum frequency $\times 0.05\%$;	

Comprehensive fault protection

SV20 series inverter has comprehensive, detailed and accurate fault protection, which can quickly locate the problem point in case of fault.

Superior control performance

SV20 is a high-performance inverter, in addition to the general V / F control mode, it also supports PG free vector control. Excellent control performance makes it adapt to more complex operating conditions.

Solar Panels Recommended Configuration

Solar pump inverter model	Solar panel model 1			Solar panel model 2			Solar panel model 3			Inverter rated current
	VOC:21V \pm 2V			VOC:31V \pm 2V			VOC:43V \pm 2V			
	P \pm 3W	Isc	configuration	P \pm 3W	Isc	configuration	P \pm 3W	Isc	configuration	
SV20-D1-R75G										7A
SV20-D1-1R5G										10A
SV20-D2-R75G	30W	2.75A	17 \times 2							4A
SV20-D2-1R5G	60W	3.48A	17 \times 2							7A
SV20-D2-2R2G	90W	5.5A	17 \times 2							10A
SV20-D2-004G	90W	5.5A	17 \times 3							16A
SV20-D3-R75G	30W	2.75A	30 \times 1							3A
SV20-D3-1R5G	60W	3.48A	30 \times 1							4A
SV20-D3-2R2G	90W	5.5A	30 \times 1							6A
SV20-D3-004G	85W	4.7A	28 \times 2							10A
SV20-D3-5R5G				180W	7.33A	19 \times 2				13A
SV20-D3-7R5G				240W	8.81A	20 \times 2	200W	7.32A	15 \times 3	17A
SV20-D3-011G				180W	7.33A	20 \times 4	240W	7.32A	15 \times 4	25A
SV20-D3-015G				240W	8.81A	20 \times 4	240W	7.32A	15 \times 5	32A
SV20-D3-018G				240W	8.81A	20 \times 5	240W	7.32A	15 \times 6	38A
SV20-D3-022G				240W	8.81A	20 \times 6	270W	7.32A	15 \times 7	45A
SV20-T3-030G				240W	8.81A	20 \times 8	270W	7.32A	15 \times 10	60A
SV20-T3-037G				270W	8.81A	20 \times 9	270W	7.32A	15 \times 11	75A
SV20-T3-045G				270W	8.81A	20 \times 10	270W	7.32A	15 \times 14	90A

Note:

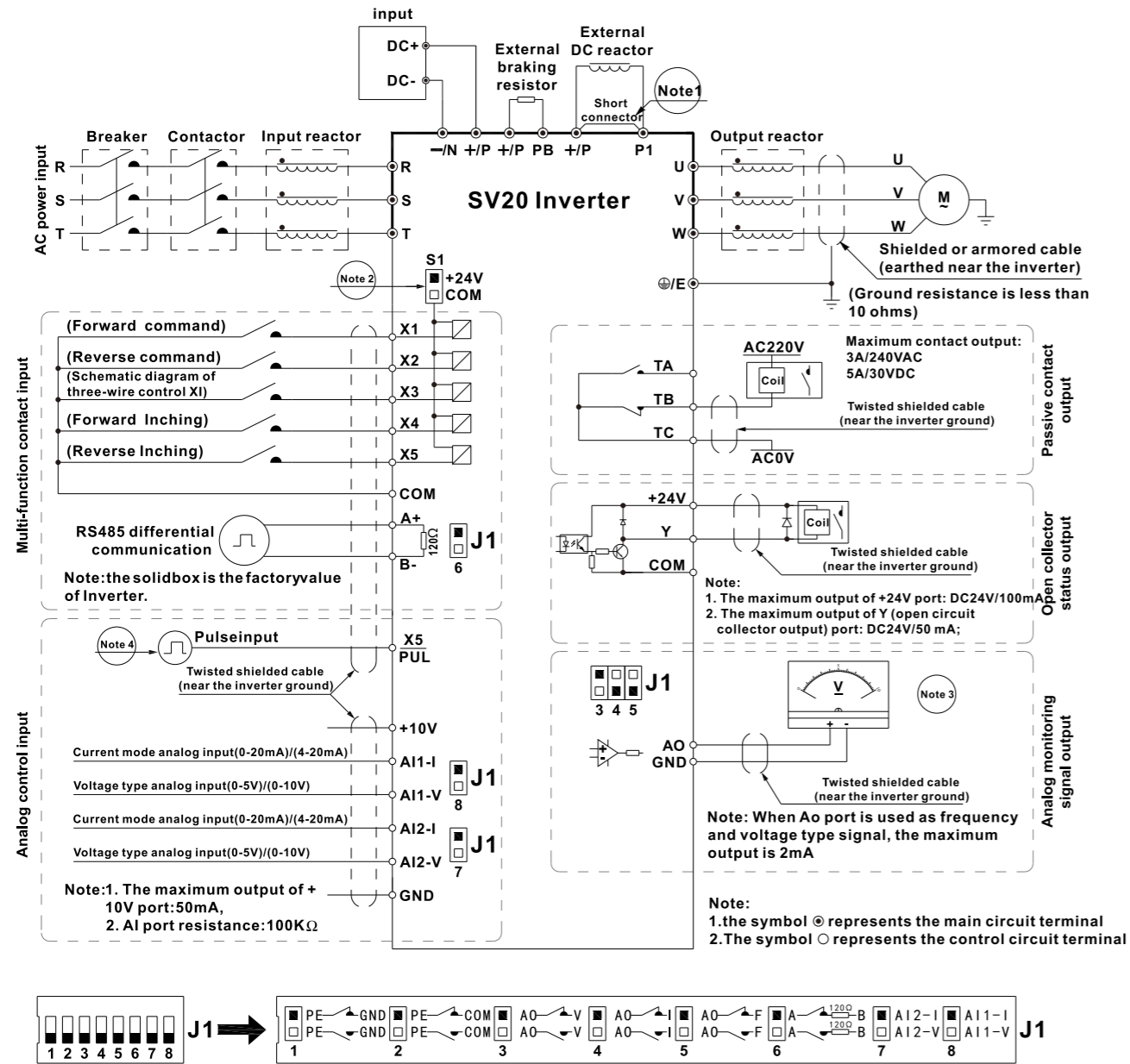
The recommended total Vmp of solar panel shall be 1.15 times of inverter bus voltage . For example , in D3 series , the recommended Vmp voltage is 540V*1.15=621V; and in D2 series , the recommended Vmp voltage is 311*1.15=357V;

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

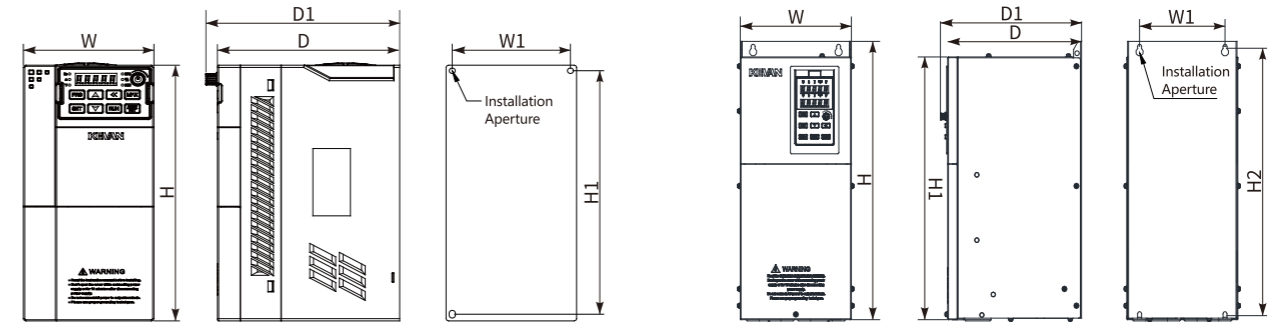
The recommend total power of solar panel should be at least 1.2 times of the inverter power (drive the same power pump); such as the recommend total power of solar panel for 7.5kW water pump system :7500*1.2=9000W;

The maximum withstand voltage of D1 model products is 400VDC; of D2 model products is 450VDC; and of D3 and T3 model products is 780VDC;

Standard Connection Diagram



Installation Dimension



Inverter model	Dimensions (mm)				Installation size (mm)		Installation Aperture
	W	H	D	D1	W1	H1	
SV20-D3-R75G/1R5P-B	89	190	135	144	79	180	2-M4
SV20-D3-1R5G/2R2P-B							
SV20-D3-2R2G/4P-B							
SV20-D2-R75G-B							
SV20-D2-1R5G-B	106	230	148	157	96	219	3-M4
SV20-D3-4G/5R5P-B							
SV20-D3-5R5G/7R5P-B							
SV20-D3-7R5G/11P-B-E							
SV20-D2-2R2G-B	130	275	160	169	115	260	3-M5
SV20-D2-004G-B							
SV20-D3-11G/15P-B							
SV20-D3-15G/22P-B							
SV20-D2-5R5G-B	155	335	191	200	141.5	320	4-M5
SV20-D2-7R5G-B							
SV20-D3-18G/22P-B							
SV20-D3-22G/30P-B	195	445	420	235	150	420	4-M6
SV20-T3-030G/37P							
SV20-T3-037G/45P							
SV20-T3-045G/55P							
SV20-T3-055G/75P							
SV20-T3-075G/90P							
SV20-T3-090G/110P							
SV20-T3-110G/132P							
SV20-T3-132G/160P							
SV20-T3-160G/185P							
SV20-T3-185G/200P							
SV20-T3-200G/220P							
SV20-T3-220G/250P							
SV20-T3-250G/280P							
SV20-T3-280G/315P							
SV20-T3-315G/355P							
SV20-T3-355G/400P							
SV20-T3-400G/450P	240	1250	1140	545	240	1213	4-M16