

SHENZHEN KEWO ELECTRIC TECHNOLOGY CO., LTD



KEWO AC DRIVES,

VARIABLE FREQUENCY DRIVE,

FREQUENCY INVERTER



ADD: 3 Floor,Block 8,St George Industrial Park,Xinyu Road,Sha Jing,Bao'an, Shenzhen, Guangdong, China, 518104.

Tel: 86-755-84186866, Fax: 86-755-84186866, MP: 86-18038034988 Web: www.kewoinverter.com. Email: service@kewoinverter.com



Company introduction:

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 custom made automation solution and renewable energy technologies.

There are more than 150 staffs working in our factor, 60% of them are engineers. Thanks to our great R&D team hardworking and innovation, we mastered core and leading vector control technology for PMSM and IM.

We also introduced and absorbed 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, variable speed drive, frequency inverter, solar pump drive with DC and AC input, 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

Reception room

Production line

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



Sealed VFD AD850Z/T(Servo Drive) Solar Pump Inverter

Soft Starters



KEWO Main Products Brief Introduction

Products	Input voltage and power	Pictures	Brief introduction
AD800 Series	1Ph, 220V, 0.4kw to 2.2kw.		Drive for PMSM and IM
High	3Ph, 220V, 0.75kw to 75kw	88888	Accuracy speed and torque control for
Performance	3Ph, 380V/660V/1140V,	000	motor, multiple functions
Vector Control	0.75 to 630kw.		Sensorless vector control, sensor vector
Drive			control with PG, VF control,
			180% rated starting torque,
			big allowance IGBT module ,
AD100 Mini	1Phase, 220V, 0.4 to 1.5kw	Examo	Adopt software platform as same as
Economic Type		100 C	AD800, rich functions
AC Drive			Mini and Economic type,
		A BARANS	IPM iGBT
AD350 Mini	1/3 Ph 220V,0.4 to 2.2kw,	A KIND	Mini drive with compact design
Vector Control	3 Ph,380V, 0.75 to 3.7kw		Vector control and VF using the same
Drive			software platform as AD800
		A WARRING	IGBT module to ensure good quality
AD800S	1Ph, 220V, 0.4kw to 2.2kw.	T- AND SEC.	Enhanced AD800 version, special for
Frequency	3Ph, 220V, 0.75kw to 75kw	26682	PMSM servo motor with sensorless or
Inverter For	3Ph, 380V/660V/1140V,		sensor control, Multiple protection
PMSM (servo	0.75 to 630kw.	d 10 Processing	function
drive)		A second	Rich functions, and flexible using
			PG card built in controller board
AS850 Z Servo	3 phase, 380V±15%, 2.2kw	CALL STATE COLUMN TO STATE COL	Driving f or permanent magnet
Drive For PMSM	to 55kw		synchronous motor (PMSM) for energy
Of IMM.			saving. High energy saving, high power
		As services of the services of	factor, quick response and high accuracy
		- consission of	control, etc.
AS850T Spindle	3 phase, 380V±15%, 2.2kw	BASE BASE BASE BASE BASE BASE BASE BASE	Spindle servo drive for CNC, machining
Servo Drive For	to 55kw		center, packing, textile, etc. high accuracy
PMSM And IM		0.0	speed, torque and position control
		A solution of the control of the con	through close loop servo control
SD800 Seal	220V (single-phase power)		sealed frequency inverter is enhanced
Frequency	0.4-2.2kW	T STEWO TO	version of AD800 series frequency
nverter (IP54)	380V (three-phase power)	######################################	inverter, built in with IP54 protection
	0.75-30kW		grade. With excellent in anti-dust, water
		A polymery * No department * One department *	proof, anti-grease and anti-corrosion
		with contract of the contract	properties



			WWW.RCWOITVCTtCT.COTT
SG300/320 Solar Pump Drive Or solar pump inverter	1. 1 S (80V to 350VDC or 110VAC input, 3PH 110 to 220VAC output) 2. 2S (150V to 350VDC or 220VAC input, 3PH 220 to 240VAC output) 3. 4T (250V to 800VDC or 380VAC input, 3PH 380 to 460VAC output)	BOOK OF THE PARTY	Fully automatic system using variable speed drive compatible with AC, 3-phase, submersible and surface mount pumps, and high efficiency PMSM Pumps. 2 CPU design With MPPT, sensorless flow and generated flow measure, water tank detect and stop function,
S300/320 Vector Control Frequency Inverter (Motor AC Drives)	1 Ph 220V input, 0.75kw to 7.5kw 3 PH 380v, 0.75kw to 37kw	BBBE	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 PMSM.
EM-GJ3 Soft start (need match by pass contactor to work)	1PH 220V+15%, 11kw to 90kw 3 Ph AC380V, 480V, 660V, 1140V±30%, 0.75kw to 630kw	For Form	EM-GJ3 motor soft starter is a traditional type motor starting and protection device that is integrated with power electronic technology, microprocessor and automatic control. It need match with by pass contactors working.
EM-GW Online Soft Starter(no need by pass contactor)	220V+15%, 11kw to 90kw 3 phase AC380V, 480V, 660V, 1140V±30%, 0.75kw to 630kw		EM-GW online soft starter, Intelligent motor soft starter, the use of intelligent digital control, new generation technology applying, built in the by pass inside. Perfect motor protections, and multiple motor start mode. Compact design with minimum wiring.
GS3I online soft starter control panel	220V+15%, 11kw to 90kw 3 phase AC380V, 480V, 660V, 1140V±30%, 0.75kw to 630kw	000 000 000 000 000 000 000 000 000 00	EM-GS3I online soft starter panel, with new design and difference from traditional soft starter cabinet with install complete soft starter inside, multiple function with easy wiring and perfect motor protection function.

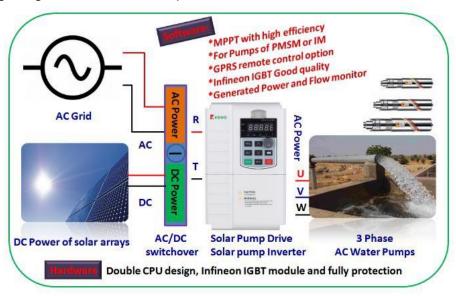
Accessories

- 1. PG card, keypad, keypad cable, electrical components of inverter...
- 2.AC chock, DC cock, braking unit, braking resistor
- 3. Solar pump drive system parts such as solar arrays, AC pumps, solarcells parts...



KEWO 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 S300/3200 variable speed drive to regulate the speed of a 3-phase AC motor depending upon the solar energy available from the solar panel.







KEWO solar pump solar drive



All kinds of 3 phase AC pumps

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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 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



Low carbon economy

With utilization of solar pump KEWO inverters helps you in reducing your carbon footprint.

Reduce CO2 releasing.
Renewable solution



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.



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.



Remote monitoring

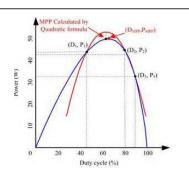
With the addition of optional modules you can monitor solar pump parameters from Anywhere when GPRS signal is available



KEWO sun great series solar pump drive main Features Soft ware design:



Dual supply mode - Solar DC and AC Grid. (it can be used for AC drive when AC power input)



Maximize your pump delivery with MPPT (maximum power point tracking)



All day Run-Stop-Restart mode management/ manual control with keypad



GPRS Remote Control Is
Option. Using GPRS of SIM to
connect to internet



_ 3 phase AC motor & High efficiency PMSM Compatible with all 3 phase AC pumps, IM And high PMSM (permanent magnet syn. Motor)



Level sensor used for automatic start and stop of motor in case of pumping to overhead tank



Protection against dry run of pump, Diagnostics and self protection features



Flow And Generated Energy Calculating And Monitoring

Hardware design:



Innovation design with dual CPU to provide better performance and minimized fault occurs



Good ventilation with low temperature, suitable to working in hot temperature



Fully fault protection design to ensure no iGBT bomb. Good lightning protection

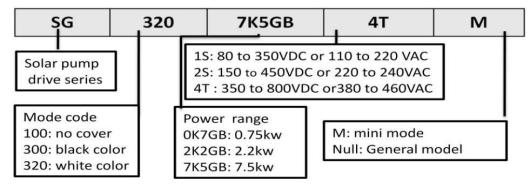


Using top quality Infineon iGBT module is good quality assurance.

- * Built in good lightning protection module to minimize function
- * Dual CPU model
- * 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	The state of the s
SG320-2S-M	150 to 450VDC, or 220 to 240VA	3 PH 220V to 240VAC	0.75—1.5kw	8888 8888
SG320-4T-M	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—2.2kw	Assemble and the second
SG-300-1S	80V to 350VDC 110 to 220VAC	3 PH 110VAC , 140VAC, 220VA	0.75—2.2kw	8888E
SG320-2S	150 to 450VDC 220 to 240VA	3 PH 220V to 240VAC	0.75—4kw	A TOTAL CONTRACTOR OF THE PARTY
SG320-4T	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—15kw	
SG300-4T	350 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	18—132kw	AWARNING THE STATE OF THE STAT

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Technical specification:

Recommended MPPT voltage	Vmpp 131 to 350 VDC for 1S (80V to 350VDC input, 3PH 110 to 220VAC output)					
range	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	Voc 180(VDC), Vmpp 155(VDC) for 1S model or 110V AC pumps					
Vmpp voltage	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	MPPT (maximum power point tracking), CVT (constant voltage tracking),					
performance	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	CE, Design based on vector control drive S300 and S320 series, more specification					
AC input backup circuit	please refer to S300 or S320 vector control drive operation manual					
Technical specification	on 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					

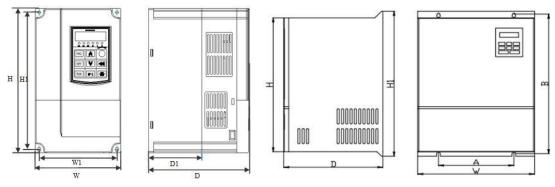


Models specification

SN	Models	Rate curre nt	Output voltage (3PH VAC)	Applicabl e 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	SG100-0K7GB-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 : 35						1.0	
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	5.77C	380V-440V	2.2KW	143*86*114	486 to 750	1.5	
	eral type 2S series : 150						1.0	
7	SG320-0K7GB-2S	4A	220V/240V	0.75KW	185*125*159	260 to 375	2.0	
8	SG320-0K7GB-2S SG320-1K5GB-2S	7A	220V/240V 220V/240V	1.5KW	185*125*159	260 to 375	2.0	
9	SG320-1K3GB-2S SG320-2K2GB-2S	10A	220V/240V 220V/240V	2.2KW	185*125*159	260 to 375	2.5	
10	SG320-4K0GB-2S	16A	220V/240V 220V/240V	4.0KW	245*150*177	260 to 375	3.5	
	l .						3.5	
	eral type 4T series : 350							
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	SG300-018GB-4T	37A	380V-440V	18KW	335*217*190	486 to 750	10	
20	SG300-022GB-4T	45A	380V-440V	22KW	335*217*190	486 to 750	18	
21	SG300-030GB-4T	60A	380V-440V	30KW	432*285*225	486 to 750	18	
22	SG300-037GB-4T	75A	380V-440V	37KW	432*285*225	486 to 750	29	
23	SG300-045GB-4T	90A	380V-440V	45KW	600*385*270	486 to 750	29	
24	SG300-055GB-4T	110A	380V-440V	55KW	600*385*270	486 to 750	29	
25	SG300-075GB-4T	150A	380V-440V	75KW	700*473*307	486 to 750	43	
26	SG300-090GB-4T	180A	380V-440V	90KW	700*473*307	486 to 750	47	
27	SG300-110GB-4T	220A	380V-440V	110KW	930*579*375	486 to 750	90	
28	SG300-132GB-4T	260A	380V-440V	132KW	930*579*375	486 to 750	100	
29	SG300-160GB-4T	320A	380V-440V	160kw	930*579*375	86 to 750	130	



SG300/320 series solar pump drive dimensions



Mini type Fig 1

General type Fig 2

Power	I	H1	W	W1	D	D1	Hole
0.4~1.5KW	143	132	86	74	114	62.5	Ø4.5

Power (3 phase 380V output)	Н	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		Invert	er size		Install size/ hole				
380V output)	W	H1	Н	D	Α	В	Hole		
SG300-018GB-4T	047	225	205	150	140	202	Φ0		
SG300-022GB-4T	217	335	305	150	140	323	Ф6		
SG300-030GB-4T	205	463	432	225	235	447	Ф8		
SG300-037GB-4T	285	403	432	225	235	447	Ψο		
SG300-045GB-4T	205	205	385 600	600	550	270	260	580	Ф10
SG300-055GB-4T	300	000	330	210	200	360	Ψ10		
SG300-075GB-4T	472	700	660	207	343	678	#10		
SG300-90GB-4T	473	700	660	307	343	0/0	ф10		
SG300-110GB-4T					449	905	ф10		
SG300-132GB-4T	579	930	880	375					
SG300-160GB-4T									
185kw to 280kw (option)	650	1060	983	377	420	1030	ф12		
315kw to 500kw (option)	800	1358	1203	400	520	1300	ф14		

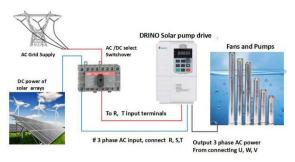


System connection and commissioning.

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 cabinet

IP54

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

Easy installation and commissioning.

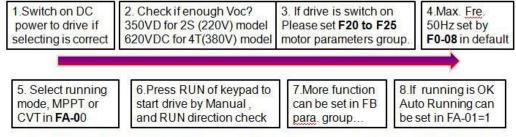
1.Dc voltage of solar arrays in serials need large than **1.15 times** of Vmpp of drives.

For example: For 4T series, recommend 540V*1.15=621V; For 2S series, recommend 311*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

Solar pumps Maxim Solar arrays open circuit voltage specification											
inverter model	um	Open	circuit volta	ge range	Open circ	uit voltage	range	Ор	en circuit v	oltage rar	nge
	Input		Voc 21V±2	.V	Vo	oc 31V±2V			Voc 43	SV±2V	
	DC .	Power±	Short	Series,	Power±3	Short	Series,	Power	Short	Series,	Inver
	current	3WP	circuit	parallel	WP	circuit	parall	±3WP	circuit	parallel	er
			current	No.		current	el No.		current	No.	rated
Ge	neral type	4T series	: 350 to 800	VDC or 380	to 460VAC ir	put, (MPF	T 486 to	750VDC,	Voc 620VD	C)	
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	200WI	7.32	15*3	17A
SG320-011GB-4T	48A				180WP	7.33A	20*4	240WI	7.32	15*4	25A
SG320-015GB-4T	64A				240WP	8.81A	20*4	240WI	7.32	15*5	32A
SG300-018GB-4T	76A				240WP	8.81A	20*5	240WI	7.32	15*6	38A
SG300-022GB-4T	80A				240WP	8.81A	20*6	270WI	7.32	15*7	45A
SG300-030GB-4T	90A				240WP	8.81A	20*8	240WI	7.32	15*1	60A
Gen	eral type	2S series :	150 to 450	V DC or 200	to 240 VAC i	nput, (MP	PT 280 to	375VDC,	Voc 350VI	DC)	
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

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, SG320-7K5GB-4T, 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 loard for energy saving.

CLASS RANGE:

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

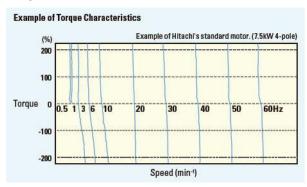
* More dimension detail please see SG300/320 solar pump drive catalog or manual.



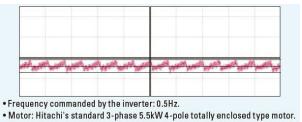
Industry-leading Levels of Performance

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.

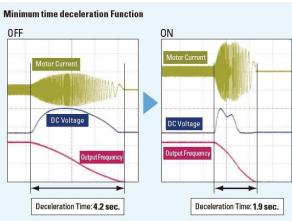
Torque response: less than 20ms in vector control **Speed accuracy**: ±0.3T in vector control 1 and 2. **Start torque**: 150% under 0.5Hz (OLV 1), 150% under 0.2Hz (OLV2).

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

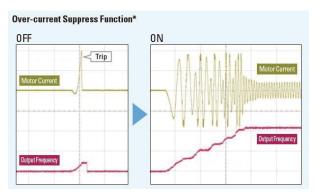
P type, 150% rated current for 60s, 150% rated current for 10s2

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.



2.3 sec. reduction of deceleration time without a braking resistor is achieved when the function is active.

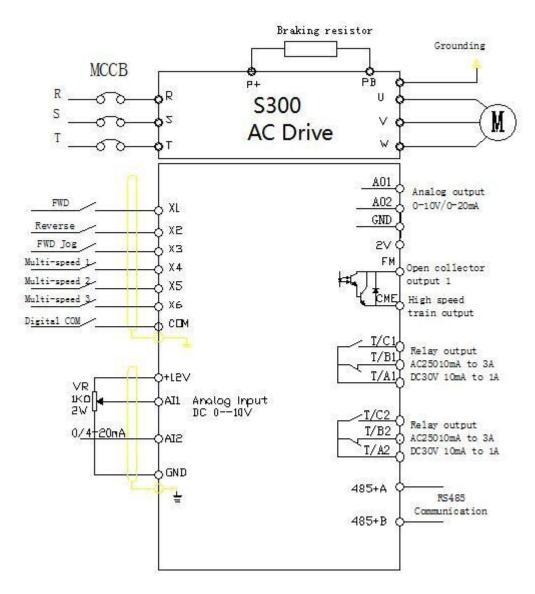


4. Induction motor & Permanent magnetic synchronous motor control with one drive.





WIRING AND CONNECTION.

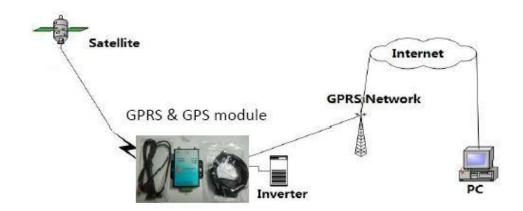


Rich Input and output interface.

- 6 ways digital input
- 2 ways analog input
- 1 ways RS485 built in
- 2 Analog output, 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.

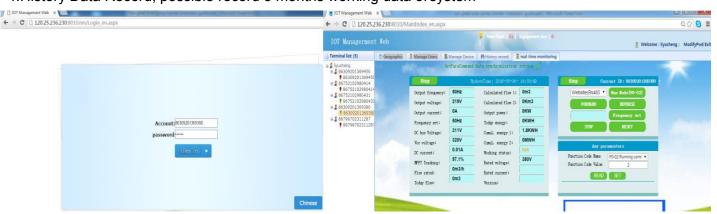


GPRS remote control (optional)

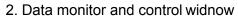


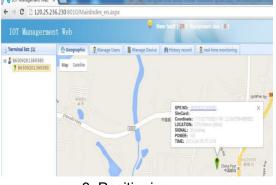
Functions of GPRS module establishing

- 1. Working Status Monitoring;
- 2. Inverter Control and parameters review and modify
- 3. Positioning can see where the solar pump system working
- 4. History Data Record, possible record 3 months working data of system



1. Login to website





3. Positioning



4. History data record

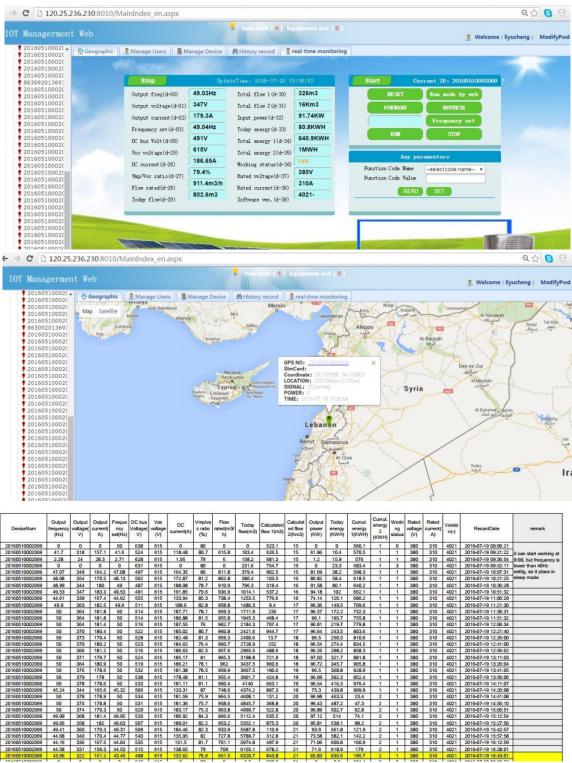


Appendix I.

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.



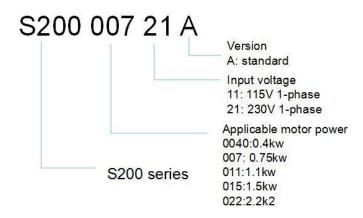


Appendix II.

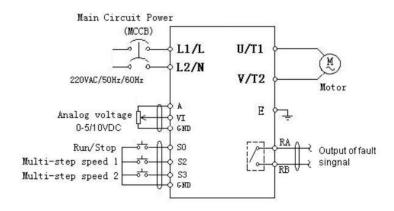
S200 Series Smart Single Phase inverter

This is inverter can drive for single phase motor/pumps when AC phase input, can suits for single phase pump when solar DC input.

Model list



Basic diagram



Technical specification

•	·										
	220V single phase AC output, DC 200-400 input solar pump inverter										
Model	Power(kw)	Voltage(V)	Current(A)	N.W(KG)	Size L/W/H (mm)						
S20-002	0.2	220V	1.6	1.1	100*151*110						
S20-004	0.4	220V	2.5	1.1	100*151*110						
S20-007	0.7	220V	4.2	1.1	100*151*110						
S20-011	1.1	220V	5.5	1.4	100*151*110						
S20-015	1.5	220V	7	1.4	100*151*110						
S20-022	2.2	220V	11	1.4	100*151*110						



AD800 Series High Performance Vector Control Drive

Variable Frequency Drive (VFD)

When you need simplicity and intelligence in one self-contained solution, The AD series covers a wide range of options, ideal for variable and constant torque applications from pumps and fans to conveyors and mixers as well as many other variable and constant torque applications. Enjoy plug and play convenience right from the start.

- Compatible for IM and PMSM
- Excellent quick response with vector control
- High starting torque even under low speed.
- Rapid current limit, up to 20 kinds protection function.
- Latest generation Infineon IGBT modules using



When you need simplicity and intelligence in one self-contained solution, The AD800 covers a wide range of options. Ideal for variable and constant torque applications from pumps and fans to conveyors and mixers as well as many other variable and constant torque applications. Enjoy plug and play convenience right from the start. No customizing or special product engineering required.

Excellent unique ventilation design with powerful big fans.

Specification: (AD100, AD350, AD800, AD800S)

Single phase, 220V, 0.4kw to 2.2kw.

Three phase, 220V, 0.75kw to 75kw

Three phase, 380V/660V/1140V, 0.75 to 630kw.

Key product feature

- High performance flux vector control for IM and PMSM (AD800S can compatible PMSM)
- Excellent quick response with vector control
- High starting torque even under low speed.
- •Torque limit for machine safety protection
- •Rapid current limit, up to 20 kinds protection function.
- Latest generation Infineon IGBT modules using

Models, input current, output current.

Model	Input voltage	220V (1/2T)	380V (4T)	660V (6T)
Take example with 380V model.	Rated power (kw)	Output current (A)	Outp ut curre nt(A)	Output current(A)
AD100-2S0.4G	0.4	2.5		
AD350-4T0.75	0.75	4	2.3	
AD350-4T1.5G	1.5	7	3.7	
AD350-4T2.2G	2.2	10	5.0	
AD350-4T3.7G	3.7	16	8.5	
AD800-4T5.5G/	5.5	20	13	
AD800-4T7.5G/	7.5	30	17	10
AD800-4T11G/	11	42	25	15
AD800-4T15G/	15	55	32	18
AD800-4T18.5	18.5	70	38	22
AD800-4T22G/	22	80	45	28
AD800-4T30G/	30	110	60	35

AD800-4T37G/	37	130	75	45
AD800-4T45G/	45	160	90	52
AD800-4T55G/	55	200	110	63
AD800-4T75G/	75	260	150	.86
AD800-4T93G/	93	320	180	98
AD800-4T110G	110	380	210	121
AD800-4T132G	132	420	250	150
AD800-4T160G	160	550	310	175
AD800-4T185G	185	600	340	198
AD800-4T200G	200	660	380	218
AD800-4T220G	220	720	415	235
AD800-4T250G	250		470	270
AD800-4T280G	280		510	330
AD800-4T315G	315		600	345
AD800-4T355G	355		670	380
AD800-4T400G	400		750	430
AD800-4T500G	500		860	540
AD800-4T560G	560		990	600



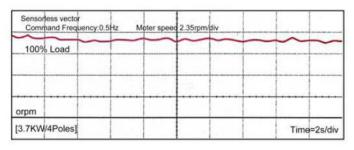
Features of products.

It has V/F, OLV(open loop vector control), CLV (close loop vector control), Compatible with variety of encoder such as collector, differential / rotary transformer .

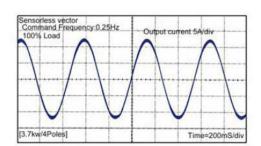
1). Wide speed control range

a). Sensorless open loop vector (OLV) control: 0.5 to 400Hz (1:100/50Hz datum point)

Sensorless without PG mode: 0.5 to 400Hz (1:100/50Hz)



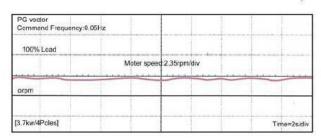




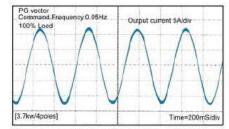
The current waveform with 100% load under 0.25Hz

b) . Sensor with PG card: 0.5 to 400Hz (1:100/50Hz datum point) Good current waveform

PG sensor vector control mode: 0,5 to 400Hz (1:100/50Hz datum)



Speed wave form under 0.25Hz with full load in sensor close loop mode

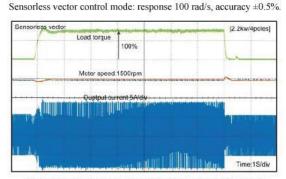


Current wave form under 0.25Hz with full load in sensor close loop mode

2). Response speed improving

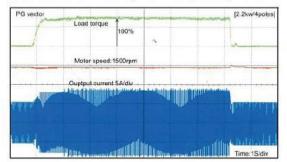
Adopting high speed 32 bit DSP to get the high speed response of frequency inverter.

- a.) The response 100rad/s, precision ± 0.5% in sensorless open loop vector control mode.
- b.). The response 250rad/s, precision ± 0.01% in sensor close loop vector control mode



Impact load response characteristic (Senserless without PG)

Sensor vector control mode: response 250rad/s, accuracy +0.01%



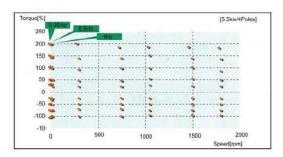
Impact load response characteristic (Senserless with PG)



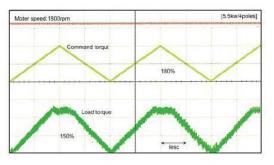
3). High torque output under low speed to meet some big inertia load conditions

High torque under low speed achievement.

Adopting advanced current vector control technology and motor parameters detecting to make high torque under low speed is available.

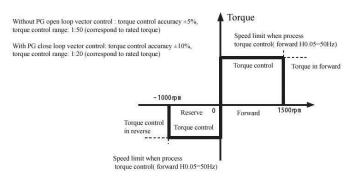


Torque characteristic



Accuracy torque limit

4). Torque control in OLV and CLV



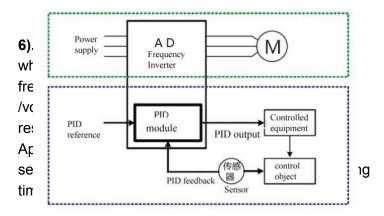
Speed Imimit in torque control mode

5). Powerful PID function

Possible to set PID1 and PID2 combination function, free switch between two PID parameters.

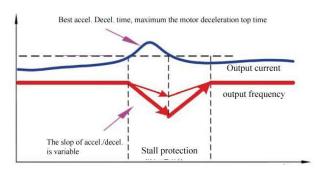
PID module can be used for external unit using with professional PID control.

Flexible PID control with sleep mode, configure waking up frequency, sleep frequency, that is very easy using for water supply.



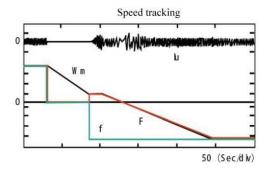


Stall protection illustrations



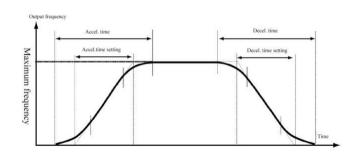
7). Speed tracking restart function

Detect motor speed and rotation direction automatically, no any trip during start even in reverse running status.

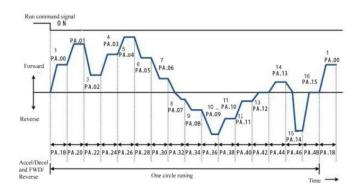


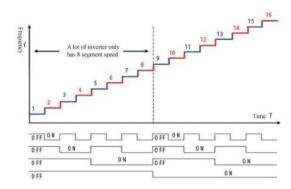
8). S curve function

S curve can improving the impact during the start and stop processing, it is very useful in crane, elevator application



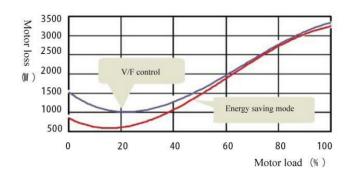
9).16 segment speed circle running, easy to configure.





10). Advanced energy saving technology

AD800 series inverter can detect the load status to control the output voltage and power factor to make motor work in high efficient mode.





Technical specification

	Items	Specification						
	Control mode	SVC in open loop	V/F control	Close loop vector control				
	Starting torque	0.5Hz 180%	0.5Hz 150%	0.00Hz 180%				
	Speed adjust range	1:100	1:100	1:1000				
Control mode	speed stabilizing precision			±0.02%				
	Torque precision	NO	NO	±5%				
	Motor type	General induction motor, permanent magnet synchronous						
	Highest frequency	General vector control	:400Hz V/f contr	ol: 4000Hz				
	frequency resolution	Digital setting: 0.01Hz	analog setting: n	naximum×0.025%				
	carrier frequency	$0.5 ext{K} \sim 16 ext{KHz}, ext{ the cally}$	arrier frequency	can be adjust by temperature				
	Frequency reference setting method	Digital of Control pane UP/DN control, commu	•	potentiometer of control panel se frequency				
	Accel./decel. characteristic	Linear curve and S cuto 65000S.	urve accel. /dece	l. mode, range of time: 0.0				
	V/F curve	3 mode: linear, multiple	e points, N Power					
	V/F separation	aration 2 times separation: totally separation, half						
	DC braking	DC braking frequency: 0.0 to 300Hz, DC braking current: 0.0% to 100%						
	Braking unit	Built in braking unit up built in for above 93kw	•	is 18.5kw to 75kw, external				
	Jog function	configuration PID Easy to perform pressure, flow, temperature close loop control To achieve 16 segment speed running through built in PLC or terr						
Functin design	Configuration PID							
	PLC multiple speed							
	Common Dc bus *	Multiple inverters use	one DC bus for en	ergy balance.				
	Auto voltage regulation (AVR)	Enable to keep output	voltage constant v	when grid fluctuation				
	Over load tolerance capability	••		s, 180% rated current for 2s, s, 150% rated current for 3s.				
	tall control when over current, over voltage	Carry out limiting autor over current, over voltage	_	current, voltage to prevent				
	Fast current limit function	minimize the IGBT module broken to protect the inverter, maximum reduce the over current fault.						
	Torque limit and torque control		•	automatically during motor ose loop vector control mode.				
	friendly interface	Display Hello when po	wer on.					
features	interially interialed	-17 1						



	Items	Specification							
	button								
	Timing control function	A total running time and total running time calculating							
	2 group motor parameters	To achieve two motor switching freely, control mode is selectable							
	Motor over heat protection	Accepting motor temperature sensor signal input via Al1 terminals.							
	Multiple kinds encoder *	Compatible collector, difference, and rotary transformer Encoder.							
	Command source	Control panel, control terminals, series communication, switch freely.							
	Frequency source	Digital setting, analog current/voltage, pulse setting, serial communication, main and auxiliary combination.							
	Protection function	Short circuit detect after power on, input/output phase missing, over voltage, over current, under voltage, over heat, over load protection.							
	Application site	Indoor, free of exposure to sunlight, no dusty, no corrosive, no inflammable gas, no oil and water vapor, and water dipping							
	Altitude	Lower 1000m							
Environment	environment temperature	-10°C \sim +40°C, power derate for 40 \sim 50°C, rated current derated 1% for 1°C increasing.							
	humidity	Less than 95%, no water condense.							
	storage	-40∼+70℃							

^{*:}AD350 have no this function

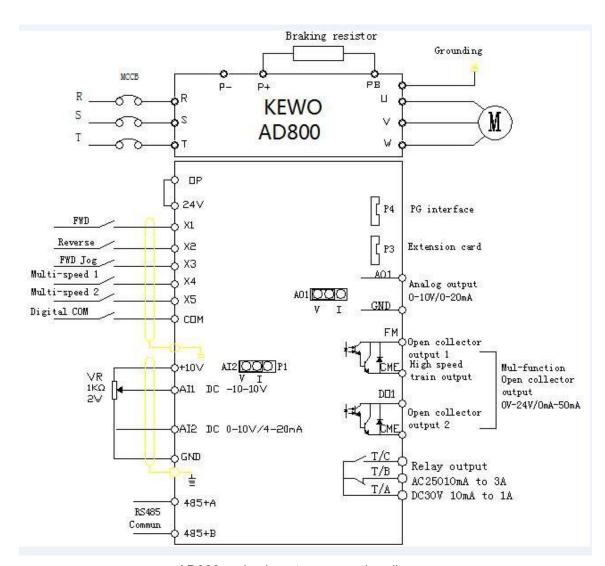
AD800 AC Drive models.





Wiring diagram of AD800.

- I. PG cards external built if need, support ABZ optical encoder, ABZ differential input, Rotating transformer encoder...)
- 2. Built in following functions terminals.
- It has 5 digital I/O input, compatible with sink and source way. (NPN/PNN)
- 2 Analog input, support -10V to 10V, 0-10V, 0/4 to 20mA.
- 1 Analog output (0-10V/0-20mAcab be selected)
- 2 collector output (FM and CME support the high pulse output).
- 1 relay output. (if need two relays please built external card)
- Rs485 communication card.(485+, 485-)
- Extension card is available. (4 digital terminals, 24V power supply, OP (external power supply terminal,1 analog output, and 1 relay output)



AD800 series inverter connection diagram



AD800 Inverter Data sheet.

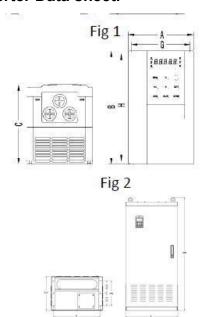


Fig 3

	AD)800 se	ries 3 P	H, 220	V		
AD800-2T0.75GB					8	3	
AD800-2T1.5GB	117	135	125	155	130	M4	Fig.2
AD800-2T2.2GB					0		
AD800-2T3.7GB	140	200	100	070	105	ME	Fig.2
AD800-2T5.5GB	140	260	160	270	165	M5	
AD800-2T7.5GB	140	250	210	370	178	M6	Fig 2
AD800-2T11G		350	210	370	170	IVIO	Fig.2
AD800-2T15G	000	440	270	420	225	MC	Fig 0
AD800-2T18.5G	200	410	270	430	225	M6	Fig.2
AD800-2T22G	200	500	290	520	225	M8	Fig. 2
AD800-2T30G	200	500	290	520	225	IVIO	Fig.2
AD800-2T37G	050	500	250	con	205	140	Fig. 0
AD800-2T45G	250	580	352	600	285	M8	Fig.2
D800-2T55G	000	700	450	700	040	MO	Fi- 0
AD800-2T75G	300	700	458	720	310-	M8	Fig.2

3 PH 380V/440V

AC drive models	Install lot mm		Dimension mm			Bolt	Ref eren
	G	Н	Α	В	С	mm	ce.
AD800-4T1.5GB		1					
AD800-4T2.2GB	117	210	130	220	165	M4	Fig2
AD800-4T3.7GB AD800-4T5.5PB	. 117	210	130	220	103	IVI	i iyz
AD800-4T5.5GB AD800-4T7.5PB AD800-4T7.5GB AD800-4T11PB	140	260	160	270	190	M5	Fig2
AD800-4T11GB AD800-4T15PB AD800-4T15GB AD800-4T18.5PB	140	355	210	370	190	M6	Fig2
AD800-4T18.5G AD800-4T22P AD800-4T22G AD800-4T30P AD800-4T30G AD800-4T37P	200	410	270	430	235	М6	Fig2
AD800-4T37G AD800-4T45P	200	500	290	520	265	M8	Fig2
AD800-4T45G AD800-4T55P AD800-4T55G AD800-4T75P	250	560	352	580	295	M8	Fig2

AC drive models	Install lot mm		Dimension mm				Refer	
	G	Н	Α	В	С	mm	ence.	
AD800-4T75G AD800-4T93P AD800-4T93G AD800-4T110P AD800-4T110G AD800-4T132P	300	700	458	720	320	M8	Fig2	
AD800-4T132G AD800-4T160P	400	700	500	700			F: 0	
AD800-4T160G-C AD800-4T185P-C	400	700	508	720	360	M8	Fig 2	
AD800-4T160G AD800-4T185P AD800-4T185G AD800-4T200P	490	-	550	1160	370	M12	Fig 2	
AD800-4T200G AD800-4T220P AD800-4T220G AD800-4T250P	530	-	590	1270	390	M12	Fig 3	
AD800-4T250G AD800-4T280P AD800-4T280G AD800-4T315P AD800-4T315G AD800-4T355P	660	<u> </u>	710	1450	410	M12	Fig 3	
AD800-4T355G AD800-4T400P AD800-4T400G AD800-4T450P	770	9 55 6	832	1850	410	M16	Fig 3	



Application.

AD series high performance inverter better being used in various application with high accuracy speed control quick torque response and starting torque.

Textile: P-jump Winders, Extruders, Tufting Machines, spinning machine

Packaging: In-feed / Out-feed, Case Packing, Bottling & Canning, Carton Manufacturing. Beverage packing

Plastics & Rubber: Extruders, Blow Molding, Thermoforming, Injection Molding.

Pulp & Paper: Paper Machines, Debarkers, Winders, Saw Mills

Converting: Coaters ,Laminators ,Slitters ,

Flying Cutters

Air Handling: Supply and Return Fans, Cooling Towers, Spray Booths, Dryers

Oil & Gas: Top Drives ,Pumpjacks, Down-hole Pumping Centrifuges

Material Handling: Conveyors, Sortation,

Palletizers, Coil Winding

Metals: Stamping / Punch Press, Wind /Unwind, Cut-to-length,cable drawing.

Wire Draw

Construction Materials: Kilns, Planers, Flying Cutoff, Mixers

Laundry: Dryers, Extractors, Folders, Washers

Food & Beverage: Conveyors, Fillers, Mixers, Centrifuges

Automotive: Stamping, Test Stands, Indexing, Metal Cutting

Construction crane, hoist, lifting,







AD100 Mini Frequency Inverter.

AD100 is a small and economical type inverter, which designed for small machine OEM general purpose application. The good performance of V/F control mode, multiple segment speed, flexible and accuracy PID, DC braking function, ModBus communication, that will make you machine become powerful and improving his competitive edge.

Power range: 0.4 to 1.5kw

Input voltage: single phase 220V ±15%

Control mode: Sensorless vector control without PG, V/f control

Protection function: Provide up to 25 kinds fault protection, over current, over voltage, under voltage, phase

missing, overload protection function

Cooling method: force cooling Installation method: wall mount

IPM iGBT using

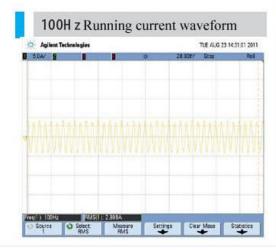


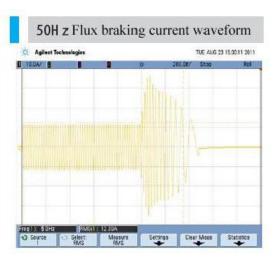






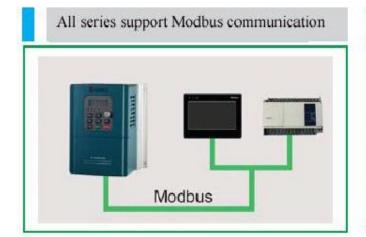
Good performance for smaller machine.







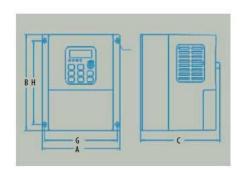
Built in RS485 interface for forming communication easily.



Multiple keypad connection is availabe



Data sheet.



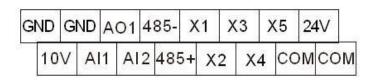
Modes	G	Н	A	В	C
AD 100-250.4 ⁻ 2.2G	117	135	125	155	130
AD 350-2S0.4 ⁻ 2.2G AD 350-4T0.75 ⁻ 3.7G	117	135	125	155	130
AD350-5.5 ⁷ .5G	•••				
AD 350-11-15G					

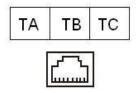
Wiring diagram

It has 5 digital input, DI5 can use for high pulse train inut.

- 2 analog signal input,
- 1 analog output and
- 1 relay output.

Terminals diagram:





Wiring diagram see AD350 chapter.



AD350 High Performance Sensorless Vector Control Inverter

AD350 high performance vector control mini frequency inverter is KEWO independently developed new generation general purpose electrical motor controller, which adopt the same software platform as same as AD800.

With a new generation of high-performance advanced vector control technology applying, high torque control even under low speed, high speed precision, quick torque response and high speed range are available for sophisticated motor control.

It is featured to have modular design, small size, small temperature rise, low noise, and reliable performance. It has built in simple PLC, PID adjusting, programmable input and output terminals function, RS458 terminals, multi function analog input and output function. ect.

Power range: 2S 0.4 to 2.2kw, 4T 0.75 to 3.7kw.

Input voltage: Single phase 220V, 3 phase 380V ±15%

Control mode: Sensorless vector control without PG, V/f control

Protection function: Provide up to 25 kinds fault protection, over current, over voltage, under voltage, phase

missing, overload protection function

Cooling method: force cooling Installation method: wall mount

Infineon iGBT module



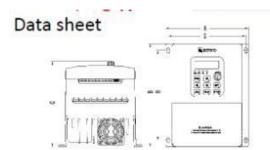






AD350 Sensorless Vector Control Inverter

Products dimension



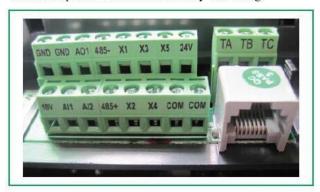
AC drive models	Install lot mm		Dimension mm			Bolt	Deference
AC drive models	G	Н	Α	В	С	mm	Reference.
		AD3	50 seri	es			
AD350-2S0.4GB~ AD350-2S2.2GB	447	105	105	455	120		Fig. 4
AD350-4T0.75GB~ AD350-4T3.7GB	117	135	125	155	130	M4	Fig.1



Products features:

AD350 inverter has the same software and same operation manual as AD800. Only the size and I/O layout is difference.

Clear silk print of terminal mark easy for wiring



Flanging design for easy installation



Heat sink and bottom housing together for better heat dissipation, the side anti-dust cloth is option.



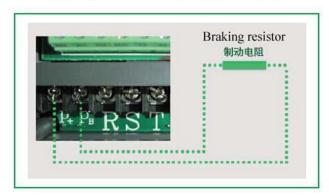
Adopting new generation IGBT module, all Kewo AC drive usnig IGBT module for quality guarantee.



Thick PCBA coating for hard environment using



Bunit it braking unit for full power range of AC350.



^{*}AD350 sensorless vector control inverter can't performance close loop vector control because there are no PG connector.



Wiring diagram

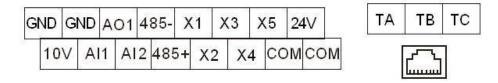
It has 5 digital input, DI5 can use for high pulse train input

2 analog signal input,

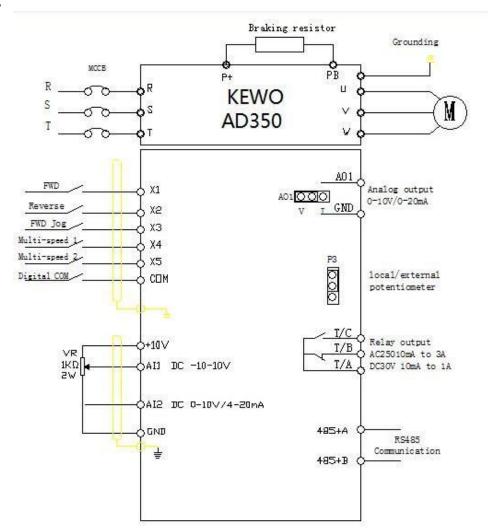
1 analog output and 1 relay output.

In built Rs485 terminal

Terminals diagram:



Wiring diagram.





AD100/AD350 frequency inverter application examples.

1. Food processing machinery

Bakery equipment, confectionary equipment, tea-making machine, noodle-making machines, candy-wrapping machines, rice/barely milling machines, flour milling machines, food mixers, food slicers, fruit sorting machines, etc.

Advantage:

- You can set the operating frequency according to the required work rate.
- Run and Stop keys.
- Ensures safety in the event of an instantaneous powerfailure.
- Low noise
- High torque from start up to the rated speed.

2. Conveyance machinery

Conveyors, automatic warehousing systems etc. Prevent the collapse of cargo on the conveyor.

The AD100/AD350 allow you to mitigate the shocks caused in starting and stopping a conveyor and change the acceleration /deceleration rates according to the conveyor characteristics and its applications.

The AD100/AD350 can slow down a high –inertia machine in a short period of time without causing an overvoltage trip by increasing the energy consumed by the motor.

The AD100/AD350 can turn on and off the braking circuitry in accordance with the inverter operating status. It offers vector control and automatic torque boost control modes to achieve strong, stable torque from the start of a motor to the rated speed.

3. Fans & pumps

Built in fans- pumps in industrial machines, water supply and sewage systems, driers, etc.

Energy-saving mode

The variable torque and automatic energy saving modes help saving energy by passing optimal current in accordance with the load.

Automatic process control

Allows a motor to keep running and accelerate smoothly upon the recovery of power even in the event of instantaneous power failure.

Enable an uninterrupted operation without causing a trip.

.4 Health, medical and nursing care equipment.

Stair lifts, nursing bed, bubble baths, health care equipment, medical equipment

5. Environment and daily-life-related machinery

Commercial ironing boards, car washing machines, Garbage disposers, dust collectors, Dries, etc.

6. Packing machinery.

Inner packaging machine, packing machines, output packing machines, membrane packing machines



The AD100 economic VFD share the same software plat, the same cover, same size and same manual. The big difference is power board difference.

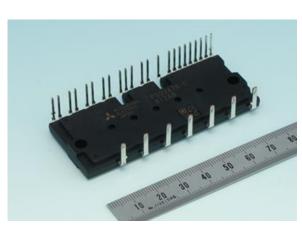
AD100 use IPM IGBT, but AD350 use the iGBT module.



AD350 use iGBT module.







AD100 using the IPM iGBT, but AD350 use Infineon IGBT module

So the AD350 can used in hot temperature for a long time, and have longer service life span compare to AD100. AD350 have single phase 220V and 3 phase 220V model. AD350 have 4T, 380V model from 0.75kw to 4.0kw.

But AD100 only have single phase 220V input, 0.75kw to 1.5kw.



AD800S Frequency Inverter For PMSM

AD800S is a high performance vector control frequency inverter, which used to for speed and torque control for permanent magnet synchronous motor (PMSM). It has large torque output under low speed, good dynamic responsive and strong overload capability with high performance vector control technology.

It can compatible kinds of PG cards, multiple function and perfect performance.

AD800S developed base on AD800, the performance as good as AD800.

Power Range: 0.75kw to 400kw Input Voltage: 323 to 437VAC

Control Mode: Sensorless vector control without PG, sensor control with PG for PMSM or general induction motor.

Starting Torque: 2% rated speed with 100% rated torque (SVC), 0Hz with 180% rated torque (CVC)

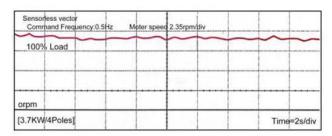
Maximum Frequency: 0 to 500Hz.Maximum frequency: 0 to 500Hz.

Installation Mode: Wall mount/ Floor standard cabinet.

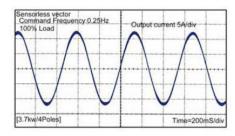
Wide speed control range:

Speed and current waveform in sensorless open loop vector control mode.

Sensorless without PG mode: 0.5 to 400Hz (1:100/50Hz)



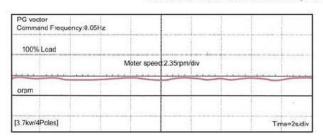




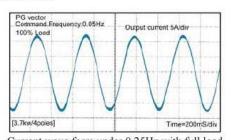
The current waveform with 100% load under 0.25Hz

Speed and current waveform in sensor close loop vector control mode.

PG sensor vector control mode: 0,5 to 400Hz (1:100/50Hz datum)



Speed wave form under 0.25Hz with full load in sensor close loop mode



Current wave form under 0.25Hz with full load in sensor close loop mode



Enhanced the speed response with adopt 32 bit DSP.

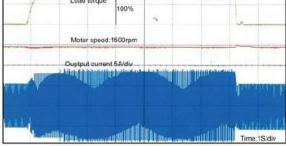
High speed data processing and calculating capability to improve the speed response of inverter.

Sensorless vector control mode: response 100 rad/s, accuracy ±0.5%. Load torque 100% Moter speed:1500rpm

Impact load response characteristic (Senserless without PG)

Load torque 100%

Sensor vector control mode: response 250rad/s, accuracy +0.01%

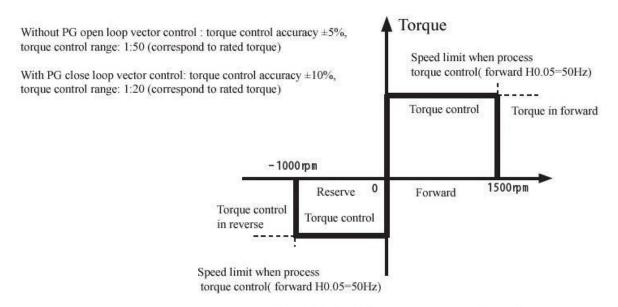


Impact load response characteristic (Senserless with PG)

Stand built it torque control function.

The torque control, that developed based on vector control, uses to control motor torque output directly. The torque limit, limit range, speed limit can be set for preventing mechanical and transmission broken.

Time:1S/div



Speed Imimit in torque control mode



Technical Specification:

function desc	ribe	specification
Input	input voltage	323V to 528V
	input frequency	50Hz/60Hz, allowable range 47 to 63Hz
output	output (V)	0 to input voltage
	frequency (Hz)	0 to 500Hz
technical	control mode	V/F, sensorless vector control mode
specification	motor type	synchronous motor
	speed ratio	PMSM 1:20 (SVC)
	speed control accuracy	±0.2% (sensorless vector control)
	speed fluctuation	±0.3% (sensorless vector control)
	torque response	< 20ms (SVC)
	torque control accuracy	<10% (SVC)
	starting torque	induction motor: 0.25Hz/150% (SVC)
		PMSM: 2.5Hz/150% (SVC)
	Overload tolerance	150% rated current 60s
		180% rated current 10s
		200% rated current 1s
running	Frequency reference	digital setting, analog setting, pulse setting,
specification		multiple segment, sample PLC, PID setting,
		Modbus, profibus, auxiliary and main combination
	voltage auto regulation	keep output voltage in constant value when grid
		fluctuation
	fault protection function	Providing up to 30 kinds protections such as over
		current, over voltage, under voltage, phase
		missing, over load. Fault record and fault
		automatically reset is available.
	speed tracking	provide smooth start when motor has a same
		speed running.



SD800 Sealed Frequency Inverter (IP54 water proof, dust proof)

Brief Introduction:

This SD800 sealed frequency inverter is enhanced version of AD800 series frequency inverter, built in with IP54 protection grade. With excellent in anti-dust, water proof, anti-grease and anti-corrosion properties, the SD800 sealed inverter is widely used in printing and dyeing, textile, cement, coal, ceramics industries and other harsh industrial conditions with heavy dust, moisture and high temperature.

Specification, voltage rating, power rating

220V (single-phase power) 0.4-2.2kW 380V (three-phase power) 0.75-30kW









SD800 Sealed Frequency Inverter

Key product features.

- High performance flux vector control for IM and PMSM
- Excellent quick response with vector control
- High starting torque even under low speed.
- Torque limit for machine safety protection
- Rapid current limit, up to 20 kinds protection function.
- Latest generation Infineon IGBT modules using

Outstanding motor control performance

- Torque respond speed ≤5ms in OLV without PG
- Wide input voltage range, and work above 45[°]C is available
- Outstanding overload capacity, 150% rated current for 60s, 180% rated current for 3s, 200% rated current for instantaneous.
- Speed range 1:100 (SFVC), 1:1000 (CLVC)
- Startup torque, G type: 0.5 Hz/150% (SFVC); 0 Hz/180% (CLVC), P type: 0.5 Hz/100%
- Torque control accuracy, ± 5% (CLVC)



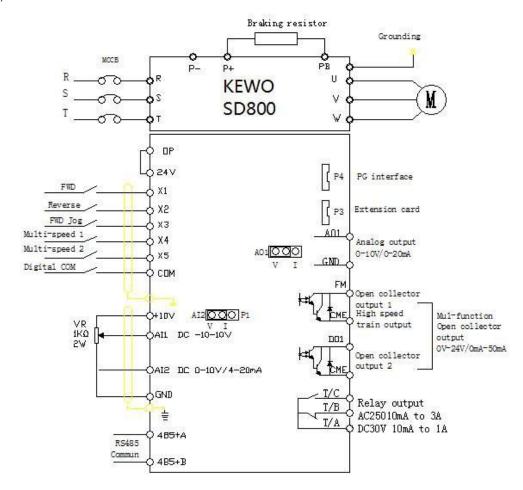
Hardware enhanced features.

- 1. Ti 's 32 bit DSP (28034/35), Germany Infineon intelligent modules;
- 2. Sealed cabinet, conformal coating on PCB;
- 3. Adopt using aviation plugs that have good quality water proof, gas and oil proof. (options)
- 4. Imported high-speed ventilation fan with 24V DC power supply, good cooling effect;
- 5. Lower failure rate and long service lift

lacktriangle

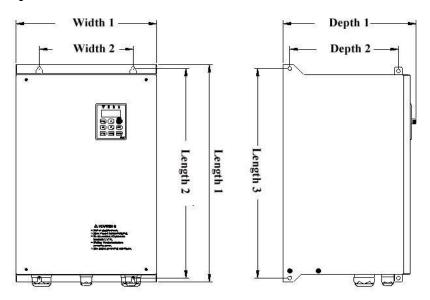
Wiring diagram of SD800. (the same as AD800 series)

- It has 5 digital I/O input, compatible sink and source way. (PNP an NPN)
- 2 Analog input, support -10V to 10V, 0-10V, 0/4 to 20mA.
- 1 Analog output (0-10V/0-20mAis selectable)
- 2 collector output (FM and CME support the high pulse output).
- 1 relay output.
- Extension PG, I/O card are available.





SD800 Sealed frequency inverter external and installation dimension



Models	Power	L1	W1	D1	L2	W2	L3	D2	SLOT HOLE
		Exter	nal siz	e	Install	size 1	Install	size 2	
SD800-4T0.7/3.7GB	0.75-3.7kw,380V	230	130	177	215	90	215	140	M5
SD800-4T5.5/7.5GB	5.5-7.5KW,380V	320	180	210	305	120	305	170	M5
SD800-4T11.0/15GB	11-15kw, 380V	390	230	225	375	160	375	180	M6
SD800-18.5/22/30G	18.5-30kw, 380V	390	230	225	375	160	375	180	M6

Applications

Metal processing, CNC tooling machine, cable drawing machine.

Boiler air blower, induced draft fan, exhaust fan

municipal Construction, HVAC

circulating water pump, Fill pump, fuel delivery pump

papermaking equipment, chemical industry, pharmaceutical industry, textile industry



AS850-Z Hybrid Servo Drive For PMSM Of Injection Molding Machine

AS850Z series servo drive for permanent magnet synchronous motor (PMSM), is KEWO own developed hydraulic electric servo drive system for injection molding machine energy saving. It has following advantage, high energy saving, high power factor, quick response and high accuracy control, etc. AS850Z has powerful overload capability even under low speed, 180% rated torque for 30s under 0 speed is possible to ensure good pressure keeping ability.

Output frequency range: 0 to 400Hz.

Input voltage: 3 phase 380V±15%, 2.2kw to 90kw

Pressure signal reference: external analog 0-10V, 0-1A.

Protection function: Input phase missing, input under voltage, over voltage, over current, over load, over heat,

external disturbing.

Cooling method: force cooling

Mount: Wall mount

Function features

Energy saving: up to 60% energy saving compare to traditional fixed pump system. 75% is possible be achieved according to difference injection condition.

Lower oil temperature: reduce 5-10 degrees

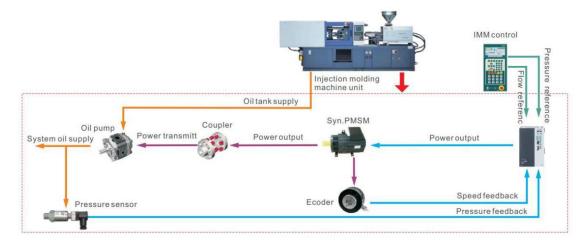
High repeated accuracy: To achieve high accuracy flow and pressure control

Long pressure holding time: It is favorable for big wall thickness.

Quick response: frequency response up to 50ms.

Enhanced features:

- 1. Design the signal correction algorithm and match to work high performance under low speed characteristic to solve the creep problem of IMM. Because his given signal reference is nonlinearity characteristic.
- 2. Due to switching frequently in flow control mode, so we adopt fuzzy control to realize smooth switch of flow and pressure control.
- 3. Adopt flow control with pressure compensation to eliminate effect of flow estimate accuracy.
- 4. Adopt noise control method to reduce the fluctuation of output pressure of oil pump.
- 5. Monitoring temperature of motor and drive in whole journey, parameters adjusting in real time



System connection for energy saving with hybrid servo drive

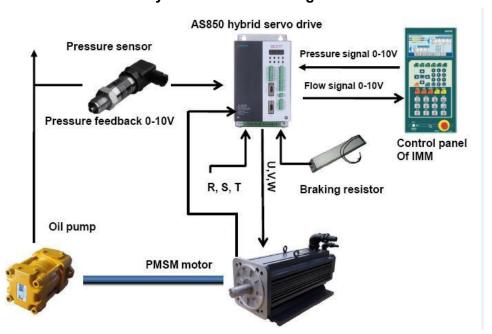


Energy saving comparison diagram



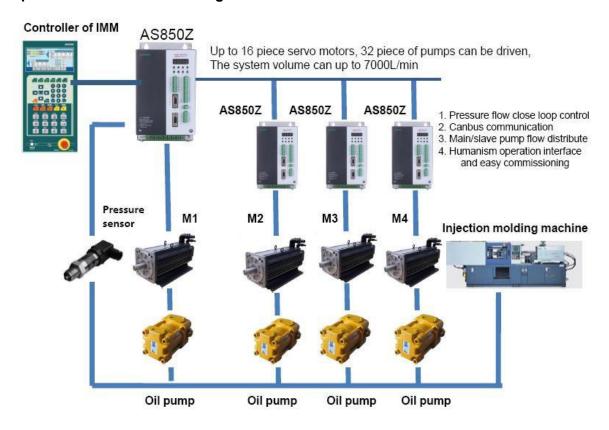
The injection molding machine power consume take up 75% of system total in traditional constant flow of IMM. It need difference flow and pressure during difference working stage of IMM such as mold close, injection, pressure holding, molding open. When the required over the setting pressure and flow, the flow and pressure will be adjusted by relief valve or proportional valve. this process call high pressure throttling. Up to 40-75% energy wasting during this stage.

System connection diagram

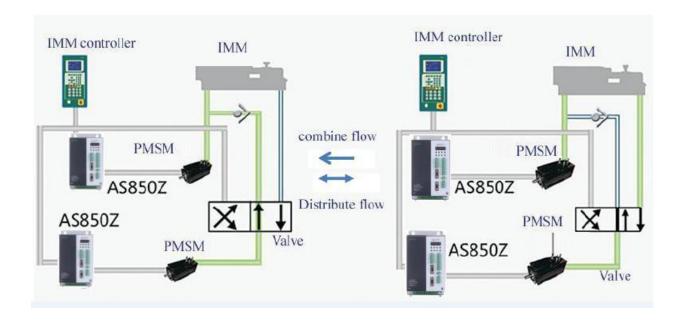




Multiple pumps combine flow control diagram



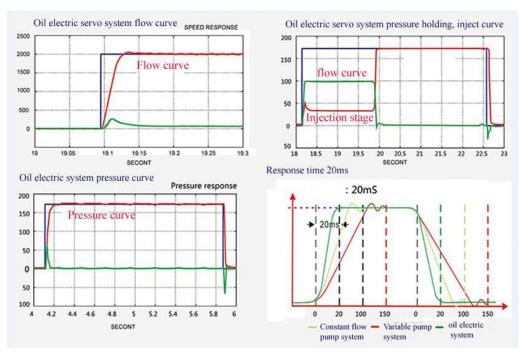
Multiple pumps compound control compound control





Oil servo drive system performance.

System curve of Kewo AD850Z servo drive in IMM application



Technical data

cai data					
	Items	Description			
Input	Rated voltage range	3 phase 380V±15%			
	rated frequency	50/60Hz			
Output	rated voltage range	output 0 to 380V			
	rated frequency	0.00 to 400.00Hz			
mounting	wall mounting with IP20	wall mounting with IP20			
Cooling	force cooling				
method					
Encoder	Rotary transformer				
	Pressure reference	External analog signal (0-10V)			
	Flow reference	External analog signal (0-10V)			
	pressure feedback	External analgo (0-10V or 4-20mA)			
	Control input	9 channel insulation input			
	control output	3 channel insulation input			
	analog output	1 channel output			
Protection	Phase missing input, under	voltage input, over voltage input, over current,			
function	overload of drive, overheat of	of motor, external interference encoder fault.			
Display	current output display, curre	nt rotation, current output current, output voltage,			
	fault alarm, operation param	eters, running status.			



		www.newonive
	using place	Indoor, no sunlight exposure, no dusty,
		corrosive atmosphere, no flammable gas, no
		water dip and not salt.
	Environment temperature	"-10 ℃ to 50℃
	Environment humidity	90% below(no condensation)
	shock intensive	0.5g(acceleration) below
	altitude	1000 below.
	Items	Description
Input	Rated voltage range	3 phase 380V±15%
	rated frequency	50/60Hz
Output	rated voltafe range	output 0 to 380V
	rated frequency	0.00 to 400.00Hz
mounting	wall mounting with IP20	
Cool method	force cooling, fans control is	available
Encoder	Rotary transformer	
	Pressure reference	External analog signal (0-10V)
	Flow reference	External analog signal (0-10V)
	pressure feedback	External analog (0-10V or 4-20mA)
	Control input	9 channel insulation input
	control output	3 channel insulation input
	analog output	1 channel output
Protection	Phase missing input, under	voltage input, over voltage input, over current,
function	• •	of motor, external interference, encoder fault.
Display	current output display, current	nt rotation, current output current, output voltage,
ызріау	fault alarm, operation param	
	ladit didim, operation param	eters, running status.
	using place	Indoor, no sunlight exposure, no dusty,
		corrosive atmosphere, no flammable gas, no
		water dip and not salt.
	Environment temperature	"-10 ℃ to 50℃
	Environment humidity	90% below(no condensation)
	shock intensive	0.5g(acceleration) below
	altitude	1000 below.
		1



Model selection

Servo drive	Input	Rated	rated	Rated	braking	braking	Braking
model	voltage	output	input	output	resistor	resistor (Ω)	unit
		power (KW)	power	current	power		
			(A)	(A)	selecting		
AS850Z4T017	3	7.5	20.5	17	1000	>90	built in
AS850Z4T025	phase	11	26	25	1000	>40	
AS850Z4T032	380V	15	35	32	1000	>32	
AS850Z4T037		18.5	38.5	37	2500	>32	
AS850Z4T45		22	46.5	45	2500	>16	external
AS850Z4T60		30	62	60	2500	>16	connect
AS850Z4T75		37	76	75	5000	>8	
AS850Z4T91		45	92	91	5000	>8	
AS850Z4T112		55	113	110	5000	>8	
AS850Z4T150		75	157	150	5000	>8	
AS850Z4T175		93	180	175	5000*2	>8*2	
AS850Z4T210		110	214	210	5000*2	>8*2	
AS850Z4T250		132	256	250	5000*2	>8*2	
AS850Z4T300		160	307	300	5000*2	>8*2	

Application:

- 1. Injection molding machine
- 2. pressure die casting machine
- 3 . brick machine
- 4. shoes machinery
- 5. Pressing machine

- 6. Aluminum extrusion machine
- 7. Hydraulic, CNC punching machine
- 8. Civil engineering machine
- 9. Other hydraulic machinery





AS850T Spindle Servo Drive (Spindle Frequency Inverter)

AS850T is a new tailor made spindle controlling frequency inverter (servo drive) for CNC, machining center, packing, textile, etc. It can achieve to high accuracy speed, torque and position control through close loop servo control, which based on brand new hard ware and soft ware platform.

Perfect performance and powerful function is your machine best selection.

Production Name: AS850T Spindle Servo Drive (Spindle Servo Frequency Inverter)

Output Frequency Range: 0 To 1000Hz.

Input Voltage: 3 Phase 380V±15%, 2.2kw To 75kw.

Control Mode: Current/Flux Vector Control, Close Loop Vector Control

Protection Function: Over Current, Over Voltage, Power Module Overheat, Under Voltage, Over Load,

Input/Output Phase Missing, Motor Short Circuit Protection.

Cooling Way: Force Cooling. **Mounting Way:** Wall Mounting.

Function: Speed control, torque control, position control, synchronous pulse control.





Function features

Rigid Tapping	C Axis Function	Accuracy Stop	0 Speed Lock
Electronic CAM	Pulse Synch.	Index Plate	Low Torque at low speed



0-200% rated torque output, Strong power output



Position control ± 1 Pulse, speed Control ± 0.1%

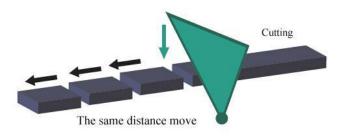
Software function

Function	Application	Purpose	function describe
points	mechanical	auto process	The servo motor will run when receiving a command, and
positioning	transmission	control	move to setting point. When arriving the set point, it will
			stop and sent a signal back
reciprocating	mechanical	auto process	Perform reciprocating movement between two points, the
position running	transmission	control	speed can be set.
multiple points	mechanical	auto process	Up to 256 points can be set. When corresponding input
positioning	transmission	control	signal is valid, motor will move to that point.
synchronous	mechanical	synchronous	The motor speed swill synchronize with the input pulses,
driving	transmission	speed control	the synchronize ratio can be set. Used in print and textile.
			Etc filed
torque control	pressing	output torque	The motor torque can be adjusted by analog input or
	machine	adjustable	communication method. Ensure every motor has the same
			torque
cut to length	transverse	auto to realize	The drive will measure the cutting length by external
	cutter,	fixed length	encoder, and calculate the initial point, it will activate cutting
		cutting	when arriving the cutting length.
parallel drive	roller rail	to realize same	To achieve the same output for every motor when multiple
		output	drives serving a load by communication mode.



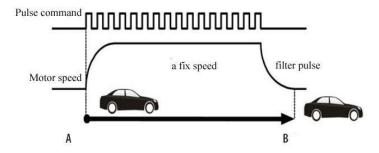
Main features of AS850 Servo Drive Points positioning control

The pulse can be set by functional code, even no pulse command, the position control of fix route can set by external terminal as well.

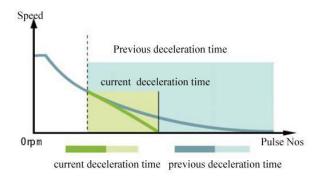


Pulse synchronization position control

To achieve high accuracy continuous route control by pulse train, also can realized multiple motor synchronous speed control by pulse train.



Reduce the speed response effectively by variable gain control. Compare to previous products, the deceleration time reduce sharply.



Zero speed servo control

It will automatically go to 0 speed servo control status and keep still when motor speed low to 0 value. AS850T can output 180% rated torque output with PG connection.

Electric gear

Through gear ratio of electric gear setting, can set motor movement value that equivalent to input pulse freely. Configure 4 groups electric gear, it can be set freely by terminal configuring.



Good spray paint for all PCBA to ensure can work in hard environment.



Plug able terminals for easy wiring.





Control mode of AS850 AC Servo Drive

Speed Control Mode

Speed control range: 1:5000
Speed control precision: ± 0.1%
Frequency resolution: 0.01Hz
Constant torque output







Positioning control mode

Positioning control accuracy:±1 pulse.
Positioning control range: 4 Byte pulse, starting, braking, stop curve can be adjustable







Torque Control

Constant torque output under basic frequency

Torque control range 0 to 300% rated torque,

Torque control precision: ± 5% Torque keeping under 0 speed







Synchronous control

Master and slave control, or control multiple servo motors by external PG card to realized same speed control, electronic gear, following speed accuracy ±1 pulse.







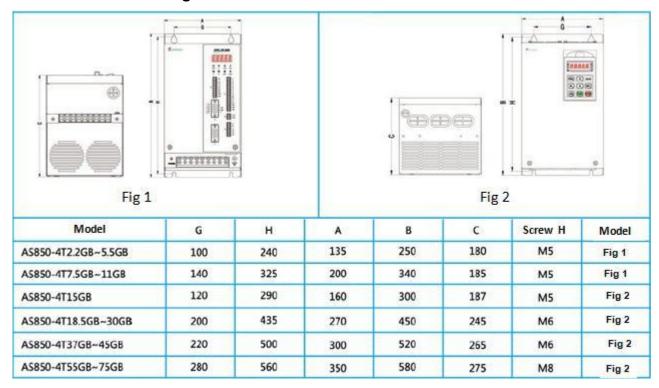
Technical specification

Technical	Technical Specification				
Input	rate voltage	380V+ 10% -15%			
	rated frequency	50/60Hz			
Output	output voltage	0-380V			
	output frequency range	0-1000Hz			
Control	control mode	current/flux, close loop vector control			
feature	starting torque	0.0Hz 180%			
	torque limit	0-200% rated motor torque			
	torque control accuracy	±5%			
	speed control ratio	"1:5000			



	speed control accuracy	±0.1%
	position accuracy	±pulse no.s
	accel./decel. control	0.05 to 3000Hz
	braking mode	Dynamic braking, built it braking unit
	over load capability	150% rated load for 3 min, 200% for 3s
	analog input	3 ways, -10V to 10V, 0-10V/4-20mA
	analog output	0-10V/4-20mA
	Programmable digital	9 ways digital input, NPN/PNP acceptable
	input	
	Programmable external	pulse+ director, quadrature pulse
	pulse input	
	protection function	over current, over voltage, overheat, under voltage, phase
		missing, motor short circuit.
environment	temperature	"-25℃to 45℃
	humidity	< 90% RH, Non-condensate
	Vibration	below 20Hz, 1G, 20 to 5Hz,, 0.2G
	Heat dissipation	force cooling
	protection grade	IP20,

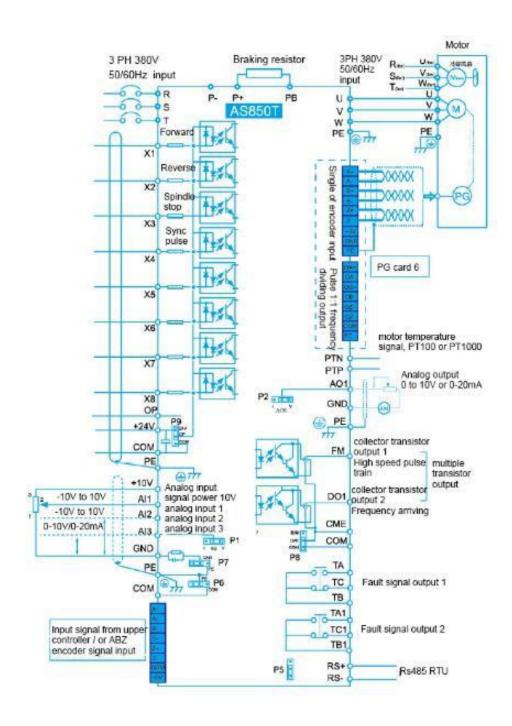
Dimension and selecting.





Wiring diagram

- 1. 8 digital input,
- 2. built in Can bus, built it PG card, Modbus card
- 3. 3 analog input, 2 collector output, 2 relay output, 1 analog output. PT100 temperature sensor connection



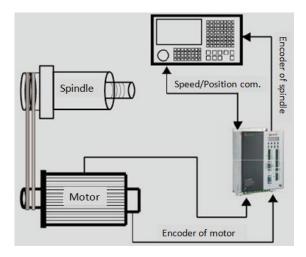


Application Illustrates

Application A of CNC filed.

Application features: belt transmission, suits for all CNC system

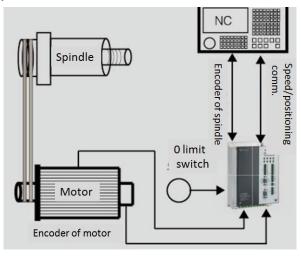
Function features: speed control for spindle, torque switchover under low speed, fast for acceleration and delectation, energy saving up to 80% when driving no load.



Application B For CNC Machine

Application features: synchronous transmission, not request 0 limit switch when drive ratio is 1:1 for Caxis of CNC machine.

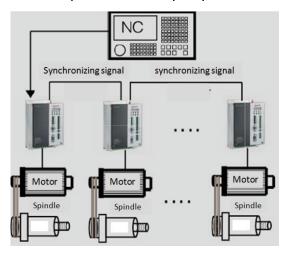
Function features: speed control for spindle, torque switchover under low speed, fast for acceleration and delectation, energy saving up to 80% when driving no load.



Application Of Synchronous Of Multiple Spindle

Application features: suits for application which there are multiple spindles in one CNC machine, drove by difference motor.

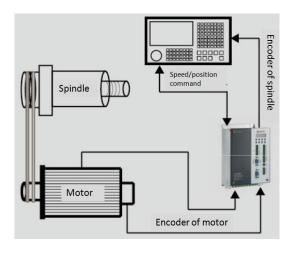
Function features: To realized synchronous speed or synchronous position of multiple spindle.



Application of CNC CNC milling machine

Application features: it can make 1:1 driving ratio for all CNC system.

Function features: speed/position control of spindle, pulse/ position control, accuracy stop, rigid tapping





EM-GJ3 Digital Soft Starter

EM-GJ motor soft starter is a new type motor starting and protection device that is integrated with power electronic technology, microprocessor and automatic control. This soft starter is able to steadily start and stop motor without step change so as to avoid mechanical or electric impact resulted from using conventional starting modes such as direct starting, star-delta starting and auto voltage reducing starting, and effectively reduce starting current and distribution capacity for fear of more investment on capacity expansion.

Specification:

Control power: AC110V--220V+15%

Three-phase power supply: AC380V, 660V,

1140V±30%

Nominal current: 15A----1000A, totally 22 kinds of

rated values.

Applicable motor: General squirrel cage

asynchronous motor, 3 phase AC induction motor

Features:

Multiple starting modes

Current-limiting start, ramp current-limiting start and voltage ramp start can meet the site requirements to the maximum extent and realize the best starting effect.

High reliability

High performance microprocessor conducts digital processing for signals in control system, avoiding the excessive adjustment to analog line so as to obtain the best precision and execution speed.

Powerful anti-interference performance

All external control signals adopt optoelectronic isolation and are set with different anti-noise levels. The device is applicable for use in special industrial environment.

Optimized structure

The unique compact structure is designed to be easily integrated into user's existing system, saving expenses for restructuring of system.

Motor protection

Multiple motor protection functions such as over-current, input/output phase-failure, short circuit of thyristor and overheat protection can guarantee motor soft starter not to be damaged in case of fault or incorrect operation.

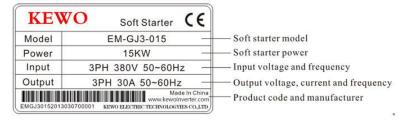
Easy maintenance

Pilot signal coding system composed of 4-digit number display monitors working condition

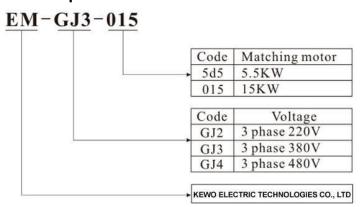
Typical Applications

- Bow Thruster,
- Compressor,
- Elevator,
 - Centrifugal pump
- Conveyor belt
- Mixer, Centrifugal fan,
- Crusher Mill
- Conveyor belt (long)
- Stirrer

Nameplate explanation



Model explanation:



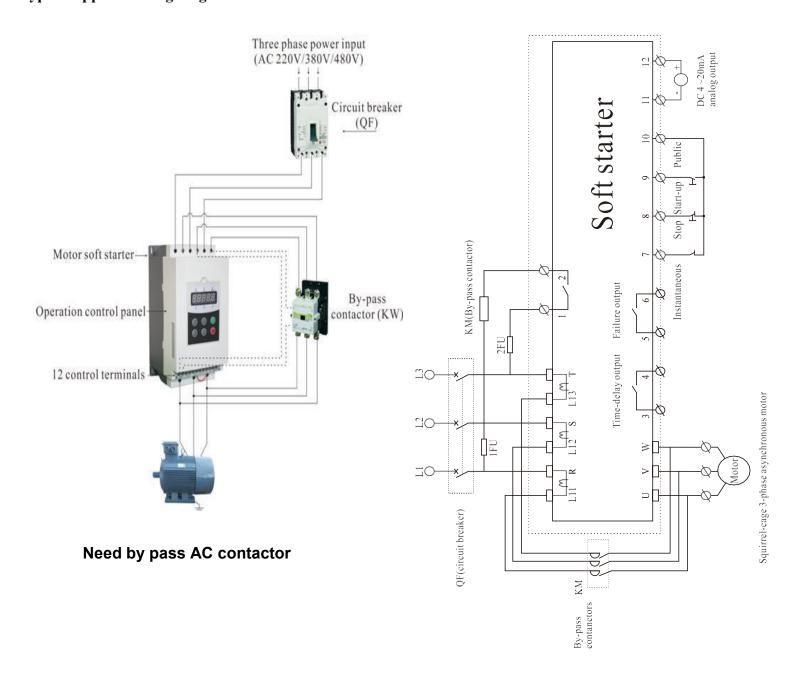


Technical Specification

I	tem	Description					
Innut Dawar Cumply	Input Voltage	Three-phase 220V/380V/480V/660 AC					
Input Power Supply	Frequency	50/60Hz					
Adaptive Motor		Squirrel-cage three-phase asynchronous motor					
Starting Times		It is recommended not to exceed 20 times per hour.					
Control Mode		(1). Operation panel control.(2) Operation panel + external control. 3) External control.(4) External control + COM control. (5) Operation panel + external + COM control.(6) Operation panel + COM control. (7) COM control. (8) No start or stop operation.					
Start Mode		(1) Current-limiting to start. (2) Voltage ramp to start. (3) Torque control + current-limiting to start. (4) Torque control + voltage ramp to start. (5) Current ramp to start. (6) Voltage current-limiting double closed-loop start.					
Stop Mode		(1) Soft stop. (2) Free stop.					
Protective Function		 (1) Open loop protection for external instantaneous stop terminals. (2) Over-heat protection for soft starter. (3) Protection for too long starting time. (4) Input open phase protection. (5) Output open phase protection. (6) Unbalanced three-phase protection. (7) starting over current protection. (8) Running overload protection. (9) Under voltage protection for power voltage. (10) Over voltage protection for power voltage. (11) Protection for fault parameter setting. (12) Load short circuit protection. (13) Auto restart or incorrect wiring protection. (14) Incorrect wiring protection of external control stop terminals. 					
	Place to be used	Indoor location with good ventilation free from corrosive gas and conductive dust. Below 1000M. It have to rise the rate power when the altitude is more than					
Ambient	Altitude	1000M.					
7 miorent	Temperature	-30 +55 °C					
	Humidity	90%RH without dew condensation.					
	Vibration	<0.5G					
Structure	Protection Class	IP20					
Structure	Cooling Pattern	Natural wind cooling.					



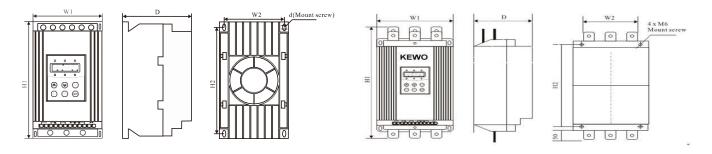
Typical applied wiring diagram





The installation dimensions

The external shape and installation dimensions of $5.5 \text{KW} \sim 75 \text{kw}$.



Model			Power	Current	External Dimensi		nm)	Install Dimer	ation nsions (mn	n)	N.W
220V	380V	480V	(KW)	(A)	H1	W1	D	H2	W2	d	(K.G)
	EM-GJ3-5d5	EM-GJ4-5d5	5.5	11	270	146	160	248	132	M7	<5
	EM-GJ3-7d5	EM-GJ4-7d5	7.5	15	270	146	160	248	132	M7	<5
EM-GJ2-5d5	EM-GJ3-011	EM-GJ4-011	5.5/11	23	270	146	160	248	132	M7	<5
EM-GJ2-7d5	EM-GJ3-015	EM-GJ4-015	7.5/15	30	270	146	160	248	132	M7	<5
	EM-GJ3-018	EM-GJ4-018	18.5	37	270	146	160	248	132	M7	<5
EM-GJ2-011	EM-GJ3-022	EM-GJ4-022	11/22	43	270	146	160	248	132	M7	<5
EM-GJ2-015	EM-GJ3-030	EM-GJ4-030	15/30	60	270	146	160	248	132	M7	<5
EM-GJ2-018	EM-GJ3-037	EM-GJ4-037	18.5/37	75	270	146	160	248	132	M7	<5
EM-GJ2-022	EM-GJ3-045	EM-GJ4-045	22/45	90	270	146	160	248	132	M7	<5
EM-GJ2-030	EM-GJ3-055	EM-GJ4-055	30/55	110	270	146	160	248	132	M7	<5
EM-GJ2-037	EM-GJ3-075	EM-GJ4-075	37/75	150	270	146	160	248	132	M7	<5
EM-GJ2-045	EM-GJ3-090	EM-GJ4-090	45/90	180	515	257	198	382	192	M9	<21
EM-GJ2-055	EM-GJ3-115	EM-GJ4-115	55/115	230	515	257	198	382	192	M9	<21
	EM-GJ3-132	EM-GJ4-132	132	264	515	257	198	382	192	M9	<21
EM-GJ2-075	EM-GJ3-160	EM-GJ4-160	75/160	320	515	257	198	382	192	M9	<21
EM-GJ2-090	EM-GJ3-185	EM-GJ4-185	90/185	370	515	257	198	382	192	M9	<21
EM-GJ2-100	EM-GJ3-200	EM-GJ4-200	100/200	400	515	257	198	382	192	M9	<21
EM-GJ2-132	EM-GJ3-250	EM-GJ4-250	132/250	500	515	257	198	382	192	M9	<21
EM-GJ2-160	EM-GJ3-280	EM-GJ4-280	160/280	560	515	257	198	382	192	M9	<21
EM-GJ2-185	EM-GJ3-320	EM-GJ4-320	185/320	640	560	285	248	460	260	M9	<25
	EM-GJ3-355	EM-GJ4-355	320	640	560	285	248	460	260	M9	<25
EM-GJ2-200	EM-GJ3-400	EM-GJ4-400	200/400	800	590	331	248	497	265	M9	<30
EM-GJ2-220	EM-GJ3-450	EM-GJ4-450	220/450	900	590	331	248	497	265	M9	<30
EM-GJ2-250	EM-GJ3-500	EM-GJ4-500	250/500	1000	665	410	248	547	345	M9	<42
EM-GJ2-315	EM-GJ3-600	EM-GJ4-600	315/600	1200	665	410	248	547	345	M9	<42



Application examples

The parameters of the different loads are different, please refer to below diagram

The loading	Voltage ramp starting time(s)	Voltage ramp stopping time(s)	Initial voltage	Voltage ramp (current limit)	Current limit to start
Ball mill machine	20	6	60%	400%	350%
Fan	26	4	30%	400%	350%
Centrifugal	16	20	40%	400%	250%
Piston compressor	16	4	40%	400%	300%
hoister	16	10	60%	400%	350%
Stirring machine	16	2	50%	400%	300%
Breaker	16	10	50%	400%	350%
Screw compressor	16	2	40%	400%	300%
Rotating conveyor	20	10	40%	400%	200%
Light load	16	2	30%	400%	300%
Convey belt	20	10	40%	400%	250%
Heat pump	16	20	40%	400%	300%

EM-GJ Soft Starter

EM-GW Online Soft Starter

Soft Start Control Panel







WE also provide other kinds soft starter, EM-GW online soft starter(no need built by pass), EM-GC soft starter cabinet built in by pass contactor, soft starter control panel...



KEWO AC drives are using in application site:

Good customer feedback, stable working with reliability performance make Kewo brand AC drive be used a lot in kinds industrial filed.



















Contact US:

SHENZHEN KEWO ELECTRIC TECHNOLOGY CO., LTD.

ADD: FACTORY ADDRESS:3 Floor, Block 8, St George Industrial Park, Xinyu Road, Sha Jing, Bao'an, Shenzhen,

Guangdong, China, 518104.

Tel: 86-755-84186866, Fax: 86-755-84186866,

Whatapp/MP: 86-18038034988;

Skype: gary.yu88

Email: service@kewoinverter.com

Web: www.kewoinverter.com



New developing simple and small VFD

AD110 Simple & small variable frequency drive

AD110 small VFD is a new and innovation small, economical type and stable running variable frequency inverter. It is focus on small power 100w to 750w 3 phase 200-240V small motor speed control.

It can provides basic function of general purpose inverter that own, such as soft start, soft stop, speed adjusting, start/stop by external terminals, speed control by analog, running in revere...etc.

We make the cost of this VFD down to limit with great power innovation technology.

And make every piece of 3 phase 220V smaller power motor with VFD control is available with low cost.

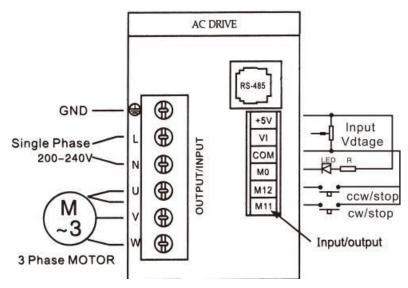


Innovation design, new construction and IPM igbt using to ensure good quality

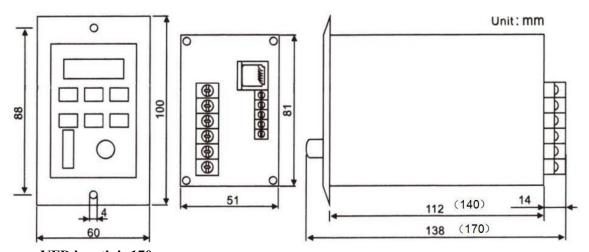
1. Specification of AD110 small and economical type 1PH, 220V input, 3 phase output VFD							
Model		AD110-2S0.1G	AD110-2S0.2G	AD110-2S0.4G	AD110-2S0.75G		
Output	Rated output power	100w	200w	400w	750w		
	Rated output current	0.8A	1.0A	2.0A	3.8A		
	Overload tolerance	150% rated current for 60s					
	Max output voltage	3 phase 240V					
Input	Rated input voltage	single phase 200- 240VAC					
	Voltage Tolerance	Single phase 180 -250VAC					
	Frequency accurace	±5%					
	Power capacity	0.8 KVA					
Cooling Method		Nature Air- Cooling					
Consumption wattage		15w -25w					



2. Basic Wiring Diagram



3. Installation and Dimensions



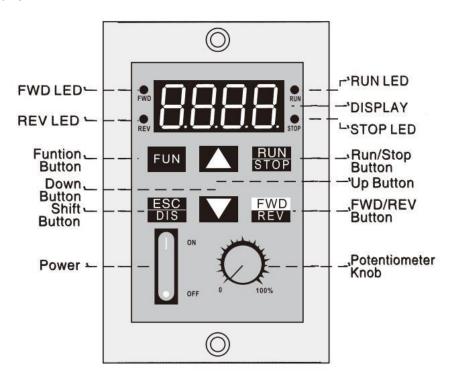
400w, 750w power VFD length is 170mm

4. Using conditions of AD110 VFD

Using conditions of AD110 VFD						
	Ambient Temperature	-10℃ to 50℃				
	Relative Humidity	< 85% (no condensation Allowed)				
Operation conditions	Atmosphere pressure	86 to 105Kpa				
	Installation Site Altitude	<1000m				
	Vibration	<20Hz				
Otana na Tuananan antatian	Air Temperature	-10℃ to 60℃				
Storage Transportation conditions	Ambient Humidity	< 90% (no condensation allowed)				
Conditions	Vibration	<20Hz				
Pollution Degree	2 Class: good for factory type environment					

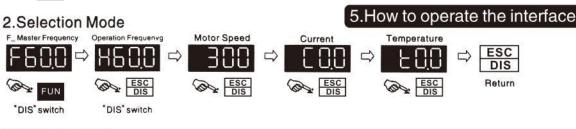


5. Setup with the front panel

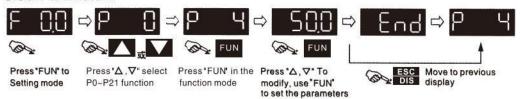


5. 6. Operation guide of keypad

ESC DIS



3.Set Parameters



4.Set Direction

FWD FWD/REV switch, when forward running FWD LED Bright, reverse running REV LED bright.

5. Error code



6. Return to Factory Setting:

Turn off the power first, keep pressing FUN button. Then turn on the power will return to Factory Setting



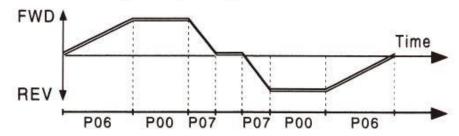
4. Summary of parameters settings of AD110

Parameter	explanation	settings	Factory setting
P00	Frequency reference	0 ~ 99Hz (unit: 0.5Hz)	
P01	source of frequency command	0: Interface keypad control 1: Interface Potentiometer 2: exterior potentiometer 3:Rs485	1
P02	Run/stop of operation command	0:interface keypad control 1:Rs485 2:Forward running while power input 3:Reverse Running while power input 4:Exterior input	0
P03	Stop method	0: Cost stop 1: Ramp stop 2: Brake stop	1
P04	Max output frequency	0 ~ 100Hz	65Hz
P05	Min Output frequency	0 ~ 100Hz	5Hz
P06	Acceleration time	0 ~ 250Hz/sec	50Hz/sec
P07	Deceleration time	0 ~ 250Hz/sec	50Hz/sec
P08	Brake lead time	0 ~3 sec	0.3 sec
P09	Brake value	0~ 60%	20%%
P10	3Hz VF value	0 ~ 50%	4%
P11	50Hz	0 ~ 99%	98%
P12	Rs485 frame ASCII	0:7E1 1:7O1 2:8N2 3:8E1 4:8O1	20%%
P13	Rs485 protocol	0:4800 1:19200 2: 9600 3: 38400	1
P14	Communication address	1 ~ 255	1
P15	MI mode selection	0: MI1 FWD/stop, MI2 REV/STop 1: MI1 RUN/stop, MI2 FWD/REV 2:MI1 RUN/Stop, MI2 Multiple-stop speed	0
P16	MO mode selection	Running indication Max output frequency arrive Fault indication	0
P17	Multiple -step speed command	P04~p05	50
P18	Frequency arrive frequency	P04~p05	50
P19	overload tolerance	1 ~ 100%	50%
P20	Temperature tolerance	1℃ ~80℃	80℃
P21	Speed proportion	0.25 ~100	1



Note:

* How to setting P06、P07 parameters



Ex: P00=50,P06=10,P07=25 mean motor in forward running while input power, after 5 seconds, reach 50Hz, 2seconds from 50Hz to 0Hz while stopping Motor in reverse running, 2 seconds reach 50Hz, and 5 seconds from 50Hz to 0Hz

Standard Motor Precaution:

- The energy loss is greater than for an inverter duty motor.
- While the motor running under lower rpm, the temperature of motor will be rising up due to the fan also running under lower rpm.
- ☑ While the motor running under lower rpm, the torque value of this
 motor will be decreased. Please don't add too much load

If you need more powerful function and multiple function variable speed drive, please get more information from AD100/AD350 and AD800.

And we also provide AS850 enhanced version VFD AC servo drive for simple position control, torque control, syn. Speed control for PMSM and IM.