

SHENZHEN KEWO ELECTRIC TECHNOLOGY CO., LTD

Solar Pump Inverter

The direct current generated by solar arrays is input inverter and then converted into the alternative current to drive various pumps directly.

1. High efficiency MPPT to maximum flow output
2. Compatible with PMSM & IM pumps.
3. Remote monitor and control via GPRS module,
4. Sensorless flow and energy display



SUN GREAT SERIES

SOLAR PUMP DRIVE,

SOLAR PUMP FREQUENCY INVERTER

ENERGY SAVING WITH HIGH EFFICIENCY

Company introduction:

SHENZHEN KEWO ELECTRIC TECHNOLOGY CO., LTD. (hereinafter called KEWO) is a professional manufacturer of kinds of AC drives, variable frequency inverter, soft start, and solar pump inverter, etc. We are not only focus on designing, manufacturing, sales and after sales service for above mentioned products, but also providing customer made automation solution and renewable energy technologies. We become top 5 manufacturer of frequency inverter since established 2005. There are more than 150 staffs working in our factory, 60% of them are engineers. Thanks to our great R&D team hardworking and moving innovating, we master core and leading vector control technology for PMSM and IM. We also introduced and absorb latest servo motor control and motor control technology from abroad, that help us keep top position among Chinese manufactures. We have established 2 modernization production lines, digital quality control system, code bar tracking system and EPR management system, etc. And every piece of KEWO products have been tested with full load to ensure 100% good quality. Quality begins and ends with each person in our company. KEWO products is comprised of high level AC drives, VDF, solar pump inverter, DC solar pumps system and motor softstarter, etc. These products are widely using in industrial automation, cement, textile, metallurgy, HVAC, oil & gas, water treatment, chemical , machine tools, hoisting, agriculture, farming, irrigation...



KEWO factory



KEWO reception room



Workshop

KEWO PRODUCTS RANGE: (VSD, Frequency Inverter, Servo drive, soft starter, solar pump Inverter)



AD100 (VFD)



AD350(VFD)



AD800(Vector Control Inverter)



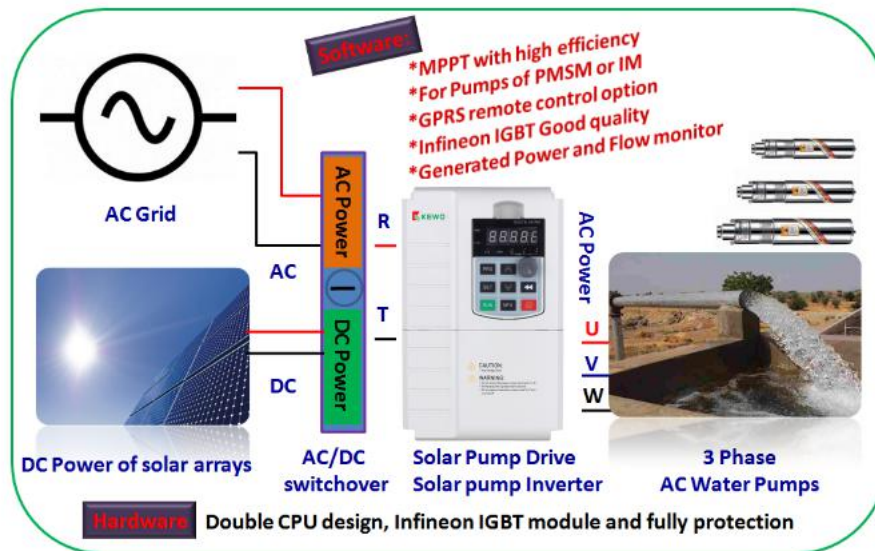
SD800 VFD AD850Z/T(Servo Drive) Soft Starters



KEWO SG series Solar Pump Inverters

KEWO Solar Water Pumping System And Solar Pump Drive

Fully automatic system using variable speed drive compatible with AC, 1 /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 S300/3200 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



KEWO solar pump solar drive



All kinds of 1/3 phase AC pumps

How does it work ?

An arrays of solar panels generates the power and voltage required for the SG300/320 solar inverter to drive the motor. The solar pump inverter converts the DC voltage input to a 3-phase AC output with variable voltage and frequency. The MPPT algorithm of solar pump inverter 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 inverter. The frequency range in which the inverter 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 inverter varies and generates variable V/F ratio thus controlling the speed of the motor, which in turn regulates the pump impeller speed.

It is no need install battery for investment saving.

It is very suitable for 220VAC/380VAC induction motor pumps and PMSM high efficiency pumps.

We also provide 1.5kw solar voltage booster to increase your solar panel voltage for saving solar panels invest.

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...




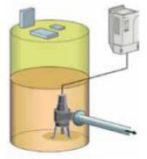
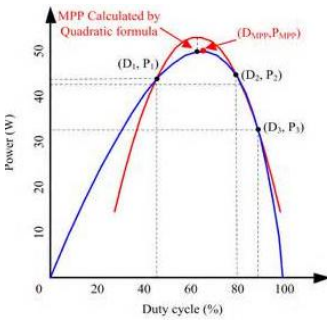

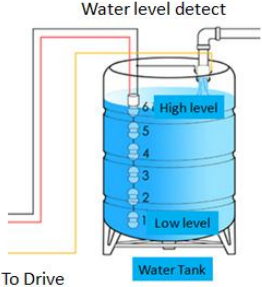



Features of solar pumping system

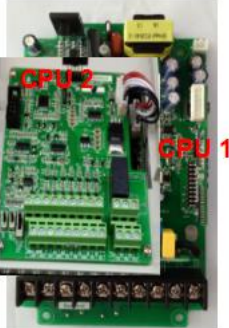



			
<p>Low carbon economy</p> <p>With utilization of solar pump KEWO inverters helps you in reducing your carbon footprint.</p> <p>Reduce CO2 releasing.</p> <p>Renewable solution</p>	<p>In-built MPPT</p> <p>Maximum power point tracking ensures that you get the most power output possible from your solar panel and maximize your pump delivery throughout the day.</p>	<p>Pump specific protection</p> <p>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</p> <p>With the addition of optional modules you can monitor solar pump parameters from Anywhere when GPRS signal is available</p>

KEWO sun great series solar pump inverter main features

Soft ware design:

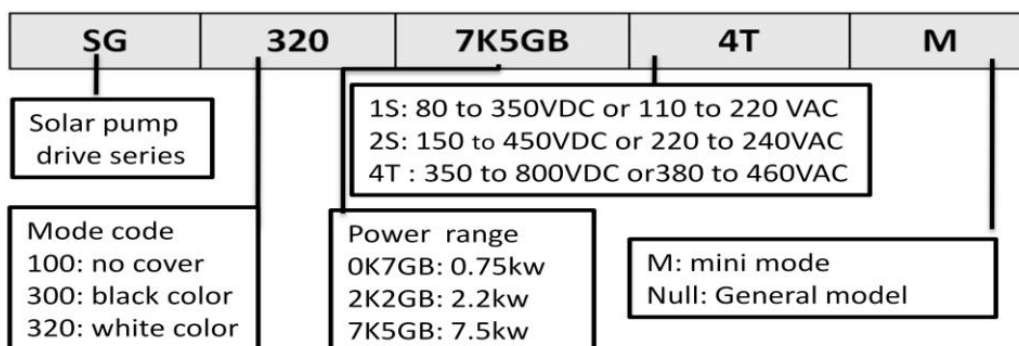
		 <p>3 phase AC motor & High efficiency PMSM</p>	
<p>Dual supply mode - Solar DC and AC Grid. (It can be used for AC drive when AC power input)</p>	<p>All day Run-Stop-Restart mode management/ manual control with keypad, by switch</p>	<p>Compatible with all 3 phase AC pumps, IM And high PMSM (permanent magnet syn. Motor)</p>	<p>Protection against dry run of pump, Diagnostics and self protection features</p>
			
<p>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 in case 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. Good lightning protection</p>	<p>Using top quality Infineon IGBT module is good quality assurance.</p>

- * Built in good lightning protection module to minimize function
- * Dual CPU model, independent air duct for good ventilation.
- * Built hall for DC bus circuit for better performance of solar pumping control

Models specification:







1S: For 3 phase, 110V to 200VAC pumps, 0.75kw to 1.5kw, 80V to 350VDC input.

2S: For 3 phase, 170V to 240VAC pumps, 0.75kw to 4.0kw, 150 to 450VDC input.

4T: For 3 phase, 380V to 460VAC pumps, 0.75kw to 400kw, 350 to 800VDC input.

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	
SG300-1S-M SG300-2S-M	90 to 400VDC, 150 to 450VDC or 110 to 230VA	3 PH 1100VAC 3PH 220VAC	0.75—1.5kw	
SG300-4T-M	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—2.2kw	
SG320-2S	150 to 400VDC 220 to 230VA	3 PH 220V to 230VAC	0.75—4kw	
SG320-4T	250 to 800VDC 380 to 440VAC	3 PH 380V to 440VAC	0.75—15kw	
SG320-4T	350 to 800VDC 380 to 440VAC	3 PH 380V to 440VAC	18—132kw	

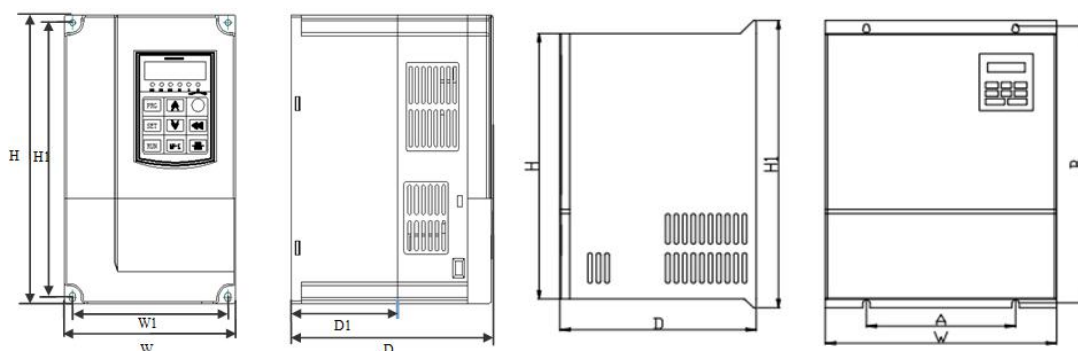
Technical specification:

**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 450VDC input, 3PH 220 to 240VAC output) Vmpp 486 to 750 VDC for 4T (350V 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 620(VDC), Vmpp 540(VDC) for 4T model or 380V AC pumps
Motor type (Pumps type)	Control for permanent magnet synchronous motor and asynchronous motor pumps. 1 phase or 3 phase AC pumps
Rated output voltage	3-Phase, 110V/160V/220V. 3-phase, 220V/380V/460V
Output frequency range	0~maximum frequency 600Hz. Resolution 0.01 Hz
Inverter efficiency	Above 99.2%
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.
Power factor	Above 95%
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, (MPPT 280 to 375VDC)							
1	SG100-0K75GB-2S	4A	220V/240V	0.75KW	170*110*70	260 to 375	1.0
2	SG300-0K75GB-2S-M	4A	220V/240V	0.75KW	143*86*114	260 to 375	1.5
3	SG300-1K5GB-2S-M	7A	220V/240V	1.5KW	143*86*114	260 to 375	1.5
Mini type 4T series : 350 to 800 VDC or 380 to 440 VAC (MPPT 486 to 750VDC)							
4	SG300-0K7GB-4T-M	2.5A	380V-440V	0.75KW	143*86*114	486 to 750	1.5
5	SG300-1K5GB-4T-M	3.7A	380V-440V	1.5KW	143*86*114	486 to 750	1.5
6	SG300-2K2GB-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, (MPPT 280 to 375VDC)							
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 4T series : 350 to 800 VDC or 380 to 440VAC input, (MPPT 486 to 750VDC)							
11	SG320-0K7GB-4T	2.5A	380V-440V	0.75KW	185*125*159	486 to 750	2
12	SG320-1K5GB-4T	3.7A	380V-440V	1.5KW	185*125*159	486 to 750	2
13	SG320-2K2GB-4T	5A	380V-440V	2.2KW	185*125*159	486 to 750	2
14	SG320-4K0GB-4T	10A	380V-440V	4.0KW	185*125*159	486 to 750	2.5
15	SG320-5K5GB-4T	13A	380V-440V	5.5KW	245*150*177	486 to 750	3.5
16	SG320-7K5GB-4T	17A	380V-440V	7.5KW	245*150*177	486 to 750	4
17	SG320-011GB-4T	22A	380V-440V	11KW	247*160*178	486 to 750	5
18	SG320-015GB-4T	30A	380V-440V	15KW	247*160*178	486 to 750	5
19	SG320-018GB-4T	37A	380V-440V	18KW	335*217*190	486 to 750	10
20	SG320-022GB-4T	45A	380V-440V	22KW	335*217*190	486 to 750	18
21	SG320-030GB-4T	60A	380V-440V	30KW	432*285*225	486 to 750	18
22	SG320-037GB-4T	75A	380V-440V	37KW	432*285*225	486 to 750	29
23	SG320-045GB-4T	90A	380V-440V	45KW	600*385*270	486 to 750	29
24	SG320-055GB-4T	110A	380V-440V	55KW	600*385*270	486 to 750	29
25	SG320-075GB-4T	150A	380V-440V	75KW	700*473*307	486 to 750	43
26	SG320-090GB-4T	180A	380V-440V	90KW	700*473*307	486 to 750	47
27	SG320-110GB-4T	220A	380V-440V	110KW	930*579*375	486 to 750	90
28	SG320-132GB-4T	260A	380V-440V	132KW	930*579*375	486 to 750	100
29	SG320-160GB-4T	320A	380V-440V	160kw	930*579*375	86 to 750	130

SG300 /SG320 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

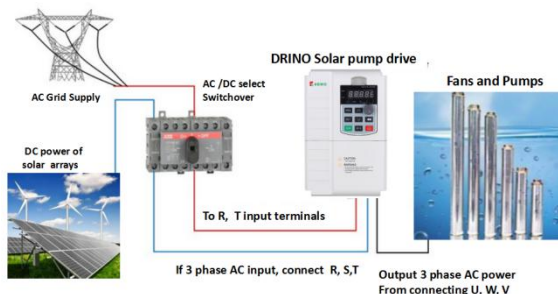
Power (3 phase 380V output)	Inverter size				Install size/ hole		
	W	H1	H	D	A	B	Hole
SG320-018GB-4T	217	335	305	150	140	323	Φ6
SG320-022GB-4T							
SG320-030GB-4T	285	463	432	225	235	447	Φ8
SG320-037GB-4T							
SG320-045GB-4T	385	600	550	270	260	580	Φ10
SG320-055GB-4T							
SG320-075GB-4T	473	700	660	307	343	678	Φ10
SG320-90GB-4T							
SG320-110GB-4T	579	930	880	375	449	905	Φ10
SG320-132GB-4T							
SG320-160GB-4T							
185kw to 280kw (option)	650	1060	983	377	420	1030	Φ12
315kw to 500kw (option)	800	1358	1203	400	520	1300	Φ14

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..), or IP54 module also is available.



Connecting schematic diagram

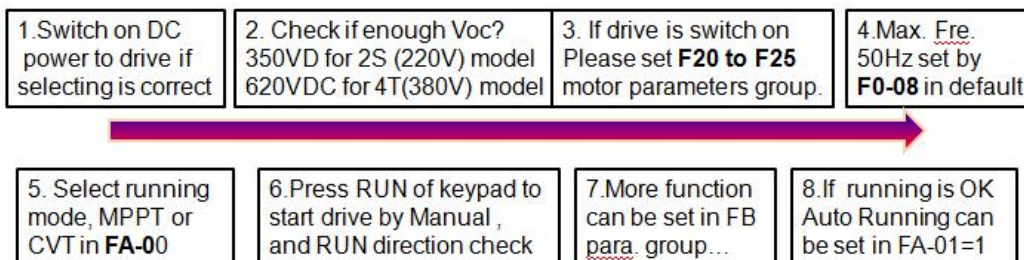


IP54 water proof cabinet

PS: In built AC/DC manual switch, AC/DC circuit breaker, pumps connection terminals in cabinet. GPRS is option.

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 on for Voc detecting by iverter itself.**)



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

Solar arrays module selecting

Selecting Solar Arrays Matching Selecting											
Solar pumps inverter model	Maxim um Input DC current	Solar arrays open circuit voltage specification									
		Open circuit voltage range Voc 21V±2V			Open circuit voltage range Voc 31V±2V			Open circuit voltage range Voc 43V±2V			
		Power± 3WP	Short circuit current	Series, parallel No.	Power±3 WP	Short circuit current	Series, parall el No.	Power ±3WP	Short circuit current	Series, parallel No.	Invert er rated
General type 4T series : 350 to 800 VDC or 380 to 460VAC input, (MPPT 486 to 750VDC, Voc 620VDC)											
SG320-0K7GB-4	4.6A	30WP	2.75A	30*1							2.3A
SG320-1K5GB-4	7A	60WP	3.48A	30*1							3.7A
SG320-2K2GB-4	10A	90WP	5.5A	30*1							5A
SG320-4K0GB-4	17A	85WP	4.7A	28*2							8.5A
SG320-5K5GB-4	23A				180WP	7.33A	19*2				13A
SG320-7K5GB-4	32A				240WP	8.81A	20*2	200WP	7.32	15*3	17A
SG320-011GB-4	48A				180WP	7.33A	20*4	240WP	7.32	15*4	25A
SG320-015GB-4	64A				240WP	8.81A	20*4	240WP	7.32	15*5	32A
SG320-018GB-4	76A				240WP	8.81A	20*5	240WP	7.32	15*6	38A
SG320-022GB-4	80A				240WP	8.81A	20*6	270WP	7.32	15*7	45A
SG320-030GB-4	90A				240WP	8.81A	20*8	240WP	7.32	15*10	60A
General type 2S series : 150 to 450 V DC or 200 to 240 VAC input, (MPPT 280 to 375VDC, Voc 350VDC)											
S300-0K7GB-2S	7A	30WP	2.75A	17*2							4A
S300-1K5GB-2S	14A	60WP	3.48A	17*2							7A
S300-2K2GB-2S	20A	90WP	5.5A	17*2							10A
S300-4K0GB-2S	32A	90WP	5.5A	17*3							16A
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.											
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, 7R5G, the required power is 7500*1.3=9750w.											
The current of solar arrays selecting approximate to rated current of solar drive is acceptable.											

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:

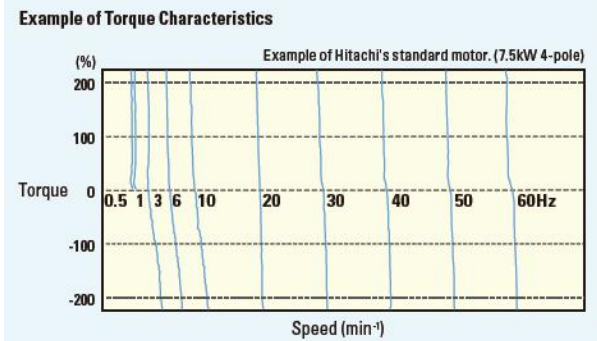
S100 sensorless vector control drive ,Simple, small and OEM type without cover	S300 –M, mini type sensorless vector control drive—small and compact design	S300 sensorless vector control drive, general type, high performance, and easy using.	S320 sensor vector control drive, general type, compatible with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

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

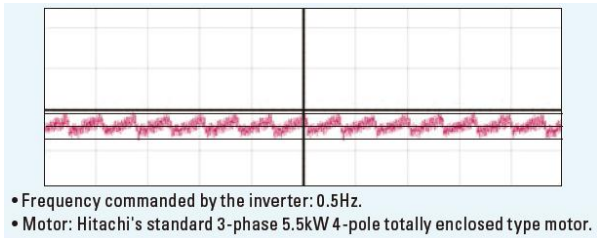
Industry-leading Levels of Performance

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 of 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.

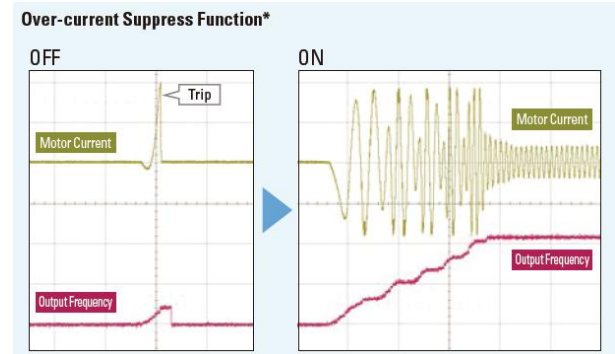
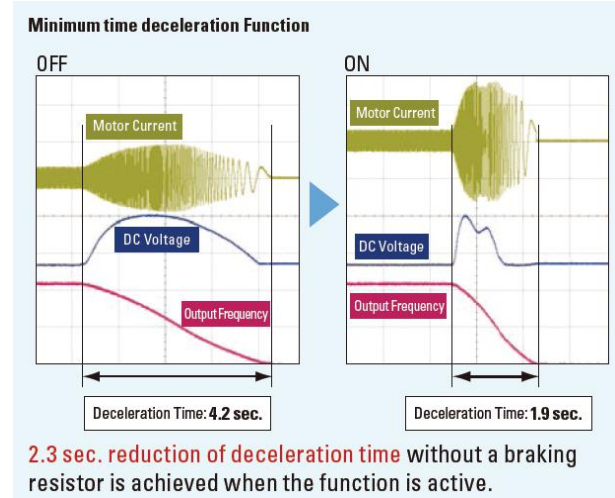
Start torque: 150% under 0.5Hz (OLV 1), 150% under 0.2Hz (OLV2).

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

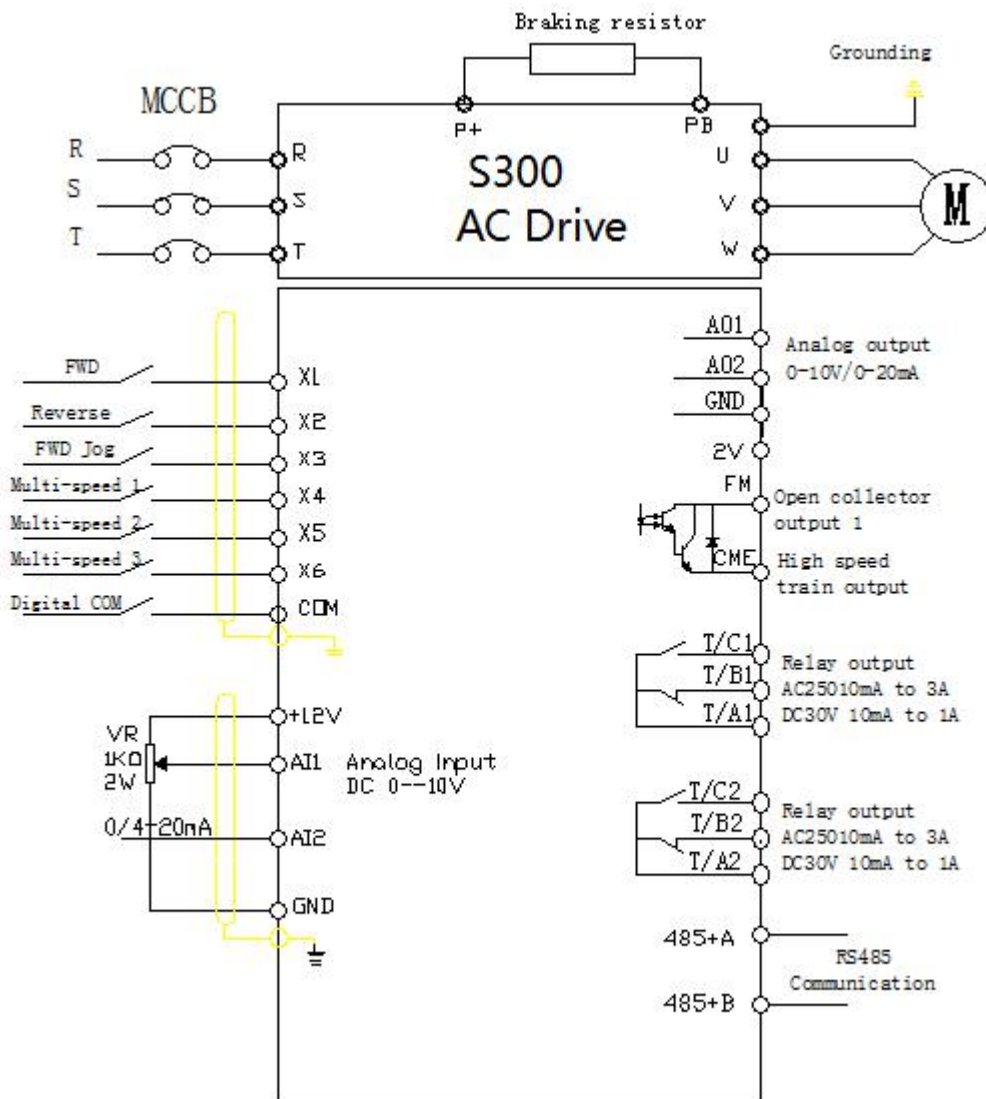
Minimum time deceleration, over-current suppress function and DC bus AVR are incorporated. The functions reduce nuisance trips,, Improved torque limiting/current limit function enable a load limit to protect machine and equipment.



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



WIRING AND CONNECTION.



Rich Input and output interface.

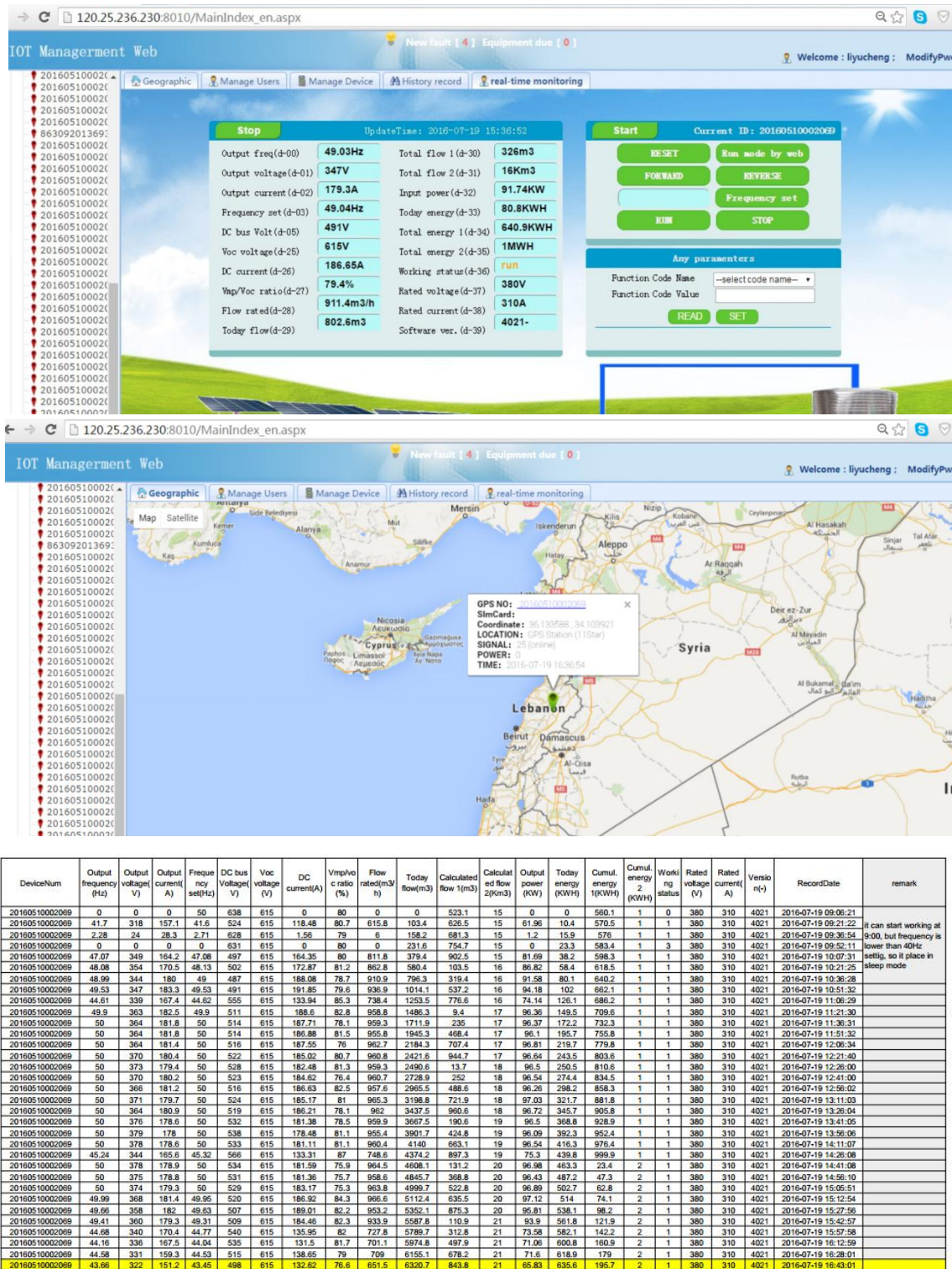
- 6 ways digital input
- 2 ways analog input
- 1 ways RS485 built in
- 2 Analog output, 1 AO1 can compatible with 0-10V or 0-20mA. AO2 can compatible 0-10V or high speed train output.
- 2 programmable relay output, 1 programmable transistors output.

Appendix I

A 160kw, solar pump inverter is working good in Lebanon.

It can started working at 9:30 with above 40Hz, and stopped working at 17:00 with above 40Hz.

Because customer need pump don't work when output frequency is less than 40Hz.



Appendix II.

DC Solar DC Voltage Booster----Low Voltage Input, High Voltage Output

it is use to booster low voltage input to high voltage output to meet solar pumps system application which need high voltage using.

For example, For 1/3 phase 220VAC pumps, it should be request Vmp (working voltage) is 310VDC, Voc (open loop voltage) is 350VDC.

For 3 phase 380VAC pumps, it should be request Vmp 540VDC, and Voc 620VDC.

In order to get high voltage output from solar panels, we always connect solar panels in serial.

For 37voc solar panels, we need do 10 pcs solar panels connection in serial to get 370VDC, and need do 17 pcs solar panels connection in serial to get 629VDC.

And it will cause big investment for small power solar pumps system, and also make it difficult to promote this very good green energy solar pump system solution for people who need more water but less of grid power.

We design and develop DC voltage booster device for increase low voltage to high voltage for save solar panels using,for money save.

There are two models DC voltage booster can help us reduce solar panels investment.

LV40-70 design for "L" (3phase 220Vac) inverter, input voltage range :40 to 70Vdc. Output will be 240V to 420VDC. 1.5kw

LV60-90 design for"H" (3phase 380Vac) inverter, input voltage range :60 to 90Vdc.output will be 480VDC to 720VDC, 1.5kw



66VDC input, output 350VDC, for 3 phase 220VAC pumps



88VDC input, output 620VDC, for 3 phase 380VAC pumps

For driving 1 phase AC pumps suggestion

FC-05	If remove capacity for driving single phase motor	0: Starting Capacity can't remove 1: Starting capacity remove	0	0	*
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Because the starting capacity of 1 phase 220VAC deep well pumps is difficult to remove.

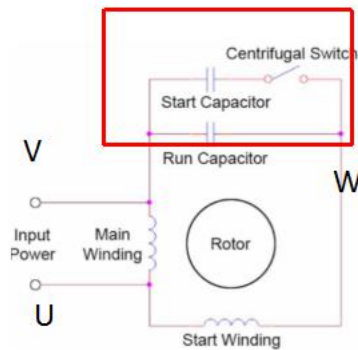
For driving this 1 PH pumps,
Please set FC-05=0
Fa-00-1
Fd-04=11



Built a special algorithm for single phase motor, in which starting capacity can able to remove.

1. Remove starting capacity
2. Because the capacity has been remove, so there are 3 cable for U, V, W connecting

Remove starting capacity



Note: Please select bigger rated power of inverter for driving single phase pumps, because the current of 1 220VAC phase pumps is bigger than 3 phase 220V AC pumps

KEWO solar pump drive have been using in over the world



Contact US:

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