

FACTORY : SHENZHEN KEWO ELECTRIC TECHNOLOGIES CO., LTD

OFFICE: KEWO ELECTRIC TECHNOLOGY CO., LIMITED

About us



KEWO is a Chinese famous manufacturer of AC drives, solar pump inverter, also focus on automation solution providing and renewable energy technologies offering. The company employ about 200 people and set up service centers in approximately 25 provinces in China.

SOLAR PUMP DRIVE,

SOLAR PUMP FREQUENCY

ENERGY SAVING WITH HIGH EFFICIENCY



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Company introduction:

SHENZHEN KEWO ELECTRIC TECHNOLOGIES CO., LTD (hereinafter called KEWO) is a professional manufacturer of kinds of AC drives, variable frequency inverter, soft start, and solar pump drive, etc. We are not only focusing on designing, manufacturing, sales and after sales service, but also providing customer made automation solution and renewable energy technologies.

We become a Chinese top 10 manufacturer of **AC Drives, Solar Pump Inverter, Soft Starter since established 2010**, we own more than 200 staffs, 20 service centers in across the China, sold products to over 100 countries. Strong R&D team, experienced engineers who has ever worked Emersion, Inovance, INVT, etc that keep our technology is leading position in AC drive field, also introduced Italy motor control technologies. Established 3 modernization product lines, digital quality control system and ERP to ensure products quality.

Now KEWO products is comprised of high level AC drives, variable speed drive, frequency inverter, solar pump inverters and soft starter, etc, which are widely using in industrial automation, cement, textile, metallurgy, HVAC, oil & gas, water treatment, chemical, machine tools, hoisting...



KEWO factory



kewo reception room



Production line

KEWO Products Range: (VSD, Frequency Inverter, Servo drive, soft starter, solar pump Inverter)



AD100 (VFD)



AD350(VFD)



AD800(Vector Control Inverter)



SD800 VFD



AD850Z/T(Servo Drive)



Soft Starters

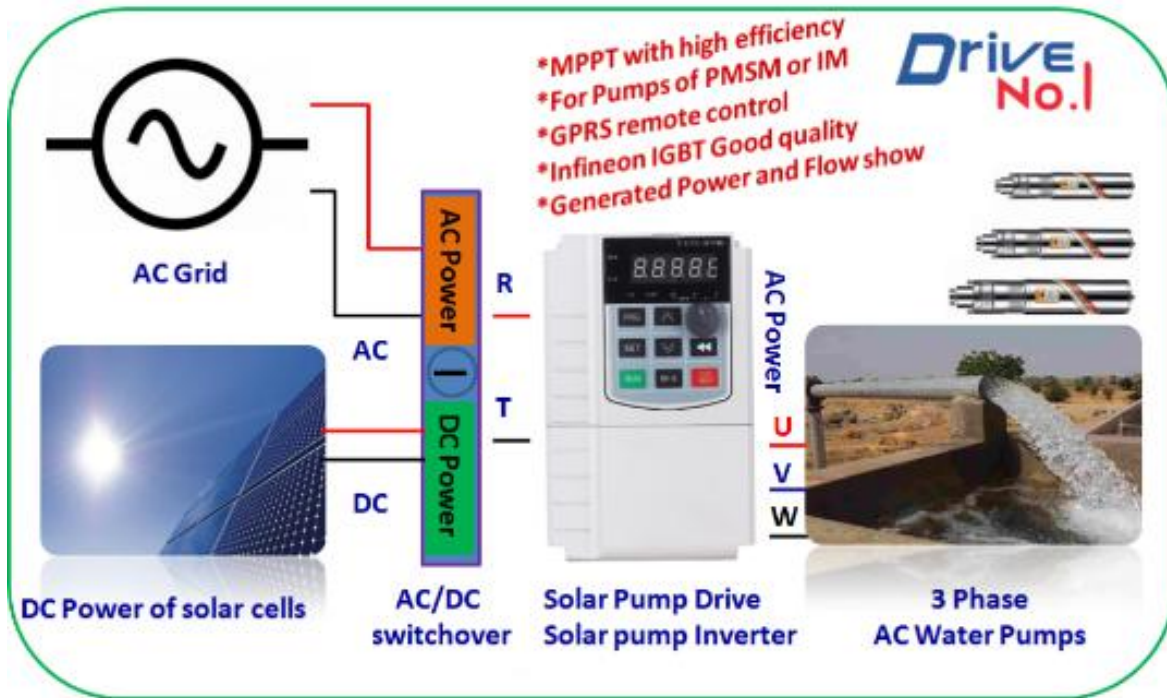


Solar Pump Inverter



Solar Water Pumping System And Solar Pump Drive

Fully automatic system using variable speed drive compatible with AC, 3-phase, submersible and surface mount pumps, and high efficiency PMSM Pumps. The system is composed of a PV generator, a pump and a solar pump drive. Based on the design philosophy that it is more efficient to store water rather than electricity, there is no energy storing device such as storage battery in the system. The system is prepared to be combined with a elevated water storage, e.g. water tower or an uphill tank installation.



Presentation

KEWO Solar Water Pumping Solution is a fully automatic system designed to provide water at affordable cost for people with limited or no access to electricity. It uses the most advanced S300/320 variable speed drive to regulate the speed of a 3-phase AC motor depending upon the solar energy available from the solar panel.



DC power from solar arrays



Solar Pump Drive with MPPT function for IM and PMSM

KEWO solar pump solar drive



All kinds of 3 phase AC pumps

How does it work ?

An arrays of solar panels generates the power and voltage required for the SG300/320 Solar to drive the motor. The solar drive converts the DC voltage input to a 3-phase AC output with variable voltage and frequency. The MPPT algorithm of solar drive extracts maximum power available from the solar panels during the day and operates the motor at variable speed based on the power input to the drive. The frequency range in which the drive operates depends upon the motor speed, hydraulic system and the power available from the solar panel. As the sunshine varies during the day, power input to the drive varies and the Solar drive generates variable V/F ratio thus controlling the speed

of the motor, which in turn regulates the pump impeller speed. Water Level Sensor is used only when the water is pumped to overhead tank.

Benefits





- Pumping of water in for irrigation for drinking water supply in off grid areas, easy installation.
- Farmer can cultivate multiple crops through out the year in off grid areas
- Farmer can save their time spent in collecting and transporting water.
- Lower operation expense compared to diesel pumps
- Zero emission of green house gases.
- Reduced load on national grid.

Applications

Irrigation of land, domestic water supply, fish farming, livestock, swimming pool, fountain, drip irrigation & sprinkler, industrial application, swimming pool...



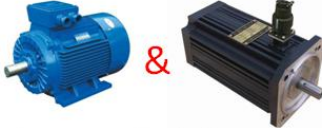
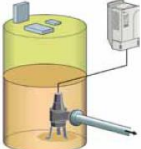
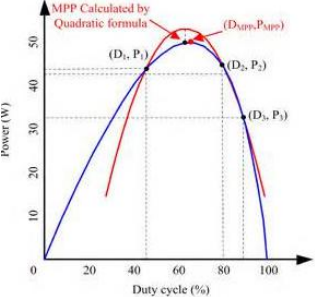

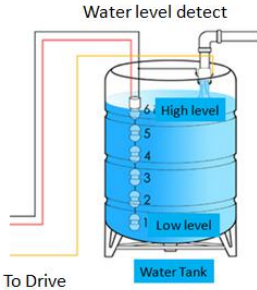



Features of solar pumping system





			
<p>Low carbon economy With utilization of solar pump KEWO inverters helps you in reducing your carbon footprint. Reduce CO2 releasing. Renewable solution</p>	<p>In-built MPPT Maximum power point tracking ensures that you get the most power output possible from your solar panel and maximize your pump delivery throughout the day.</p>	<p>Pump specific protection Inbuilt flow measurement and flow detection function. Inverter turns off in case of dry run. Built in pumps short circuit protection, maximum pumps current setting,</p>	<p>Remote monitoring With the addition of optional modules you can monitor solar pump parameters from Anywhere when GPRS signal is available</p>

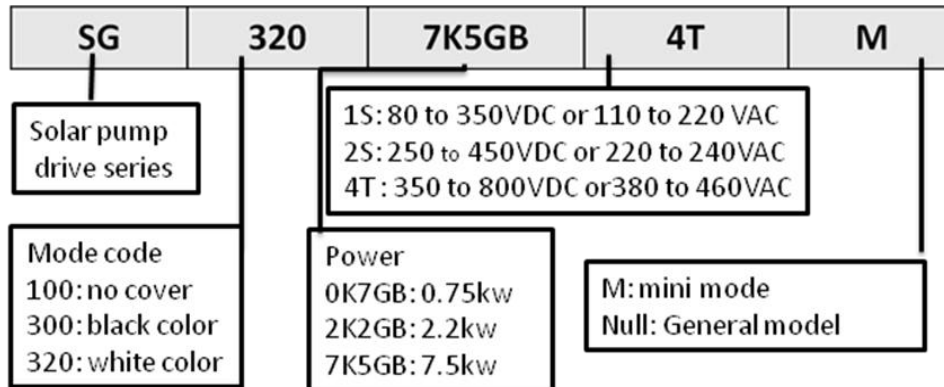
KEWO solar pump drive main Features





Soft ware design:

		 <p>3 phase AC motor & High efficiency PMSM</p>	
<p>Dual supply mode - Solar DC and AC Grid. (it can be used for AC drive when AC power input)</p>	<p>All day Run-Stop-Restart mode management/ manual control with keypad</p>	<p>Compatible with all 3 phase AC pumps, IM And high PMSM (permanent magnet syn. Motor)</p>	<p>Protection against dry run of pump, Diagnostics and self protection features</p>
			 <p>Flow and energy Monitoring By keypad</p> <ul style="list-style-type: none"> D-28=Flow rate D-29=Today flow D-31=Total flow D-33=today generated energy D-34=Total generated energy
<p>Maximize your pump delivery with MPPT (maximum power point tracking)</p>	<p>GPRS Remote Control Is Option. Using GPRS of SIM to connect to internet</p>	<p>Level sensor used for automatic start and stop of motor incase of pumping to overhead tank</p>	<p>Flow And Generated Energy Calculating And Monitoring</p>

Hardware design:

			
<p>Innovation design with dual CPU to provide better performance and minimized fault occurs</p>	<p>Good ventilation with low temperature, suitable to working in hot temperature</p>	<p>Fully fault protection design to ensure no iGBT bomb. Protect your motor maximized</p>	<p>Using top quality Infineon iGBT module is good quality assurance.</p>

Models specification:

Models list:

Model	Input voltage	Output for pumps	Power	Pictures
SG100-2S	150 to 450VDC, or 220 to 240VA	3 PH 220V to 240VAC	0.75kw	
SG320-2S-M	150 to 450VDC, or 220 to 240VA	3 PH 220V to 240VAC	0.75—1.5kw	
SG320-4T-M	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—2.2kw	
SG320-1S	80V to 350VDC 110 to 220VAC	3 PH 110VAC , 140VAC, 220VA	0.75—2.2kw	
SG320-2S	150 to 450VDC 220 to 240VA	3 PH 220V to 240VAC 1 PH 220V to 240VAC	0.75—4kw 0.75—2.2kw	
SG320-4T	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—7.5kw	
SG320-4T	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	11—15kw	
SG300-4T	350 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	18—160kw	

Technical specification:

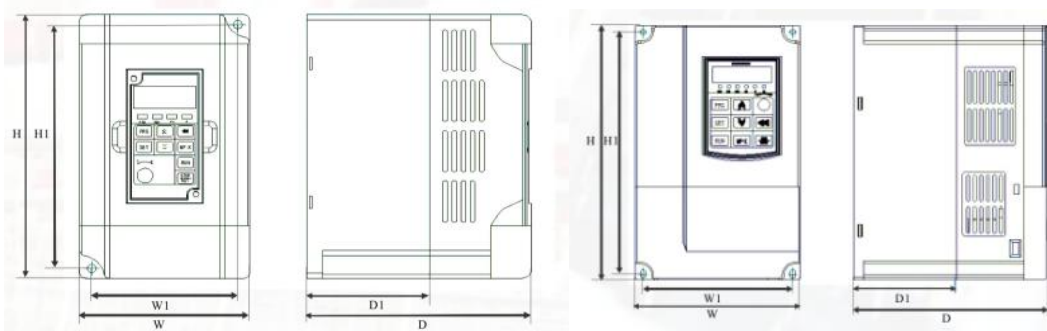
**Solar pump drive specification when FA-00 set to 1&2 for solar pumping controlling function.	
Recommended MPPT voltage range	Vmpp 131 to 350 VDC for 1S (80V to 350VDC input, 3PH 110 to 220VAC output) Vmpp 280 to 375VDC for 2S (150V to 350VDC input, 3PH 220 to 240VAC output) Vmpp 486 to 750 VDC for 4T (250V to 800VDC input, 3PH 380 to 460VAC output)
Recommended input Voc and Vmpp voltage	Voc 180(VDC), Vmpp 155(VDC) for 1S model or 110V AC pumps Voc 355(VDC), Vmpp 310(VDC) for 2S model or 220V AC pumps Voc 621(VDC), Vmpp 540(VDC) for 4T model or 380V AC pumps
Motor type	Control for permanent magnet synchronous motor and asynchronous motor pumps.
Rated output voltage	3-Phase, 110V/160V/220V. 3-phase, 220V/380V/460V
Output frequency range	0~maximum frequency 600Hz.
MPPT efficiency	97%,
Ambient temperature range	G-type for submersible pumps, 150% rated current for 60s, 180% rated current for 2s P type for general pumps, 120% rated current for 60s, 150% rated current for 2s
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 and water tank level detected
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 AC input backup circuit	CE, Design based on vector control drive S300 and S3200 series, more specification please refer to S300 or S320 vector control drive operation manual
Technical specification when it used for speed and torque controlling of motor as FA00 set to 0.	
voltage, frequency	Single phase 220V, 3 phase, 220V,380V, 660V and 1140V. Power 0.75kw to 37kw.
Control mode	0: VF control ; 1: Vectorized VF control ; 2 : Open loop vector control 1 ; 3: High performance open loop vector control 2
Maximum frequency	0-650Hz
Multi-functions	PID Control, Carrier Frequency Adjustable, Current Limiter, Speed Search, Momentary Power Loss Restart, 16 Step Speed (Max), 3-Wire connection, Slip Compensation, Frequency Jump, DC braking, Upper/Lower Frequency, Torque control, Compatible for PMSM and IM, built in RS485, counting, fault information checking, fully fault protection function, frequency combination reference.

Models specification

SN	Models	Rate current	Output voltage (3PH VAC)	Applicable for pumps	External of drive size(mm)	MPPT voltage (VDC)	Weight (kgs)
Mini type 2S series : 150 to 400 VDC or 200 to 240VAC input, 3 phase 220 to 240VAC output							
1	SG100-0K7GB-2S	4A	220V/240V	0.75KW	170*110*70	260 to 375	1.0
2	SG320-0K7GB-2S-M	4A	220V/240V	0.75KW	143*86*114	260 to 375	1.5
3	SG320-1K5GB-2S-M	7A	220V/240V	1.5KW	143*86*114	260 to 375	1.5
Mini type 4T series : 250 to 800 VDC or 380 to 460 VAC input, 3 phase 380 to 460VAC output							
4	SG320-0K7GB-4T-M	2.5A	380V-440V	0.75KW	143*86*114	486 to 750	1.5
5	SG320-1K5GB-4T-M	3.7A	380V-440V	1.5KW	143*86*114	486 to 750	1.5
6	SG320-2K2GB-4T-M	5A	380V-440V	2.2KW	143*86*114	486 to 750	1.5
General type 2S series : 150 to 400 V DC or 200 to 240 VAC input, 3 phase 220 to 240VAC output							
7	SG320-0K7GB-2S	4A	220V/240V	0.75KW	185*125*159	260 to 375	2.0
8	SG320-1K5GB-2S	7A	220V/240V	1.5KW	185*125*159	260 to 375	2.0
9	SG320-2K2GB-2S	10A	220V/240V	2.2KW	185*125*159	260 to 375	2.5
10	SG320-4K0GB-2S	16A	220V/240V	4.0KW	245*150*177	260 to 375	3.5
General type 2S series : 150 to 400 V DC or 200 to 240 VAC input, 1 phase 220 to 240VAC output							
11	SG320-0K7GB-2S-1 PH	4A	220V/240V	0.75KW	185*125*159	260 to 375	2.0
12	SG320-1K5GB-2S-1 PH	7A	220V/240V	1.5KW	185*125*159	260 to 375	2.0
13	SG320-2K2GB-2S-1 PH	10A	220V/240V	2.2KW	185*125*159	260 to 375	2.5
14	SG320-2K2GB-2S-1 PH	16A	220V/240V	4.0KW	245*150*177	260 to 375	3.5
General type 4T series : 350 to 800 VDC or 380 to 460VAC input, 3 phase 380 to 460VAC output							
15	SG320-0K7GB-4T	2.5A	380V-440V	0.75KW	185*125*159	486 to 750	2
16	SG320-1K5GB-4T	3.7A	380V-440V	1.5KW	185*125*159	486 to 750	2
17	SG320-2K2GB-4T	5A	380V-440V	2.2KW	185*125*159	486 to 750	2
18	SG320-4K0GB-4T	10A	380V-440V	4.0KW	185*125*159	486 to 750	2.5
19	SG320-5K5GB-4T	13A	380V-440V	5.5KW	245*150*177	486 to 750	3.5
20	SG320-7K5GB-4T	17A	380V-440V	7.5KW	245*150*177	486 to 750	4
21	SG320-011GB-4T	22A	380V-440V	11KW	247*160*178	486 to 750	5
22	SG320-015GB-4T	30A	380V-440V	15KW	247*160*178	486 to 750	5
23	SG300-018GB-4T	37A	380V-440V	18KW	215*305*190	486 to 750	10
24	SG300-022GB-4T	45A	380V-440V	22KW	215*305*190	486 to 750	18
25	SG300-030GB-4T	60A	380V-440V	30KW	285*463*225	486 to 750	18
26	SG300-037GB-4T	75A	380V-440V	37KW	385*600*270	486 to 750	29
27	SG300-045GB-4T	90A	380V-440V	45KW	385*600*270	486 to 750	29

28	SG300-055GB-4T	110A	380V-440V	55KW	385*600*270	486 to 750	29
29	SG300-075GB-4T	150A	380V-440V	75KW	473*700*307	486 to 750	43
30	SG300-090GB-4T	180A	380V-440V	90KW	473*700*307	486 to 750	47
31	SG300-110GB-4T	220A	380V-440V	110KW	579*930*375	486 to 750	90
32	SG300-132GB-4T	260A	380V-440V	132KW	579*880*375	486 to 750	100
33	SG300-160GB-4T	320A	380V-440V	160kw	579*880*375	86 to 750	130

SG300/320 series solar pump drive dimensions



Mini type Fig 1

General type Fig 2

Power	H	H1	W	W1	D	D1	Hole
0.4~1.5KW	143	132	86	74	114	62.5	Ø4.5
Power (3 phase 380V output)	H	H1	W	W1	D	D1	Hole
0.75~4KW	185	173	125	115	159	79	Ø5
5.5~7.5KW	244	232	150	136	176.5	93	Ø5
11kw -15kw	247	235	160	147	178	101	Ø5

Power (3 phase 380V output)	Inverter size				Install size/ hole		
	W	H	D	H2	W1	H1	D
SG300-018GB-4T	285	463	225	432	235	447	Φ8
SG300-022GB-4T							
SG300-030GB-4T							
SG300-037GB-4T	385	600	550	270	260	590	Φ9
SG300-045GB-4T							
SG300-055GB-4T							
SG300-075GB-4T	473	700	660	307	343	678	Φ10
SG300-090GB-4T							
SG300-110GB-4T							

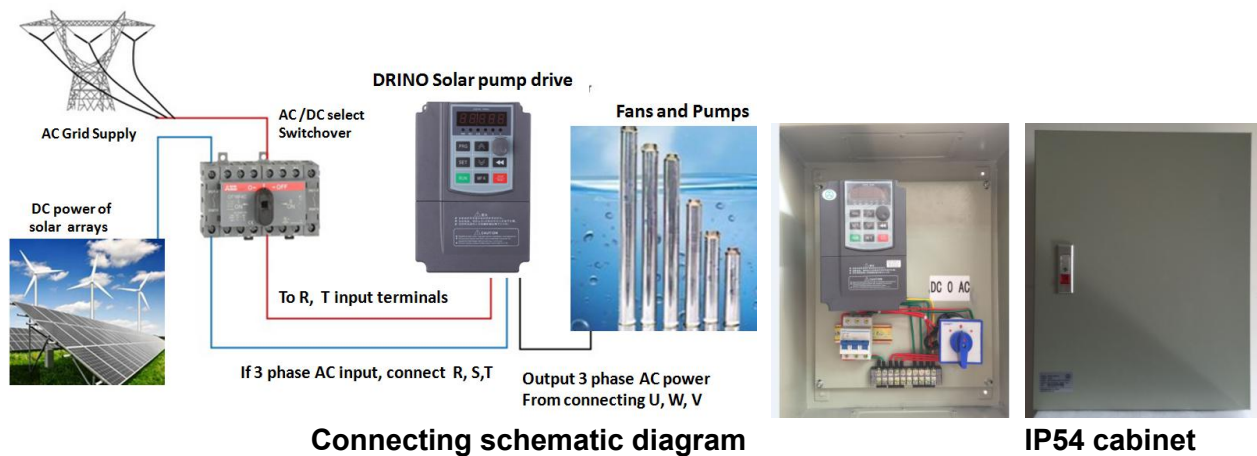
SG300-132GB-4T							
SG300-160GB-4T							

System connection and commissioning.

An enhanced version of KEWO Automation AC Drive(variable speed drive of motor speed and torque control), compatible with DC power and AC grid input.

Note*: Only allow one power source input at a time.

1. Connect DC power Positive (P) and Negative (N) terminals to input R, T terminals of drive.
2. Connect output U, V, W terminals of drive to 3 phase AC pumps. (Not drive for DC pumps and Single AC pumps).
3. Connect water level sensor to drive if need water tank level detecting.
4. Connect remote controller GPRS module (option) if need remote monitor controlling function.
5. IP54 solar pump drive cabinet customization make is available including(AC/DC switchover, AC and DC breaker..)



Easy installation and commissioning.

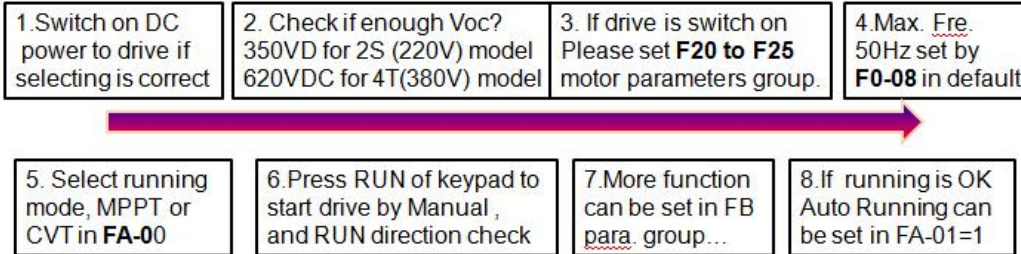
1. Dc voltage of solar arrays in serials need large than **1.15 times** of Vmpp of drives.

For example: For 4T series, recommend $540V \times 1.15 = 621V$; For 2S series, recommend $311 \times 1.15 = 357V$. (Voc)

2. The selecting power of solar arrays need large than **1.3 times** power of total pumps.

For example, 0.9kw above for 0.75kw pumps, 2.86kw above for 2.2kw pumps.

3. Commissioning steps. (**Please wait 30s after switching power on due to Voc detecting by drive itself.**)



*Solar pump drive will detect Voc (DC voltage)of solar arrays after switch on in 30s. Check D-25 para.

Selecting Solar Arrays Matching Selecting											
Solar pumps inverter model	Maximum Input DC current	Solar arrays open circuit voltage specification									
		Open circuit voltage range 21V±2V			Open circuit voltage range 31V±2V			Open circuit voltage range 43V±2V			
		Power±3WP	Short circuit current	Series, parallel No.	Power±3WP	Short circuit current	Series, parallel No.	Power ±3WP	Short circuit current	Series, parallel No.	Inverter rated
General type: 250 to 800 VDC or 380 to 480VAC											
SG320-0K7GB-4T	4.6A	30WP	2.75A	30*1							2.3A
SG320-1K5GB-4T	7A	60WP	3.48A	30*1							3.7A
SG320-2K2GB-4T	10A	90WP	5.5A	30*1							5A
SG320-4K0GB-4T	17A	85WP	4.7A	28*2							8.5A
SG320-5K5GB-4T	23A				180WP	7.33A	19*2				13A
SG320-7K5GB-4T	32A				240WP	8.81A	20*2	200WP	7.32	15*3	17A
SG320-011GB-4T	48A				180WP	7.33A	20*4	240WP	7.32	15*4	25A
SG320-015GB-4T	64A				240WP	8.81A	20*4	240WP	7.32	15*5	32A
SG300-018GB-4T	76A				240WP	8.81A	20*5	240WP	7.32	15*6	38A
SG300-022GB-4T	80A				240WP	8.81A	20*6	270WP	7.32	15*7	45A
SG300-030GB-4T	90A				240WP	8.81A	20*8	240WP	7.32	15*1	60A
General type: 150 to 400 V DC or 200 to 240 V AC											
SG320-0K7GB-2S	7A	30WP	2.75A	17*2							4A
SG320-1K5GB-2S	14A	60WP	3.48A	17*2							7A
SG320-2K2GB-2S	20A	90WP	5.5A	17*2							10A
SG320-4K0GB-2S	32A	90WP	5.5A	17*3							16A
<p>Note: The required input solar panel voltage is 1.15 times of solar drive DC bus voltage. For example: For4T series, recommend 540V*1.15=621V; for 2S series, recommend 311*1.15=357V.</p> <p>The required power of solar arrays is 1.3 times of rated power of drives, shouldn't less than 1.2 times of rated power of inverter. For example, SG300-7K5GB-4T, the required power is 7500*1.3=9750w.</p> <p>The current of solar arrays selecting approximate to rated current of solar drive is acceptable.</p>											

Solar arrays module selecting

S300/320 Vector Control Frequency Inverter (Motor AC Drives)

PRESENTATION:





If parameter FA00 set for 0 of SG300/320 series solar pump drive, it can be used as motor variable speed drive.

A dual mode design with optimized V/f control and open loop vector control (OLV) without PG card to achieve sophisticated motor control, compatible with IM and high efficiency PMSM.

Two CPU design to ensure high performance, high speed accuracy control, quick torque respond time and high starting torque, etc excellent motor control performance make it suites for a variety of industrial application.

S300/320 series vector control drive designed to meet global OEM and end-user demands for flexibility, space savings and ease of use. G heavy duty type is cost-effective solutions for speed control of applications such as kinds of machine, smart conveyors, packaging machines, palletizers, drafting machines, ring spinning machines and synthetic fiber spinning machines. P variable torque type mode is special for fans, pumps, etc variable torque load for energy saving.

CLASS RANGE:

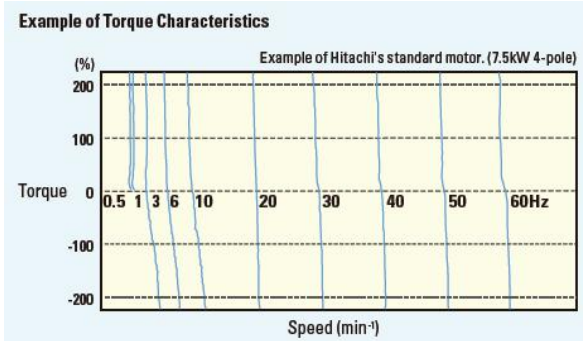
<p>S100 sensorless vector control drive ,Simple, small and OEM type without cover</p>	<p>S300 –M, mini type sensorless vector control drive—small and compact design</p>	<p>S300 sensorless vector control drive, general type, high performance, and easy using.</p>	<p>S320 sensor vector control drive, general type, compatible with kinds of encoder for close vector control</p>
			
<p>Voltage: 1PH 220V, Power: 0.75kw</p>	<p>Range: 1PH, 220V, 0.75 to 1.5kw, 3PH, 380V, 0.75kw to 2.2kw</p>	<p>Range: 1 PH, 220V, 0.75 to 4.0kw; 3 PH, 380V, 0.75 to 7.5kw</p>	<p>Range: 3 PH, 380V, 4 to 30kw. Above 30kw is optional</p>

* More dimension detail please see SG300/320 solar pump drive catalog or manual.

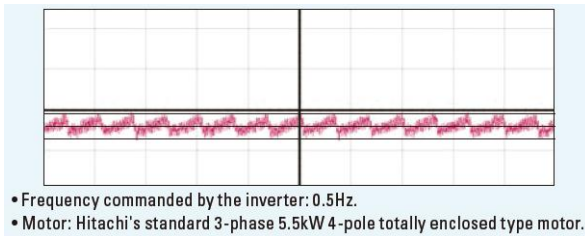
Industry-leading Levels of Performance

1. High starting torque of 180% or greater achieved by sensorless vector control.

Integrated auto-tuning function for easy open loop vector control realizes high torque for applications requiring it is such as crane, lifts, elevators...etc.



2. Speed regulation at low-speed is greatly improved to enhanced process stability and precision.



Note: 4 kinds control mode: V/F, vectorized VF control, open loop vector control 1, and vector open loop vector control 2.

Speed regulation range: 1:50 (V/F control), 1:100 in open vector control 1, 1: 200 in open loop vector control 2.

Torque response: less than 20ms in vector control

Speed accuracy: $\pm 0.3\%$ in vector control 1 and 2.

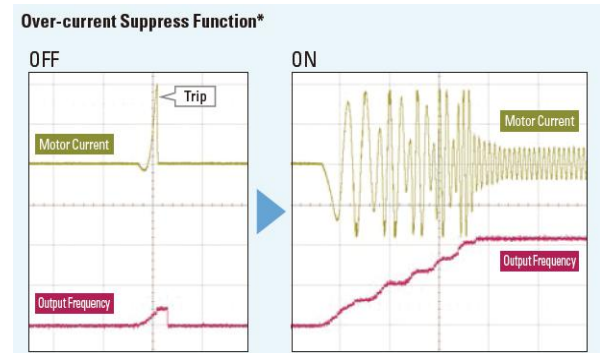
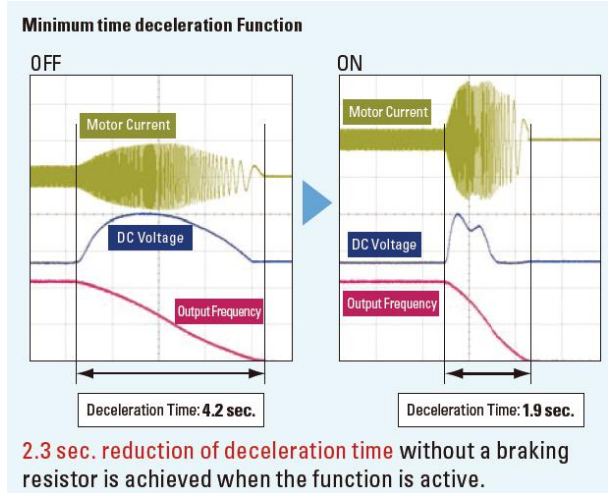
Start torque: 150% under 0.5Hz (OLV 1), 150% under 0.2Hz (OLV2).

Over load capability: G type, 150% rated current for 60s, 180% rated current for 10s.

P type, 150% rated current for 60s, 150% rated current for 10s

3. Trip avoidance function

Minimum time deceleration, over-current suppress function and DC bus AVR are incorporated. The functions reduce nuisance trips,, Improved torque limiting/current limit function enable a load limit to protect machine and equipment.

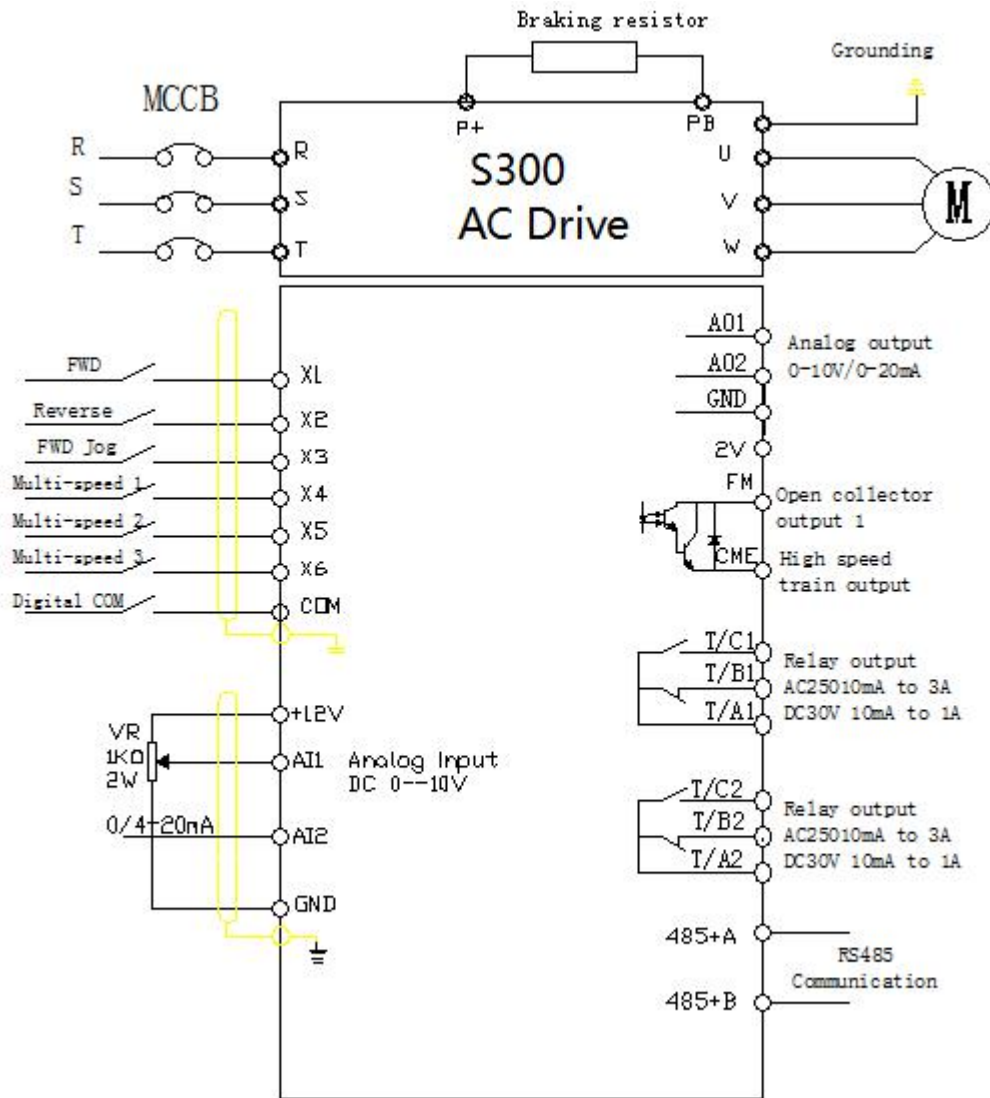


4. Induction motor & Permanent magnetic synchronous motor control with one drive.



3 phase AC motor & High efficiency PMSM

WIRING AND CONNECTION.



Rich Input and output interface.

- 6 ways digital input
- 2 ways analog input
- 1 ways RS485 built in
- 2 Analog output, I AO1 can compatible with 0-10V or 0-20mA. AO2 can compatible 0-10V or high speed train output.
- 2 programmable relay output, 1 programmable transistors output.