

SHENZHEN KEWO ELECTRIC TECHNOLOGY CO., LTD

About us



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

KEWO AC DRIVES,

VARIABLE FREQUENCY DRIVE,

FREQUENCY INVERTER



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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)



AD100 (VFD)



AD350(VFD)



AD800(Vector Control Inverter)



Sealed VFD



AD850Z/T(Servo Drive)








Solar Pump Inverter



Soft Starters

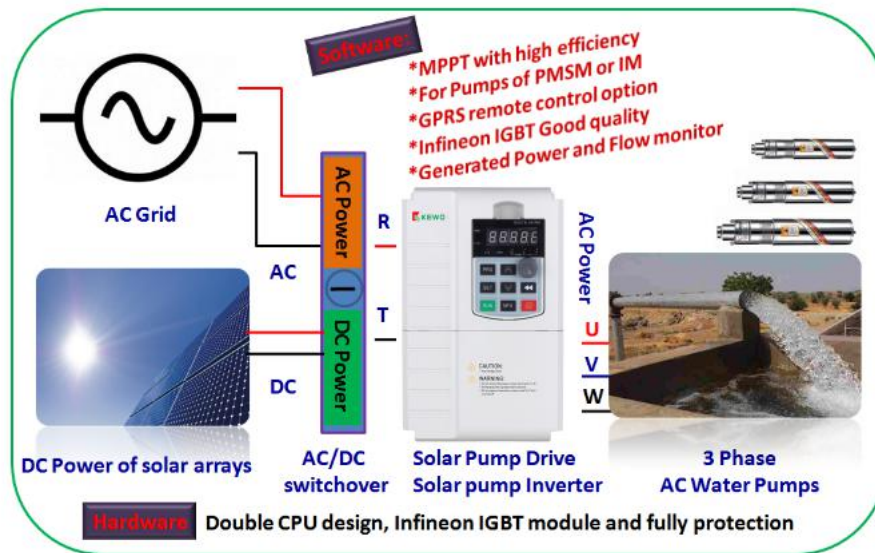
KEWO Main Products Brief Introduction

Products	Input voltage and power	Pictures	Brief introduction
AD800 Series High Performance Vector Control Drive	1Ph, 220V, 0.4kw to 2.2kw. 3Ph, 220V, 0.75kw to 75kw 3Ph, 380V/660V/1140V, 0.75 to 630kw.		Drive for PMSM and IM Accuracy speed and torque control for motor, multiple functions Sensorless vector control, sensor vector control with PG, VF control, 180% rated starting torque, big allowance IGBT module ,
AD100 Mini Economic Type AC Drive	1Phase, 220V, 0.4 to 1.5kw		Adopt software platform as same as AD800, rich functions Mini and Economic type, IPM iGBT
AD350 Mini Vector Control Drive	1/3 Ph 220V,0.4 to 2.2kw, 3 Ph,380V, 0.75 to 3.7kw		Mini drive with compact design Vector control and VF using the same software platform as AD800 IGBT module to ensure good quality
AD800S Frequency Inverter For PMSM (servo drive)	1Ph, 220V, 0.4kw to 2.2kw. 3Ph, 220V, 0.75kw to 75kw 3Ph, 380V/660V/1140V, 0.75 to 630kw.		Enhanced AD800 version, special for PMSM servo motor with sensorless or sensor control, Multiple protection function Rich functions, and flexible using PG card built in controller board
AS850 Z Servo Drive For PMSM Of IMM.	3 phase, 380V±15%, 2.2kw to 55kw		Driving f or permanent magnet synchronous motor (PMSM) for energy saving. High energy saving, high power factor, quick response and high accuracy control, etc.
AS850T Spindle Servo Drive For PMSM And IM	3 phase, 380V±15%, 2.2kw to 55kw		Spindle servo drive for CNC, machining center, packing, textile, etc. high accuracy speed, torque and position control through close loop servo control
SD800 Seal Frequency Inverter (IP54)	220V (single-phase power) 0.4-2.2kW 380V (three-phase power) 0.75-30kW		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

<p>SG300 Solar Pump Drive Or solar pump inverter</p>	<p>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)</p>		<p>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,</p>
<p>S300/320 Vector Control Frequency Inverter (Motor AC Drives)</p>	<p>1 Ph 220V input, 0.75kw to 7.5kw 3 PH 380v, 0.75kw to 37kw</p>		<p>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.</p>
<p>EM-GJ3 Soft start (need match by pass contactor to work)</p>	<p>1PH 220V+15% , 11kw to 90kw 3 Ph AC380V, 480V, 660V, 1140V±30%, 0.75kw to 630kw</p>		<p>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.</p>
<p>EM-GW Online Soft Starter(no need by pass contactor)</p>	<p>220V+15% , 11kw to 90kw 3 phase AC380V, 480V, 660V, 1140V±30%, 0.75kw to 630kw</p>		<p>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.</p>
<p>GS3I online soft starter control panel</p>	<p>220V+15% , 11kw to 90kw 3 phase AC380V, 480V, 660V, 1140V±30%, 0.75kw to 630kw</p>		<p>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.</p>
<p>Accessories</p> <p>1. PG card, keypad, keypad cable, electrical components of inverter...</p> <p>2.AC chock, DC cock, braking unit, braking resistor</p> <p>3. Solar pump drive system parts such as solar arrays, AC pumps, solar cells parts...</p>			

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.



DC power from solar arrays



KEWO solar pump solar drive



All kinds of 3 phase AC pumps

How does it work ?

An arrays of solar panels generates the power and voltage required for the SG300/3200 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

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

KEWO sun great series solar pump drive main Features

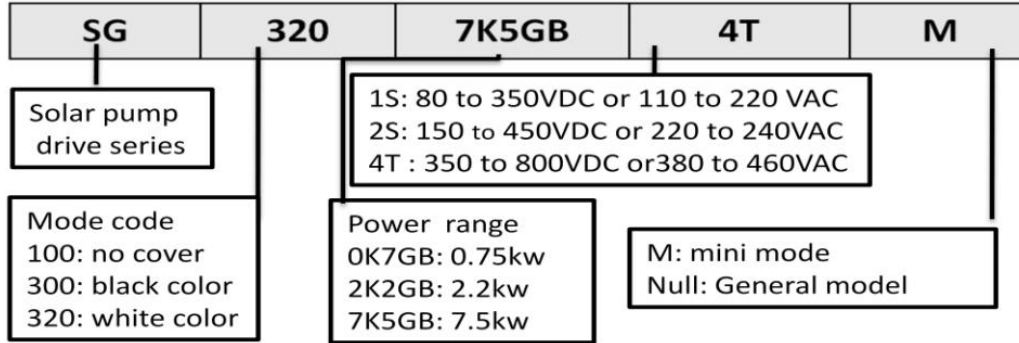
Soft ware design:

		<p>3 phase AC motor & High efficiency PMSM</p>	
<p>Dual supply mode - Solar DC and AC Grid. (it can be used for AC drive when AC power input)</p>	<p>All day Run-Stop-Restart mode management/ manual control with keypad</p>	<p>Compatible with all 3 phase AC pumps, IM And high PMSM (permanent magnet syn. Motor)</p>	<p>Protection against dry run of pump, Diagnostics and self protection features</p>
<p>Maximize your pump delivery with MPPT (maximum power point tracking)</p>	<p>GPRS Remote Control Is Option. Using GPRS of SIM to connect to internet</p>	<p>Level sensor used for automatic start and stop of motor in case of pumping to overhead tank</p>	<p>Flow And Generated Energy Calculating And Monitoring</p>

Hardware design:

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

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

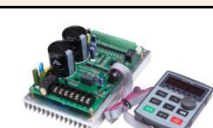


Models specification:


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

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

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

Models list:

Model	Input voltage	Output for pumps	Power	Pictures
SG100-2S	150 to 450VDC, or 220 to 240VA	3 PH 220V to 240VAC	0.75kw	
SG300-2S-M	150 to 450VDC, or 220 to 240VA	3 PH 220V to 240VAC	0.75—1.5kw	
SG300-4T-M	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—2.2kw	
SG-300-1S	80V to 350VDC 110 to 220VAC	3 PH 110VAC , 140VAC, 220VA	0.75—2.2kw	
SG300-2S	150 to 450VDC 220 to 240VA	3 PH 220V to 240VAC	0.75—4kw	
SG320-4T	250 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	0.75—15kw	
SG320-4T	350 to 800VDC 380 to 460VAC	3 PH 380V to 460VAC	18—132kw	

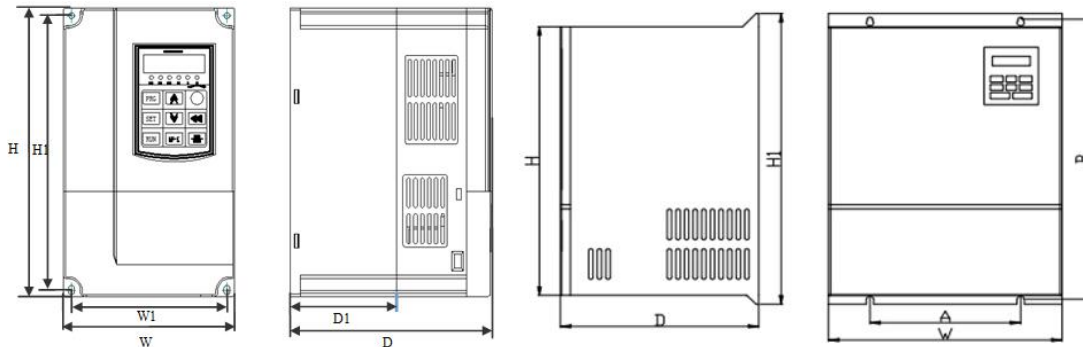
Technical specification:

**Solar pump drive specification when FA-00 set to 1&2 for solar pumping controlling function.	
Recommended MPPT voltage range	Vmpp 131 to 350 VDC for 1S (80V to 350VDC input, 3PH 110 to 220VAC output) Vmpp 280 to 375VDC for 2S (150V to 450VDC input, 3PH 220 to 240VAC output) Vmpp 486 to 750 VDC for 4T (350V to 800VDC input, 3PH 380 to 460VAC output)
Recommended input Voc and Vmpp voltage	Voc 180(VDC), Vmpp 155(VDC) for 1S model or 110V AC pumps Voc 355(VDC), Vmpp 310(VDC) for 2S model or 220V AC pumps Voc 621(VDC), Vmpp 540(VDC) for 4T model or 380V AC pumps
Motor type	Control for permanent magnet synchronous motor and asynchronous motor pumps.
Rated output voltage	3-Phase, 110V/160V/220V. 3-phase, 220V/380V/460V
Output frequency range	0~maximum frequency 600Hz.
MPPT efficiency	97%,
Ambient temperature range	G-type for submersible pumps, 150% rated current for 60s, 180% rated current for 2s P type for general pumps, 120% rated current for 60s, 150% rated current for 2s
Solar pump control special performance	MPPT (maximum power point tracking), CVT (constant voltage tracking), auto/manual operation, dry run protection, low stop frequency protection, minimum power input, motor maximum current protection, flow calculating, energy generated calculating and water tank level detected
Protection function	Phase loss protection, phase short circuit protection, ground to phase circuit protection , input and output short circuit protection. Stall protection
Protection degree	IP20, Air force cooling
Running mode	MPPT or CVT
Altitude	Below 1000m; above 1000m, derated 1% for every additional 100m.
Standard AC input backup circuit	CE, Design based on vector control drive S300 and S3200 series, more specification please refer to S300 or S320 vector control drive operation manual
Technical specification when it used for speed and torque controlling of motor as FA00 set to 0.	
voltage, frequency	Single phase 220V, 3 phase, 220V,380V, 660V and 1140V. Power 0.75kw to 37kw.
Control mode	0: VF control ; 1: Vectorized VF control ; 2 : Open loop vector control 1 ; 3: High performance open loop vector control 2
Maximum frequency	0-650Hz
Multi-functions	PID Control, Carrier Frequency Adjustable, Current Limiter, Speed Search, Momentary Power Loss Restart, 16 Step Speed (Max), 3-Wire connection, Slip Compensation, Frequency Jump, DC braking, Upper/Lower Frequency, Torque control, Compatible for PMSM and IM, built in RS485, counting, fault information checking, fully fault protection function, frequency combination reference.

Models specification

SN	Models	Rate current	Output voltage (3PH VAC)	Applicable for pumps	External of drive size(mm)	MPPT voltage (VDC)	Weight (kgs)
Mini type 2S series : 150 to 400 VDC or 200 to 240VAC input, (MPPT 280 to 375VDC)							
1	SG100-0K75GB-2S	4A	220V/240V	0.75KW	170*110*70	260 to 375	1.0
2	SG300-0K75GB-2S-M	4A	220V/240V	0.75KW	143*86*114	260 to 375	1.5
3	SG300-1K5GB-2S-M	7A	220V/240V	1.5KW	143*86*114	260 to 375	1.5
Mini type 4T series : 350 to 800 VDC or 380 to 460 VAC (MPPT 486 to 750VDC)							
4	SG300-0K7GB-4T-M	2.5A	380V-440V	0.75KW	143*86*114	486 to 750	1.5
5	SG300-1K5GB-4T-M	3.7A	380V-440V	1.5KW	143*86*114	486 to 750	1.5
6	SG300-2K2GB-4T-M	5A	380V-440V	2.2KW	143*86*114	486 to 750	1.5
General type 2S series : 150 to 450 V DC or 200 to 240 VAC input, (MPPT 280 to 375VDC)							
7	SG300-0K7GB-2S	4A	220V/240V	0.75KW	185*125*159	260 to 375	2.0
8	SG300-1K5GB-2S	7A	220V/240V	1.5KW	185*125*159	260 to 375	2.0
9	SG300-2K2GB-2S	10A	220V/240V	2.2KW	185*125*159	260 to 375	2.5
10	SG300-4K0GB-2S	16A	220V/240V	4.0KW	245*150*177	260 to 375	3.5
General type 4T series : 350 to 800 VDC or 380 to 460VAC input, (MPPT 486 to 750VDC)							
11	SG300-0K7GB-4T	2.5A	380V-440V	0.75KW	185*125*159	486 to 750	2
12	SG300-1K5GB-4T	3.7A	380V-440V	1.5KW	185*125*159	486 to 750	2
13	SG300-2K2GB-4T	5A	380V-440V	2.2KW	185*125*159	486 to 750	2
14	SG300-4K0GB-4T	10A	380V-440V	4.0KW	185*125*159	486 to 750	2.5
15	SG300-5K5GB-4T	13A	380V-440V	5.5KW	245*150*177	486 to 750	3.5
16	SG300-7K5GB-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 series solar pump drive dimensions



Mini type Fig 1

General type Fig 2

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

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

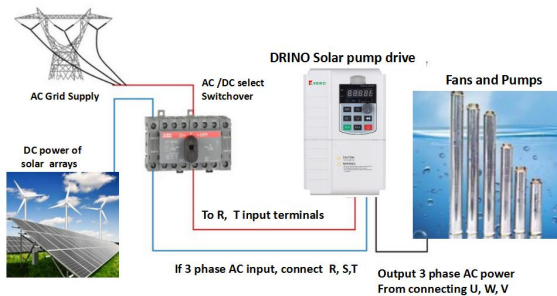
Power (3 phase 380V output)	Inverter size				Install size/ hole		
	W	H1	H	D	A	B	Hole
SG300-018GB-4T	217	335	305	150	140	323	Φ6
SG300-022GB-4T							
SG300-030GB-4T	285	463	432	225	235	447	Φ8
SG300-037GB-4T							
SG300-045GB-4T	385	600	550	270	260	580	Φ10
SG300-055GB-4T							
SG300-075GB-4T	473	700	660	307	343	678	φ10
SG300-90GB-4T							
SG300-110GB-4T	579	930	880	375	449	905	φ10
SG300-132GB-4T							
SG300-160GB-4T	650	1060	983	377	420	1030	φ12
185kw to 280kw (option)							
315kw to 500kw (option)	800	1358	1203	400	520	1300	φ14

System connection and commissioning.

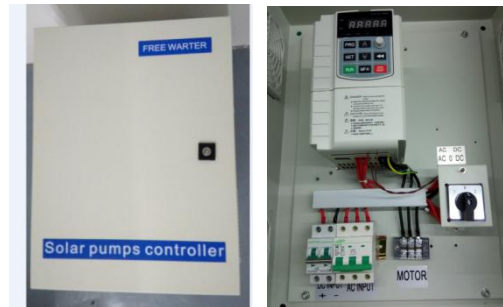
An enhanced version of KEWO Automation AC Drive(variable speed drive of motor speed and torque control), compatible with DC power and AC grid input.

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

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



Connecting schematic diagram



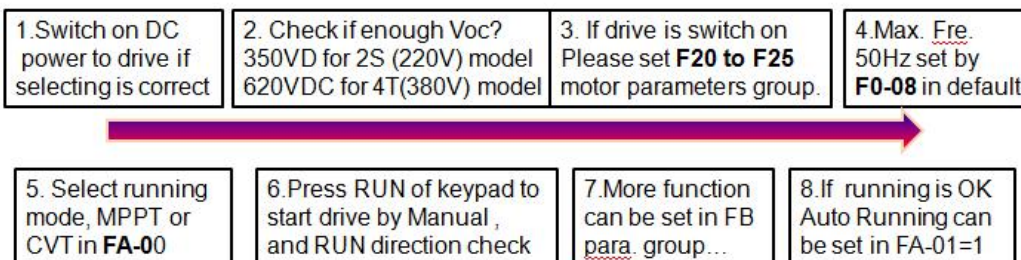
IP54 cabinet

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 $540V \times 1.15 = 621V$; For 2S series, recommend $311 \times 1.15 = 357V$. (Voc)
2. The selecting power of solar arrays need large than **1.3 times** power of total pumps.
For example, 0.9kw above for 0.75kw pumps, 2.86kw above for 2.2kw pumps.
3. Commissioning steps. (**Please wait 30s after switching on for Voc detecting by inverter itself.**)



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

Solar arrays module selecting

Selecting Solar Arrays Matching Selecting											
Solar pumps inverter model	Maximum Input DC current	Solar arrays open circuit voltage specification									
		Open circuit voltage range Voc 21V±2V			Open circuit voltage range Voc 31V±2V			Open circuit voltage range Voc 43V±2V			
		Power±3WP	Short circuit current	Series, parallel No.	Power±3WP	Short circuit current	Series, parallel No.	Power±3WP	Short circuit current	Series, parallel No.	Inverter rated
General type 4T series : 350 to 800 VDC or 380 to 460VAC input, (MPPT 486 to 750VDC, Voc 620VDC)											
S300-0K7GB-4T	4.6A	30WP	2.75A	30*1							2.3A
S300-1K5GB-4T	7A	60WP	3.48A	30*1							3.7A
S300-2K2GB-4T	10A	90WP	5.5A	30*1							5A
S300-4K0GB-4T	17A	85WP	4.7A	28*2							8.5A
S300-5K5GB-4T	23A				180WP	7.33A	19*2				13A
S300-7K5GB-4T	32A				240WP	8.81A	20*2	200WP	7.32	15*3	17A
S320-011GB-4T	48A				180WP	7.33A	20*4	240WP	7.32	15*4	25A
S320-015GB-4T	64A				240WP	8.81A	20*4	240WP	7.32	15*5	32A
S320-018GB-4T	76A				240WP	8.81A	20*5	240WP	7.32	15*6	38A
S320-022GB-4T	80A				240WP	8.81A	20*6	270WP	7.32	15*7	45A
S320-030GB-4T	90A				240WP	8.81A	20*8	240WP	7.32	15*1	60A
General type 2S series : 150 to 450 V DC or 200 to 240 VAC input, (MPPT 280 to 375VDC, Voc 350VDC)											
S300-0K7GB-2S	7A	30WP	2.75A	17*2							4A
S300-1K5GB-2S	14A	60WP	3.48A	17*2							7A
S300-2K2GB-2S	20A	90WP	5.5A	17*2							10A
S300-4K0GB-2S	32A	90WP	5.5A	17*3							16A
<p>Note: The required input solar panel voltage is 1.15 times of solar drive DC bus voltage. For example: For4T series, recommend $540V \times 1.15 = 621V$; for 2S series, recommend $311 \times 1.15 = 357V$.</p> <p>The required power of solar arrays is 1.3 times of rated power of drives, shouldn't less than 1.2 times of rated power of inverter. For example, 7R5G, the required power is $7500 \times 1.3 = 9750w$.</p> <p>The current of solar arrays selecting approximate to rated current of solar drive is acceptable.</p>											

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

PRESENTATION:





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

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

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

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

CLASS RANGE:

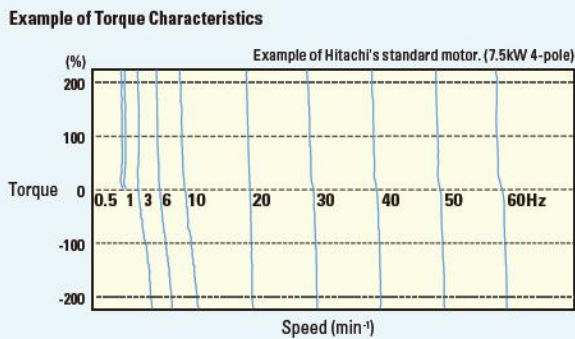
S100 sensorless vector control drive ,Simple, small and OEM type without cover	S300 –M, mini type sensorless vector control drive—small and compact design	S300 sensorless vector control drive, general type, high performance, and easy using.	S320 sensor vector control drive, general type, compatible with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

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

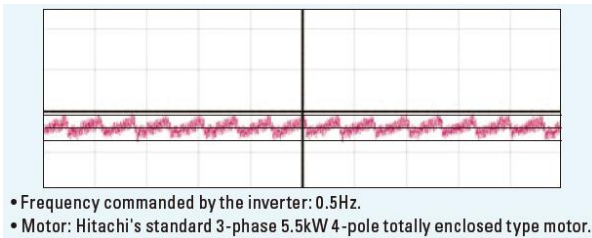
Industry-leading Levels of Performance

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

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



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



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

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

Torque response: less than 20ms in vector control

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

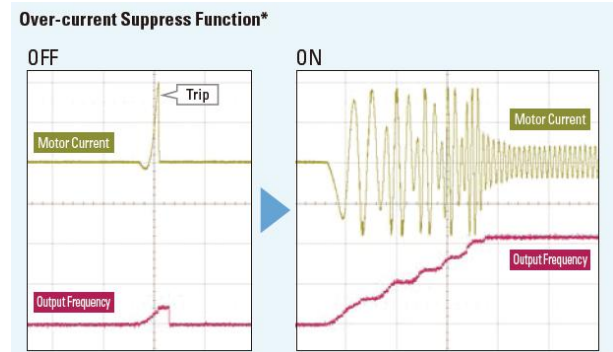
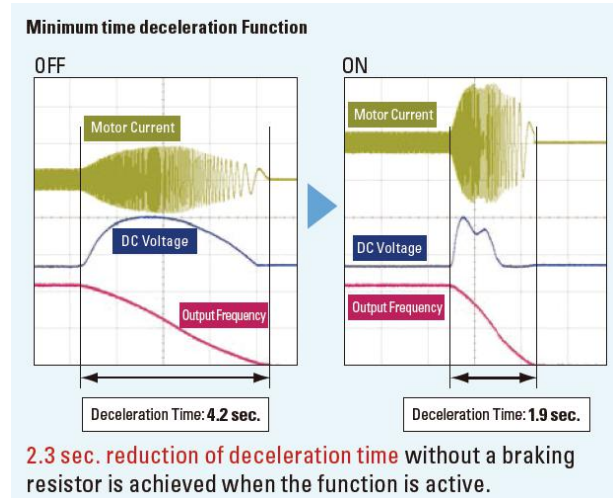
Start torque: 150% under 0.5Hz (OLV 1) , 150% under 0.2Hz (OLV2).

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

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

3. Trip avoidance function

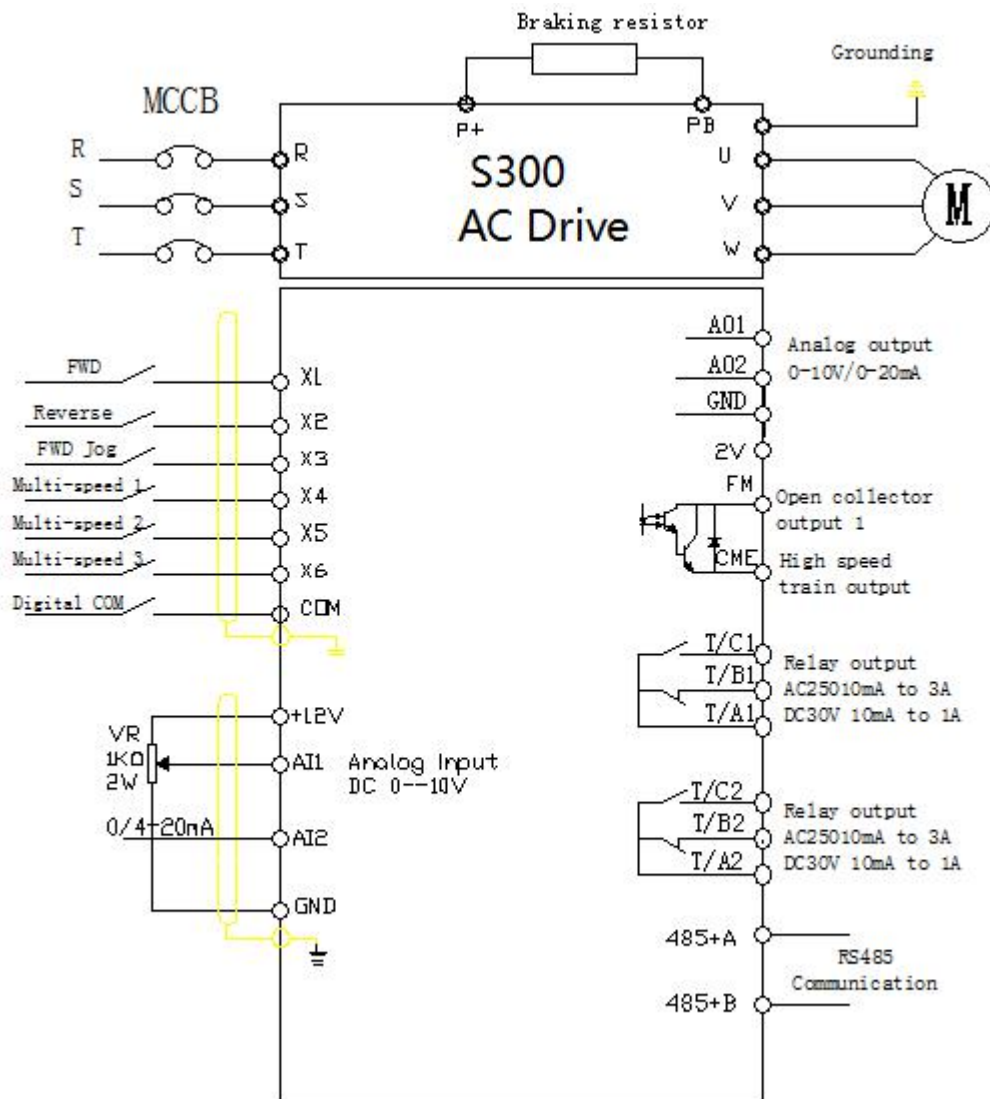
Minimum time deceleration, over-current suppress function and DC bus AVR are incorporated. The functions reduce nuisance trips,, Improved torque limiting/current limit function enable a load limit to protect machine and equipment.



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



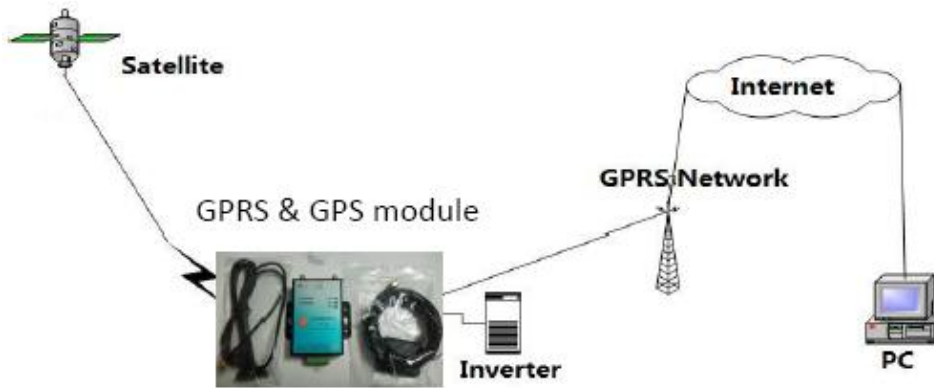
WIRING AND CONNECTION.



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

The figure shows two screenshots of the IOT Management Web interface. The left screenshot shows the login page with fields for account and password, and a sign-in button. The right screenshot shows the real-time monitoring page, which displays various system parameters and control buttons.

1. Login to website

2. Data monitor and control window

The screenshot shows the positioning feature of the IOT Management Web, displaying a map with a location pin indicating the position of the solar pump system. A detailed information box is overlaid on the map, providing the following data:

- GPS NO: [blank]
- SimCard: [blank]
- Coordinates: 118.82170000 119.22268748489582
- LOCATION: GPS Station (Star)
- SIGNAL: 100%
- POWER: 100
- TIME: 2016-04-26 15:13:19

3. Positioning

The screenshot shows the history data record feature, displaying a table with various system parameters over time. The table columns include DeviceNum, DC current, MPPT Tracking(%), Flow rate, Today flow, Calculated f, Output pow, Today ener, and Cumul. ener. The data is filtered for DeviceNum 86309201369380, with a time range from 2016-04-27 00:00:00 to 2016-04-27 23:59:59.

DeviceNum	DC current	MPPT Tracking(%)	Flow rate	Today flow	Calculated f	Output pow	Today ener	Cumul. ener	Worki
136	0.03	97.8	0	0	0	0	0	1.8	0
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1
136	0.03	97.8	0	0	0	0	0.01	1.8	1

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.

The screenshot displays the 'IOT Management Web' interface. The top navigation bar includes 'Geographic', 'Manage Users', 'Manage Device', 'History record', and 'real-time monitoring'. The main content area is split into two panels. The left panel shows a 'Stop' status with various real-time metrics: Output freq (49.03Hz), Output voltage (347V), Output current (179.3A), Frequency set (49.04Hz), DC bus Volt (491V), Voc voltage (615V), DC current (186.65A), Vmp/Voc ratio (79.4%), Flow rated (911.4m3/h), and Today flow (802.6m3). The right panel shows a 'Start' status with control buttons like 'RESET', 'FORWARD', 'REVERSE', 'RUN', and 'STOP'. Below the data panels is a map of Lebanon with a location popup showing GPS coordinates (36.133588, 34.102927) and other details like signal strength and time.

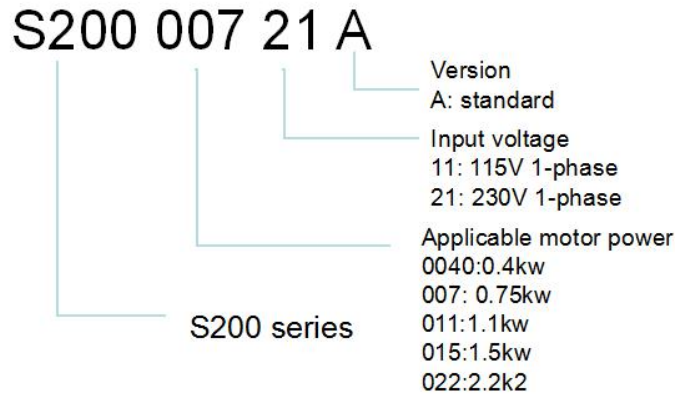
DeviceNum	Output frequency (Hz)	Output voltage (V)	Output current (A)	Frequency set(Hz)	DC bus Voltage (V)	Voc voltage (V)	DC current(A)	Vmp/voc ratio (%)	Flow rated(m3/h)	Today flow(m3)	Calculated flow (m3)	Calculated ed flow 2(km3)	Output power (KW)	Today energy (KWH)	Cumul. energy 1(KWH)	Cumul. energy 2 (KWH)	Working status	Rated voltage (V)	Rated current (A)	Version	RecordDate	remark
20160510002069	0	0	0	50	638	615	0	80	0	523.1	15	0	61.96	10.4	570.5	1	1	380	310	4021	2016-07-19 09:06:21	
20160510002069	41.7	318	157.1	41.6	524	615	118.48	80.7	615.8	103.4	626.5	15	11.72	15.9	578	1	1	380	310	4021	2016-07-19 09:21:22	
20160510002069	2.28	24	28.3	2.71	628	615	1.56	79	6	158.2	681.3	15	1.2	23.3	583.4	1	3	380	310	4021	2016-07-19 09:36:54	It can start working at 9:00, but frequency is lower than 40Hz, so it place in sleep mode
20160510002069	0	0	0	0	631	615	0	80	0	231.6	754.7	15	0	23.3	583.4	1	3	380	310	4021	2016-07-19 09:52:11	
20160510002069	47.07	349	164.2	47.06	497	615	164.35	80	811.8	379.4	902.5	15	81.69	38.2	598.3	1	1	380	310	4021	2016-07-19 10:07:31	
20160510002069	48.08	354	178.5	48.13	502	615	172.87	81.2	862.8	580.4	103.5	16	86.82	58.4	618.5	1	1	380	310	4021	2016-07-19 10:21:25	
20160510002069	48.99	344	180	49	487	615	188.08	78.7	910.9	796.3	319.4	16	91.58	80.1	640.2	1	1	380	310	4021	2016-07-19 10:36:28	
20160510002069	49.53	347	183.3	49.53	491	615	191.85	79.6	936.9	1014.1	537.2	16	94.18	102	662.1	1	1	380	310	4021	2016-07-19 10:51:32	
20160510002069	44.61	339	167.4	44.62	555	615	133.94	85.3	738.4	1253.5	776.6	16	74.14	126.1	686.2	1	1	380	310	4021	2016-07-19 11:06:29	
20160510002069	49.3	363	182.5	49.9	511	615	188.6	82.8	959.8	1486.3	9.4	17	96.36	149.5	709.6	1	1	380	310	4021	2016-07-19 11:21:30	
20160510002069	50	364	181.8	50	514	615	187.71	78.1	959.3	1711.9	235	17	96.37	172.2	732.3	1	1	380	310	4021	2016-07-19 11:36:31	
20160510002069	50	364	181.8	50	514	615	186.88	81.5	955.8	1945.3	468.4	17	96.1	195.7	755.8	1	1	380	310	4021	2016-07-19 11:51:32	
20160510002069	50	364	181.4	50	516	615	187.55	76	962.7	2184.3	707.4	17	96.81	219.7	779.8	1	1	380	310	4021	2016-07-19 12:06:34	
20160510002069	50	370	180.4	50	522	615	185.02	80.7	960.8	2421.6	944.7	17	96.64	243.5	803.6	1	1	380	310	4021	2016-07-19 12:21:40	
20160510002069	50	373	179.4	50	528	615	182.48	81.3	959.3	2490.6	13.7	18	96.5	250.5	810.6	1	1	380	310	4021	2016-07-19 12:26:20	
20160510002069	50	370	180.2	50	523	615	184.62	76.4	960.7	2728.9	252	18	96.54	274.4	834.5	1	1	380	310	4021	2016-07-19 12:41:00	
20160510002069	50	366	181.2	50	516	615	186.63	82.5	957.6	2965.5	486.6	18	96.26	298.2	858.3	1	1	380	310	4021	2016-07-19 12:56:02	
20160510002069	50	371	179.7	50	524	615	185.17	81	965.3	3198.8	721.9	18	97.03	321.7	881.8	1	1	380	310	4021	2016-07-19 13:11:03	
20160510002069	50	364	180.9	50	519	615	186.21	78.1	962	3437.5	960.6	18	96.72	345.7	905.6	1	1	380	310	4021	2016-07-19 13:26:04	
20160510002069	50	376	178.6	50	532	615	181.38	78.5	959.9	3667.5	180.6	19	96.5	368.8	928.9	1	1	380	310	4021	2016-07-19 13:41:05	
20160510002069	50	379	178	50	538	615	178.48	81.1	955.4	3901.7	424.8	19	96.09	392.3	952.4	1	1	380	310	4021	2016-07-19 13:56:06	
20160510002069	50	378	178.6	50	533	615	181.11	81.1	960.4	4140	663.1	19	96.54	416.3	976.4	1	1	380	310	4021	2016-07-19 14:11:07	
20160510002069	45.24	344	166.6	45.32	566	615	133.31	87	748.6	4374.2	897.3	19	75.3	439.8	999.9	1	1	380	310	4021	2016-07-19 14:26:06	
20160510002069	50	378	178.9	50	534	615	181.59	75.9	964.5	4608.1	131.2	20	96.98	463.3	23.4	2	1	380	310	4021	2016-07-19 14:41:06	
20160510002069	50	375	178.8	50	531	615	181.38	75.7	958.6	4845.7	368.8	20	96.43	487.2	47.3	2	1	380	310	4021	2016-07-19 14:56:10	
20160510002069	50	374	179.3	50	529	615	183.17	75.3	963.9	4999.7	522.8	20	96.89	502.7	62.8	2	1	380	310	4021	2016-07-19 15:05:51	
20160510002069	49.99	368	181.4	49.95	520	615	186.92	84.3	966.6	5112.4	635.5	20	97.12	514	74.1	2	1	380	310	4021	2016-07-19 15:12:54	
20160510002069	49.66	368	182	49.63	507	615	189.01	82.2	953.2	5352.1	875.3	20	95.81	538.1	98.2	2	1	380	310	4021	2016-07-19 15:27:56	
20160510002069	49.41	360	179.3	49.31	509	615	184.46	82.3	933.9	5587.8	110.9	21	93.9	561.8	121.9	2	1	380	310	4021	2016-07-19 15:42:57	
20160510002069	44.68	340	170.4	44.77	540	615	135.95	82	727.8	5789.7	312.8	21	73.58	582.1	142.2	2	1	380	310	4021	2016-07-19 15:57:58	
20160510002069	44.16	336	167.5	44.04	535	615	131.5	81.7	701.1	5974.8	497.9	21	71.06	600.8	160.9	2	1	380	310	4021	2016-07-19 16:12:59	
20160510002069	43.6	331	159.3	44.53	515	615	138.65	79	709	6155.1	678.2	21	71.4	618.9	179	2	1	380	310	4021	2016-07-19 16:28:01	
20160510002069	43.66	322	152.1	43.45	498	615	132.62	76.6	651.5	6320.7	843.8	21	65.83	635.6	195.7	2	1	380	310	4021	2016-07-19 16:43:01	

Appendix II.

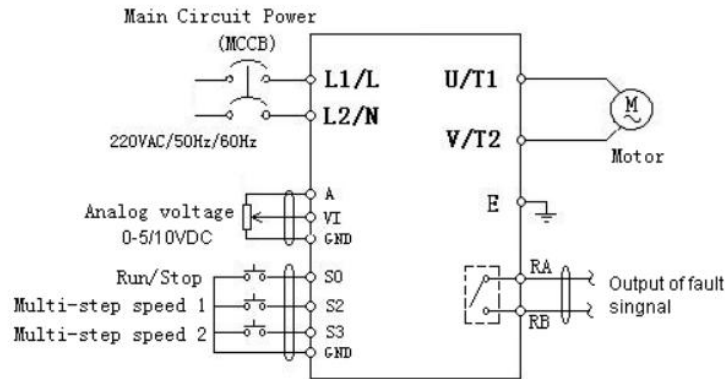
S200 Series Smart Single Phase inverter

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)
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

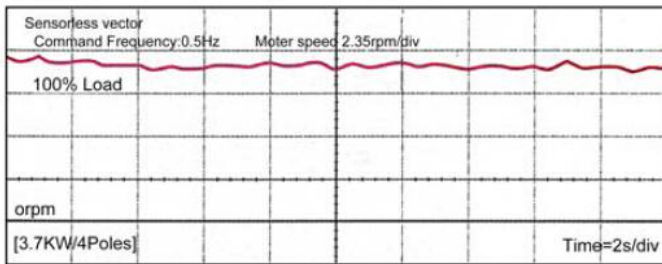
Features of products.

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 .

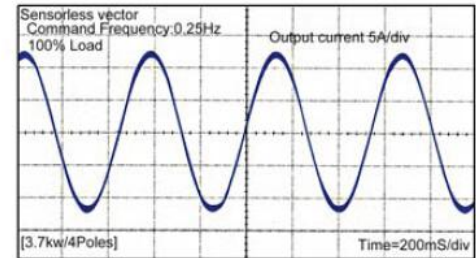
1). Wide speed control range

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)



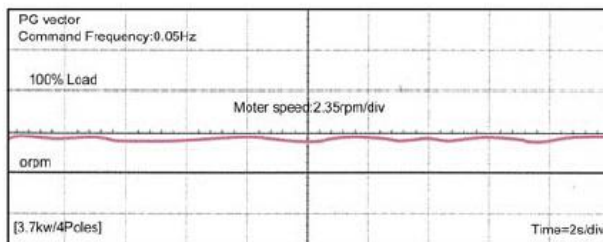
The speed waveform with 100% load under 0.25Hz.



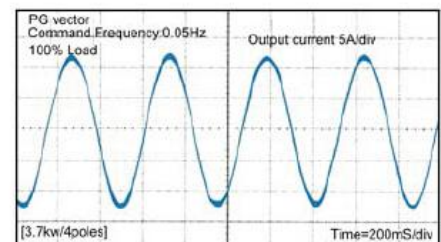
The current waveform with 100% load under 0.25Hz

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

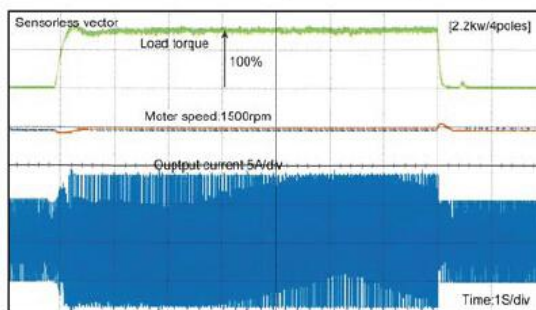
2). Response speed improving

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

a.) The response 100rad/s, precision $\pm 0.5\%$ in sensorless open loop vector control mode.

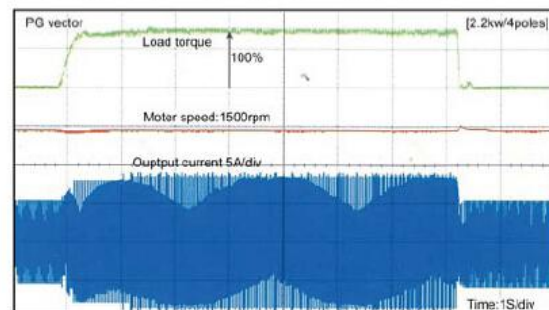
b) . The response 250rad/s, precision $\pm 0.01\%$ in sensor close loop vector control mode

Sensorless vector control mode: response 100 rad/s, accuracy $\pm 0.5\%$.



Impact load response characteristic (Sensorless without PG)

Sensor vector control mode: response 250rad/s, accuracy $\pm 0.01\%$

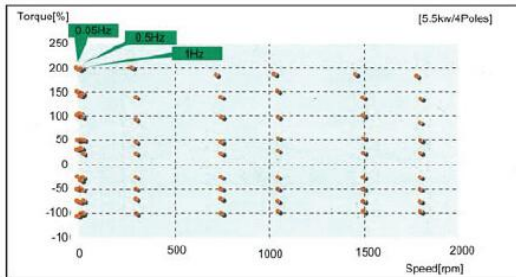


Impact load response characteristic (Sensorless with PG)

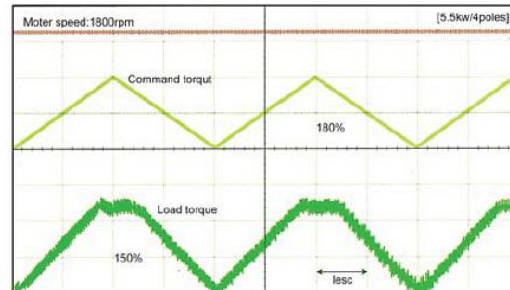
3). High torque output under low speed to meet some big inertia load conditions

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

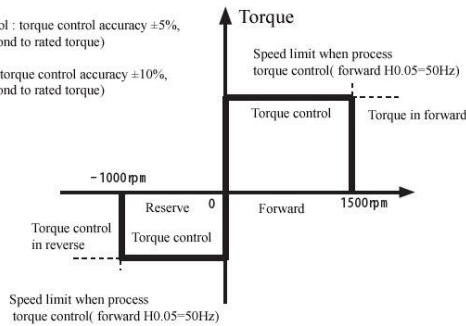


Accuracy torque limit

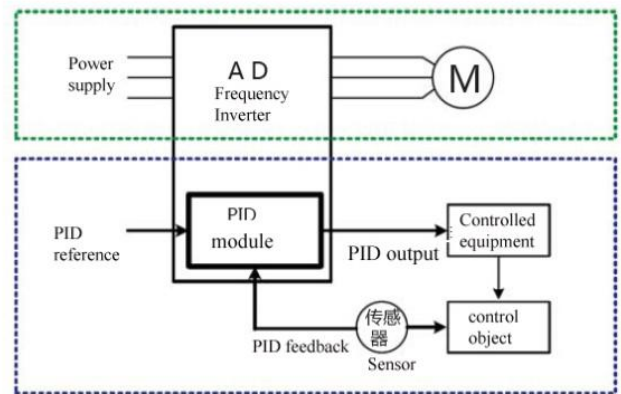
4). Torque control in OLV and CLV

Without PG open loop vector control : torque control accuracy $\pm 5\%$, torque control range: 1.50 (correspond to rated torque)

With PG close loop vector control: torque control accuracy $\pm 10\%$, torque control range: 1.20 (correspond to rated torque)



Speed limit 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.

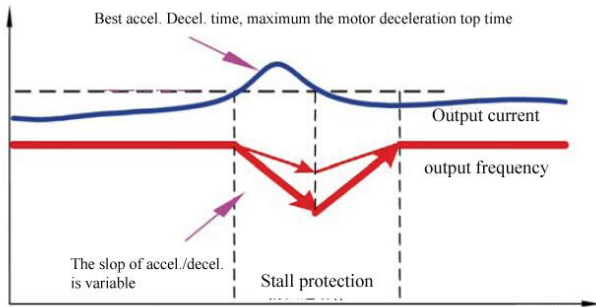
Flexible PID control with sleep mode, configure waking up frequency, sleep frequency, that is very easy using for water supply.

6). Stall protection function

when over current, over voltage occurs, the output frequency will be reduce, and the output frequency /voltage under limit value, the output frequency will restore.

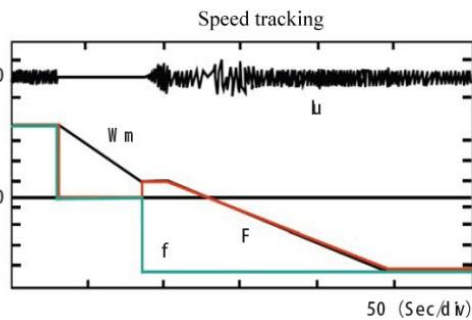
Appropriate acceleration and deceleration will be select according to the load control the motor stopping time even power loss instantaneous.

Stall protection illustrations



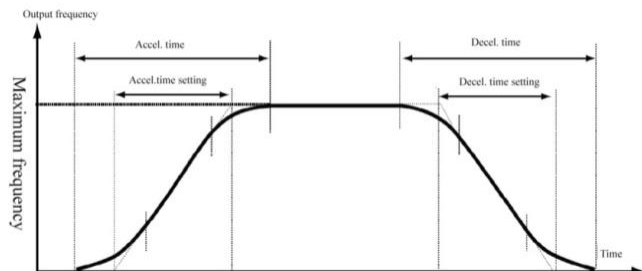
7). Speed tracking restart function

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

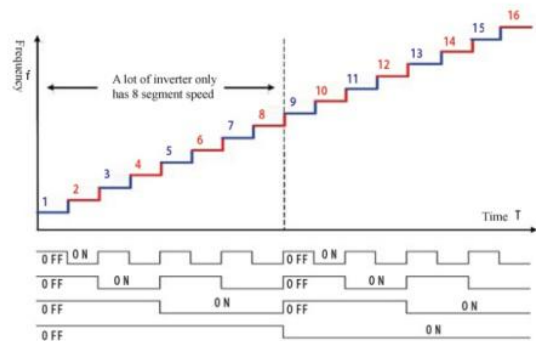
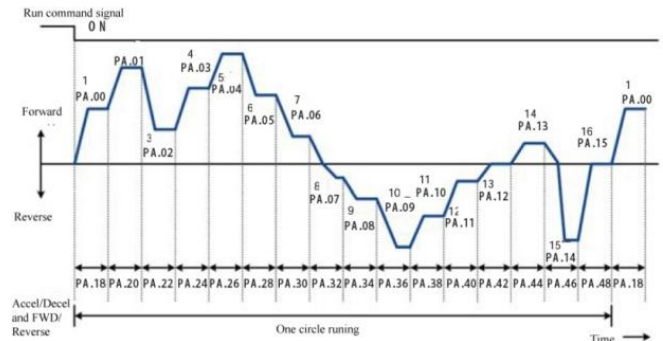


8). S curve function

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

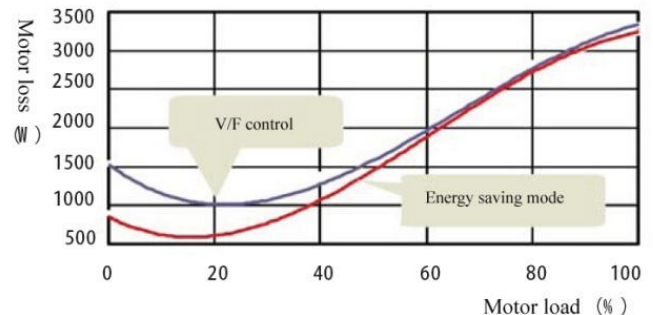


9).16 segment speed circle running, easy to configure.



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	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
	speed stabilizing precision			±0.02%
	Torque precision	NO	NO	±5%
	Motor type	General induction motor, permanent magnet synchronous motor*		
Function design	Highest frequency	General vector control :400Hz V/f control: 4000Hz		
	frequency resolution	Digital setting: 0.01Hz analog setting: maximum×0.025%		
	carrier frequency	0.5K ~ 16KHz, the carrier frequency can be adjust by temperature automatically		
	Frequency reference setting method	Digital of Control panel, analog AI1, AI2, potentiometer of control panel. UP/DN control, communication, PLC pulse frequency		
	Accel./decel. characteristic	Linear curve and S curve accel. /decel. mode, range of time: 0.0 to 65000S.		
	V/F curve	3 mode: linear, multiple points, N Power		
	V/F separation	2 times separation: totally separation, half separation		
	DC braking	DC braking frequency: 0.0 to 300Hz, DC braking current: 0.0% to 100%		
	Braking unit	Built in braking unit up to 15kw, optional is 18.5kw to 75kw, external built in for above 93kw.		
	Jog function	Job frequency range: 0.0 to 50.0Hz, the accel. and decel. time of Jog		
	Configuration PID	Easy to perform pressure, flow, temperature close loop control		
	PLC multiple speed	To achieve 16 segment speed running through built in PLC or terminal control		
	Common Dc bus *	Multiple inverters use one DC bus for energy balance.		
	Auto voltage regulation (AVR)	Enable to keep output voltage constant when grid fluctuation		
	Over load tolerance capability	G type model: 150% rated current for 60s, 180% rated current for 2s, P type Model: 120% rated current for 60s, 150% rated current for 3s.		
	tall control when over current, over voltage	Carry out limiting automation for running current, voltage to prevent over current, over voltage frequently		
	Fast current limit function	minimize the IGBT module broken to protect the inverter, maximum reduce the over current fault.		
Torque limit and torque control	"Excavator" characteristics , torque limit automatically during motor running. Torque control is available in close loop vector control mode.			
features	friendly interface	Display Hello when power on.		
	Multiple function key JOG	It can set for Forward Jog, reverse Jog, forward/reverse switch		

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 AI1 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.
Environment	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 temperature	-10°C ~ +40°C, power derate for 40 ~ 50°C, rated current derated 1% for 1°C increasing.
	humidity	Less than 95%, no water condense.
	storage	-40 ~ +70°C

*:AD350 have no this function
AD800 AC Drive models.



1.5kw to 11kw

15kw to 93kw

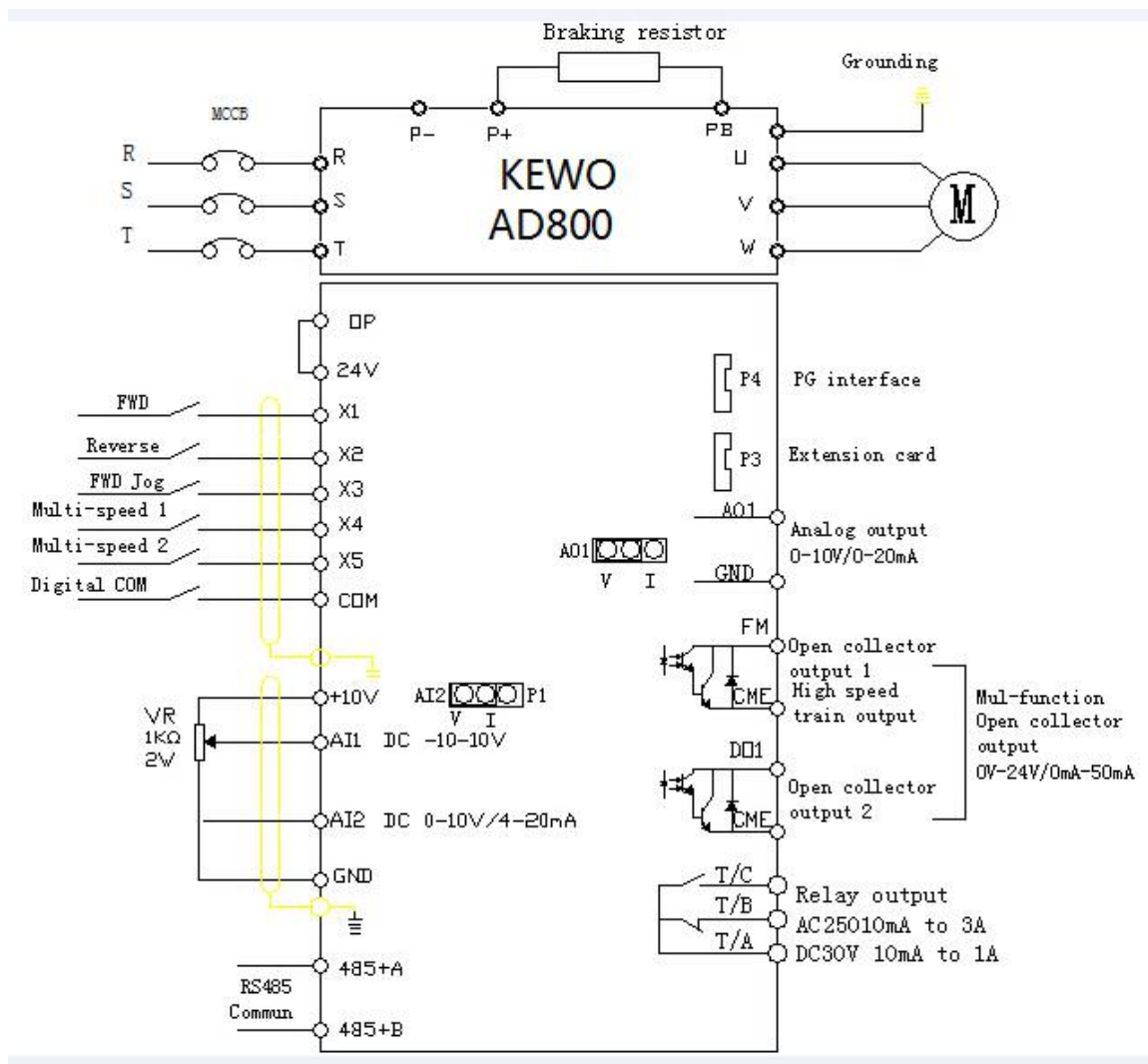
above 110kw

Wiring diagram of AD800.

1. 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/0-20mA cab 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.

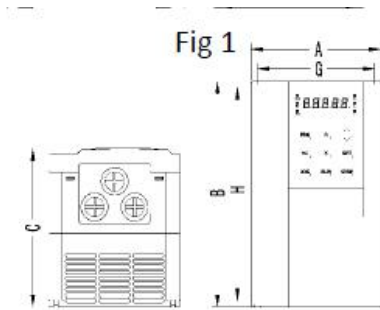


Fig 1

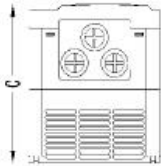


Fig 2



Fig 3

AD800 series 3 PH, 220V							
AD800-2T0.75GB	117	135	125	155	130	M4	Fig.2
AD800-2T1.5GB							
AD800-2T2.2GB							
AD800-2T3.7GB	140	260	160	270	165	M5	Fig.2
AD800-2T5.5GB							
AD800-2T7.5GB	140	350	210	370	178	M6	Fig.2
AD800-2T11G							
AD800-2T15G	200	410	270	430	225	M6	Fig.2
AD800-2T18.5G							
AD800-2T22G	200	500	290	520	225	M8	Fig.2
AD800-2T30G							
AD800-2T37G	250	580	352	600	285	M8	Fig.2
AD800-2T45G							
D800-2T55G	300	700	458	720	310-	M8	Fig.2
AD800-2T75G							

3 PH 380V/440V

AC drive models	Install lot mm		Dimension mm			Bolt mm	Reference.
	G	H	A	B	C		
AD800-4T1.5GB	117	210	130	220	165	M4	Fig2
AD800-4T2.2GB							
AD800-4T3.7GB							
AD800-4T5.5PB							
AD800-4T5.5GB	140	260	160	270	190	M5	Fig2
AD800-4T7.5PB							
AD800-4T7.5GB							
AD800-4T11PB							
AD800-4T11GB	140	355	210	370	190	M6	Fig2
AD800-4T15PB							
AD800-4T15GB							
AD800-4T18.5PB							
AD800-4T18.5G	200	410	270	430	235	M6	Fig2
AD800-4T22P							
AD800-4T22G							
AD800-4T30P							
AD800-4T30G	200	500	290	520	265	M8	Fig2
AD800-4T37P							
AD800-4T37G	250	560	352	580	295	M8	Fig2
AD800-4T45P							
AD800-4T45G							
AD800-4T55P							
AD800-4T55G	300	700	458	720	310-	M8	Fig.2
AD800-4T75P							
AD800-4T75G							
AD800-4T75P							

AC drive models	Install lot mm		Dimension mm			Bolt mm	Reference.
	G	H	A	B	C		
AD800-4T75G	300	700	458	720	320	M8	Fig2
AD800-4T93P							
AD800-4T93G							
AD800-4T110P							
AD800-4T110G							
AD800-4T132P							
AD800-4T132G	400	700	508	720	360	M8	Fig 2
AD800-4T160P							
AD800-4T160G-C							
AD800-4T185P-C	490	--	550	1160	370	M12	Fig 2
AD800-4T160G							
AD800-4T185P							
AD800-4T185G							
AD800-4T200P	530	--	590	1270	390	M12	Fig 3
AD800-4T200G							
AD800-4T220P							
AD800-4T220G							
AD800-4T250P	660	--	710	1450	410	M12	Fig 3
AD800-4T250G							
AD800-4T280P							
AD800-4T280G							
AD800-4T315P							
AD800-4T315G							
AD800-4T355P	770	--	832	1850	410	M16	Fig 3
AD800-4T355G							
AD800-4T400P							
AD800-4T400G							
AD800-4T450P	300	700	458	720	310-	M8	Fig.2
AD800-4T450G							

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 \pm 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

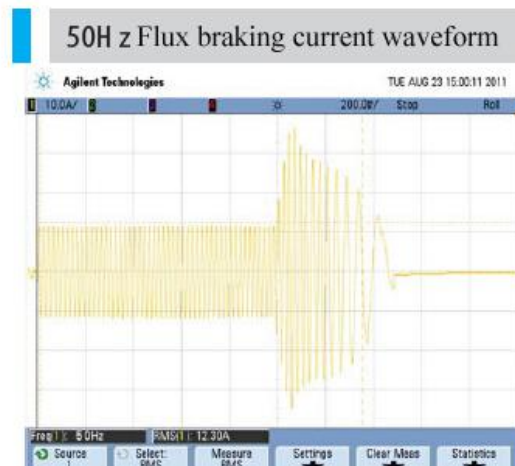
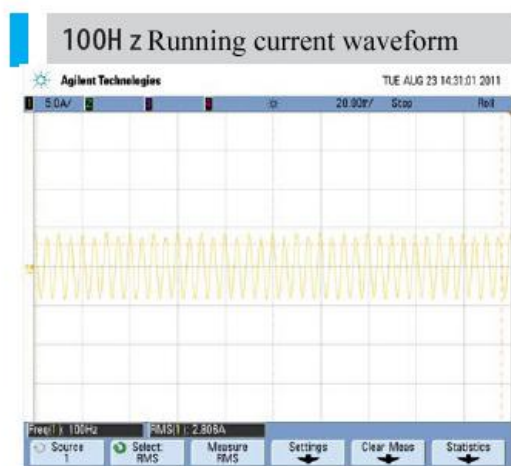
Cooling method: force cooling

Installation method: wall mount

IPM IGBT using

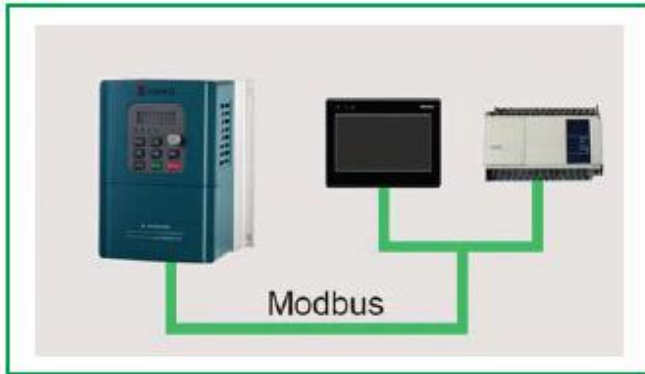


Good performance for smaller machine.



Built in RS485 interface for forming communication easily.

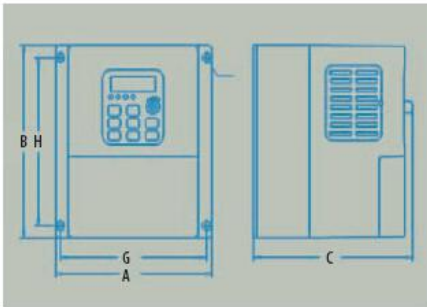
All series support Modbus communication



Multiple keypad connection is available



Data sheet.

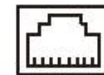
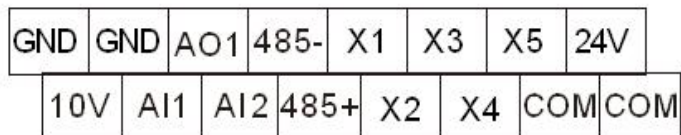


Modes	G	H	A	B	C
AD 100-250.4-2.2G	117	135	125	155	130
AD 350-250.4-2.2G AD 350-4T0.75-3.7G	117	135	125	155	130
AD 350-5.5-7.5G	...	...	...	...	...
AD 350-11-15G	...	...	...	...	...

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.

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 $\pm 15\%$

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

Data sheet

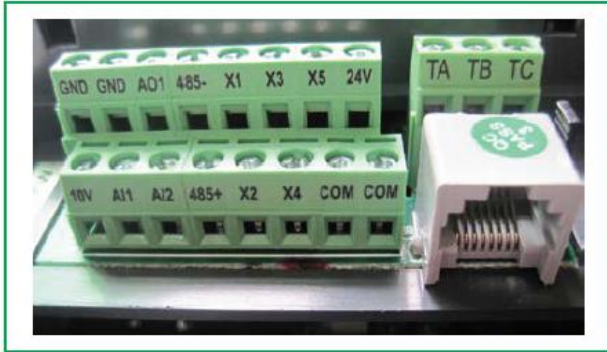


AC drive models	Install lot mm		Dimension mm			Bolt mm	Reference.
	G	H	A	B	C		
AD350 series							
AD350-2S0.4GB~ AD350-2S2.2GB	117	135	125	155	130	M4	Fig.1
AD350-4T0.75GB~ AD350-4T3.7GB							

Products features:

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

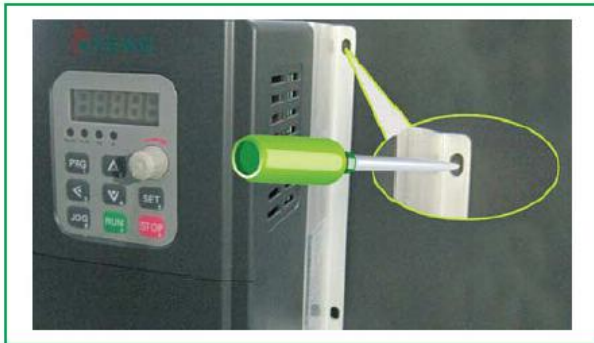
Clear silk print of terminal mark easy for wiring



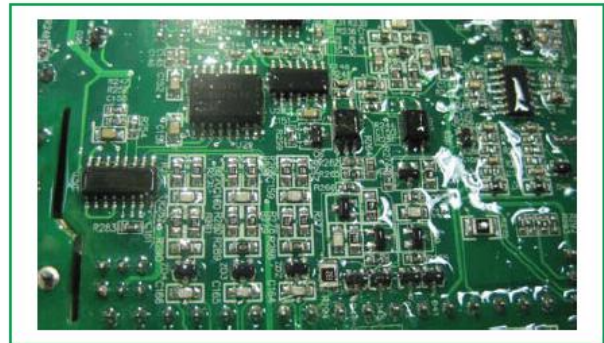
Adopting new generation IGBT module,
all Kewo AC drive usnig IGBT module for quality guarantee.



Flanging design for easy installation



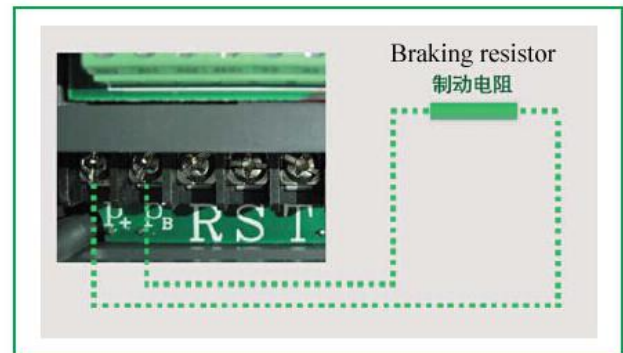
Thick PCBA coating for hard environment using



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



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

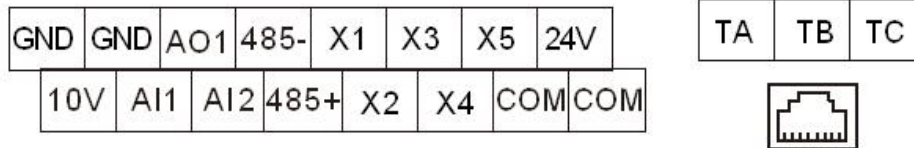
It has 5 digital input, DI5 can use for high pulse train input

2 analog signal input,

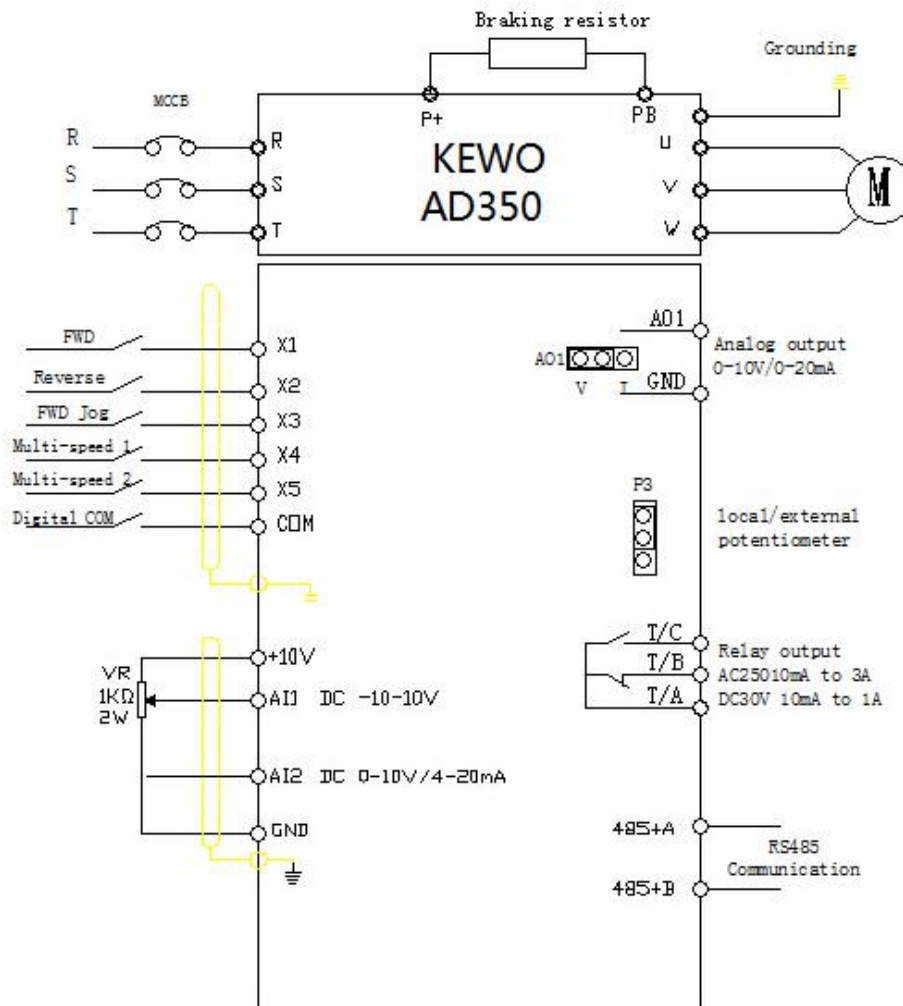
1 analog output and 1 relay output.

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 power failure.
- 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.

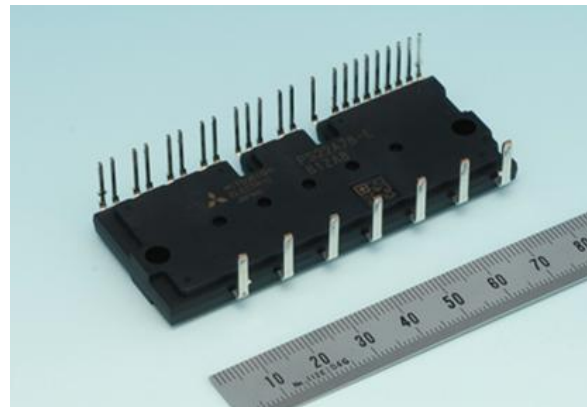
6. Packing machinery.

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)

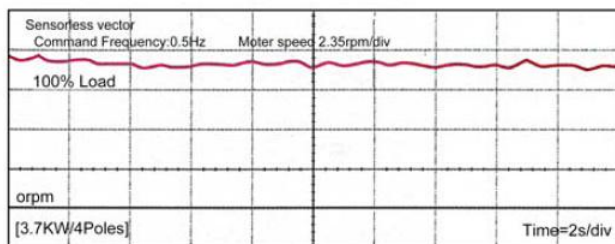
Maximum Frequency: 0 to 500Hz.Maximum frequency: 0 to 500Hz.

Installation Mode: Wall mount/ Floor standard cabinet.

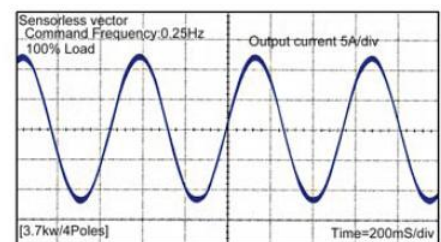
Wide speed control range:

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

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



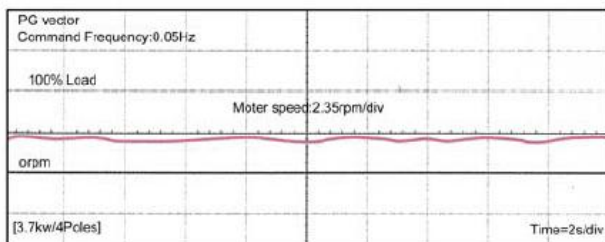
The speed waveform with 100% load under 0.25Hz.



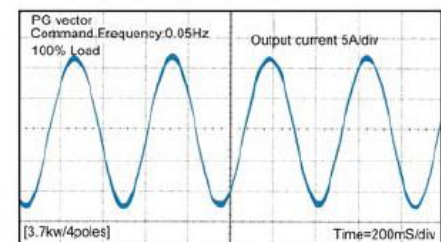
The current waveform with 100% load under 0.25Hz

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

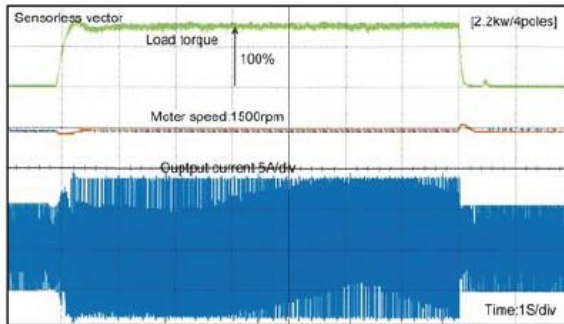


Current wave form under 0.25Hz with full load in sensor close loop mode

Enhanced the speed response with adopt 32 bit DSP.

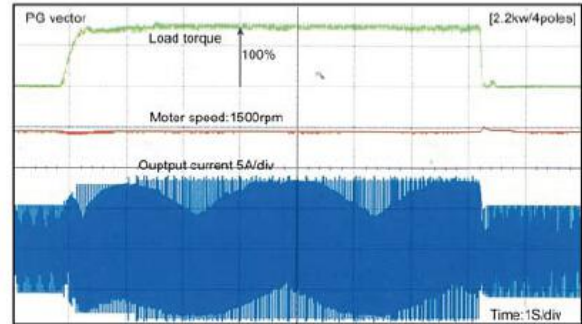
High speed data processing and calculating capability to improve the speed response of inverter.

Sensorless vector control mode: response 100 rad/s, accuracy $\pm 0.5\%$.



Impact load response characteristic (Sensorless without PG)

Sensor vector control mode: response 250rad/s, accuracy $\pm 0.01\%$



Impact load response characteristic (Sensorless with PG)

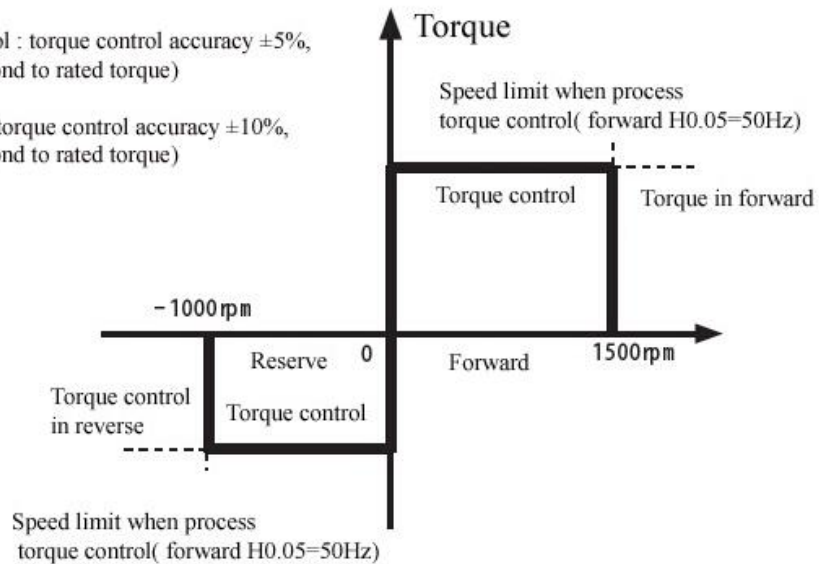
Stand built it torque control function.

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.

Without PG open loop vector control : torque control accuracy $\pm 5\%$, torque control range: 1:50 (correspond to rated torque)

With PG close loop vector control: torque control accuracy $\pm 10\%$, torque control range: 1:20 (correspond to rated torque)



Speed limit in torque control mode

Technical Specification:

function describe	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 specification	control mode	V/F, sensorless vector control mode
	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 specification	Frequency reference	digital setting, analog setting, pulse setting, 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

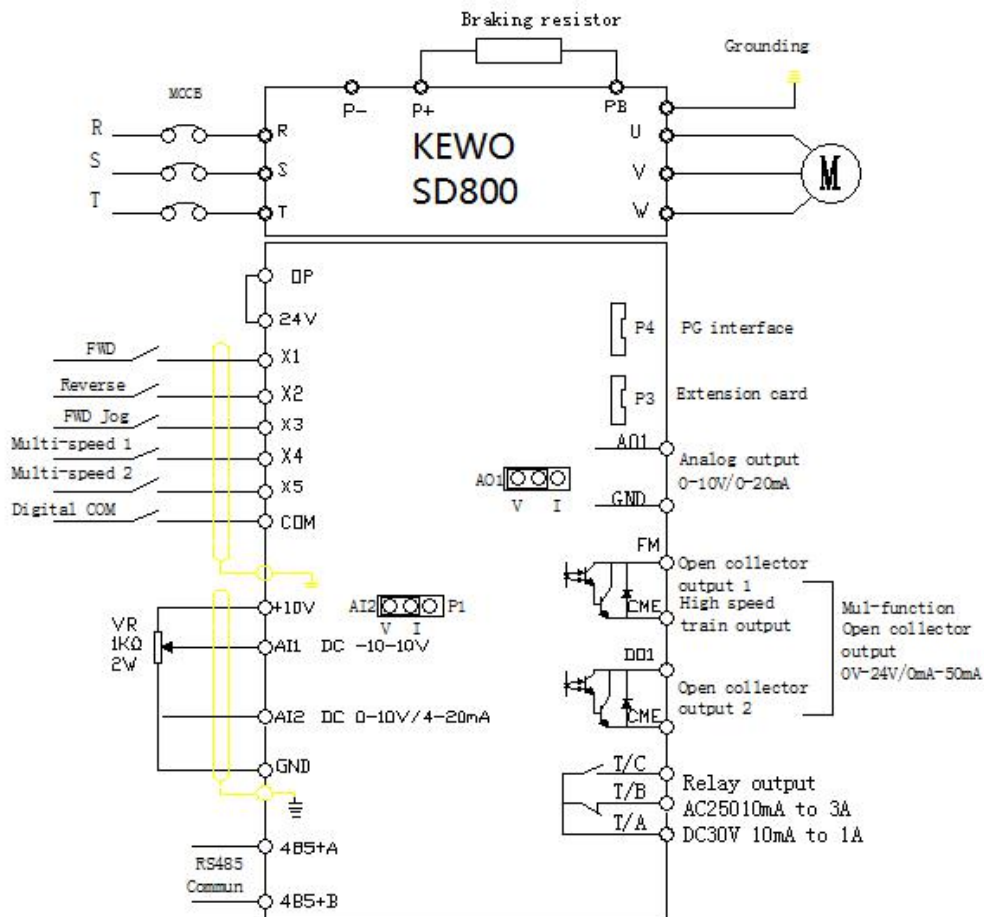
- Torque respond speed $\leq 5\text{ms}$ in OLV without PG
- Wide input voltage range, and work above 45°C is available
- Outstanding overload capacity, 150% rated current for 60s, 180% rated current for 3s, 200% rated current for instantaneous.
- Speed range 1:100 (SFVC), 1:1000 (CLVC)
- Startup torque,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

Hardware enhanced features.

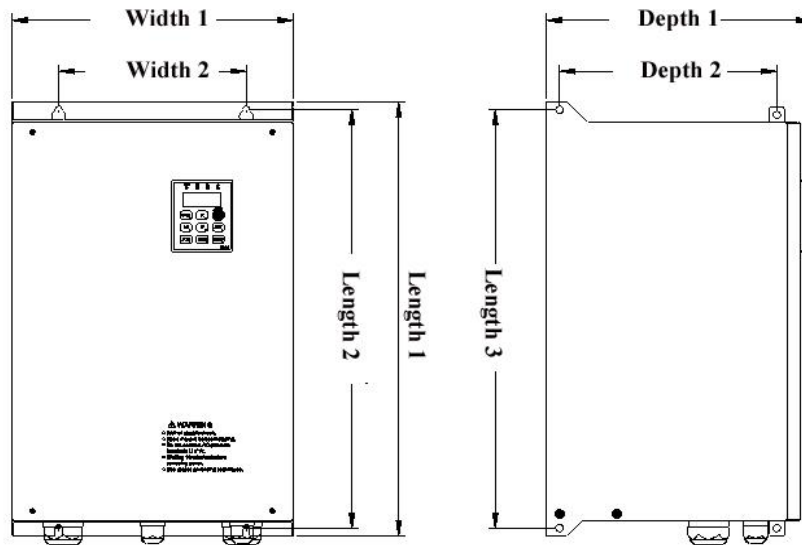
- 1. Ti 's 32 bit DSP (28034/35), Germany Infineon intelligent modules;
- 2. Sealed cabinet, conformal coating on PCB;
- 3. Adopt using aviation plugs that have good quality water proof, gas and oil proof. (options)
- 4. Imported high-speed ventilation fan with 24V DC power supply, good cooling effect;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

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/0-20mA is 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
		External size			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 \pm 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

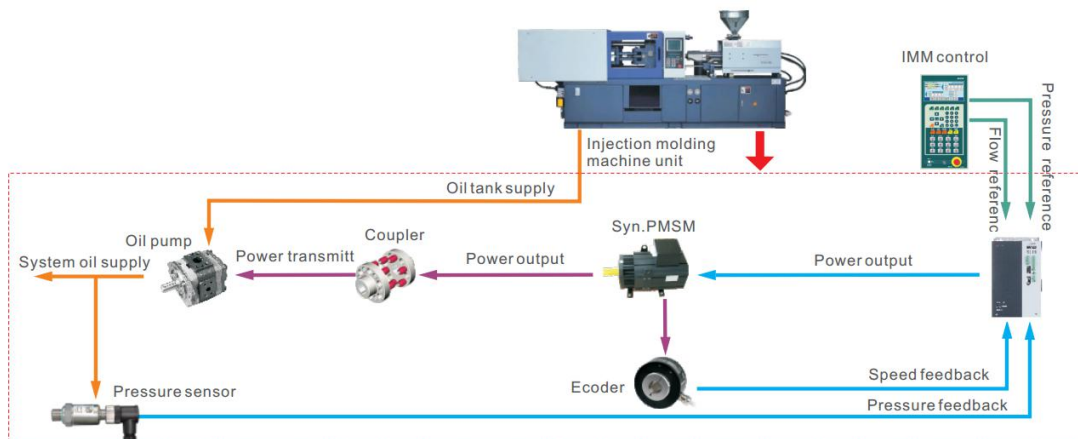
High repeated accuracy: To achieve high accuracy flow and pressure control

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

Quick response: frequency response up to 50ms.

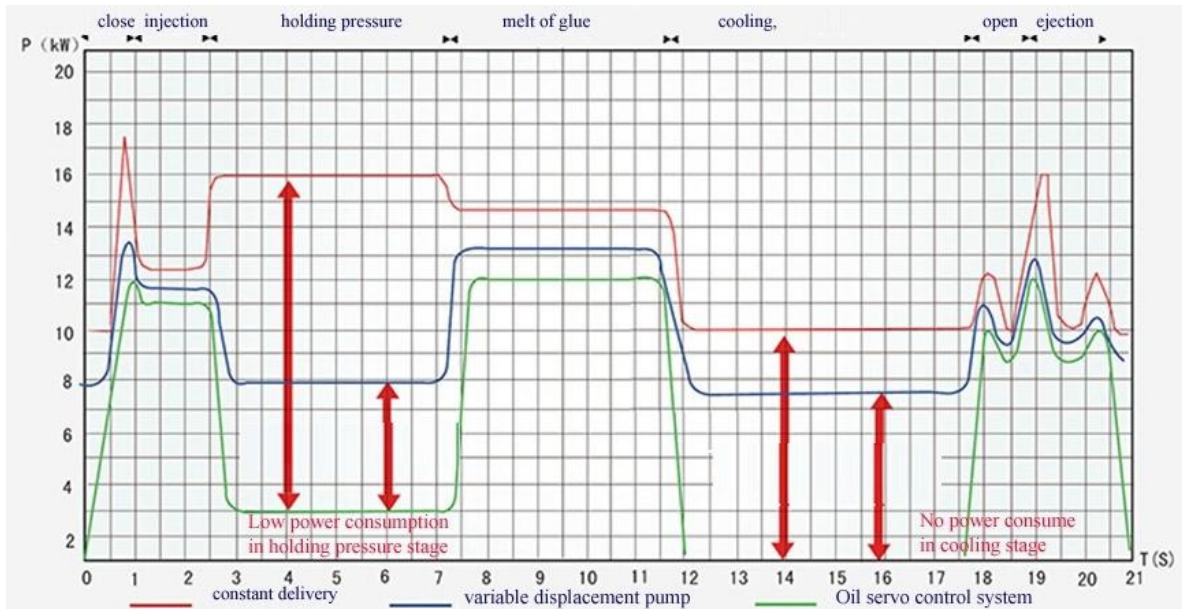
Enhanced features:

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



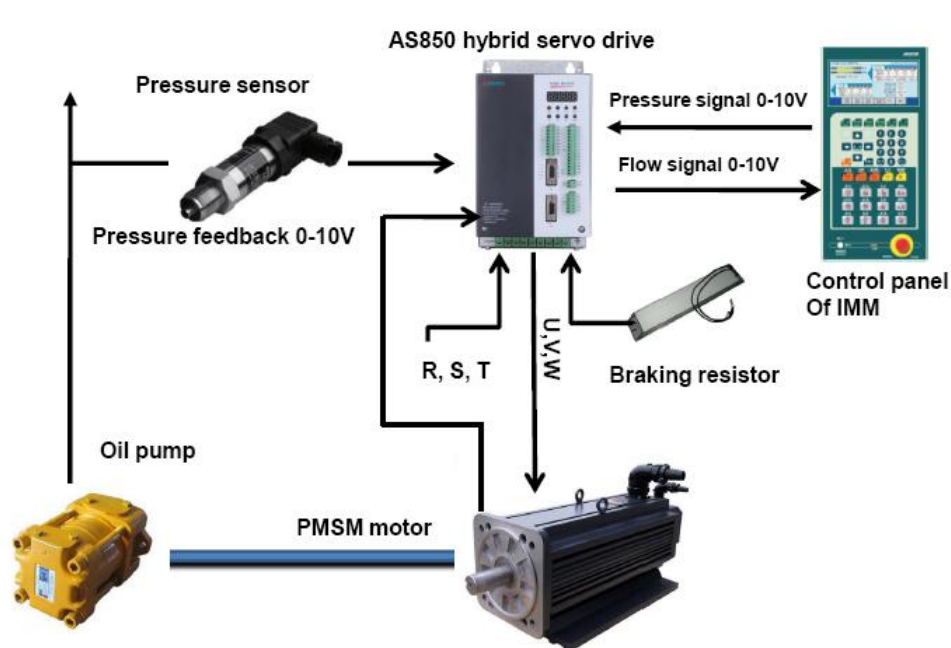
System connection for energy saving with hybrid servo drive

Energy saving comparison diagram

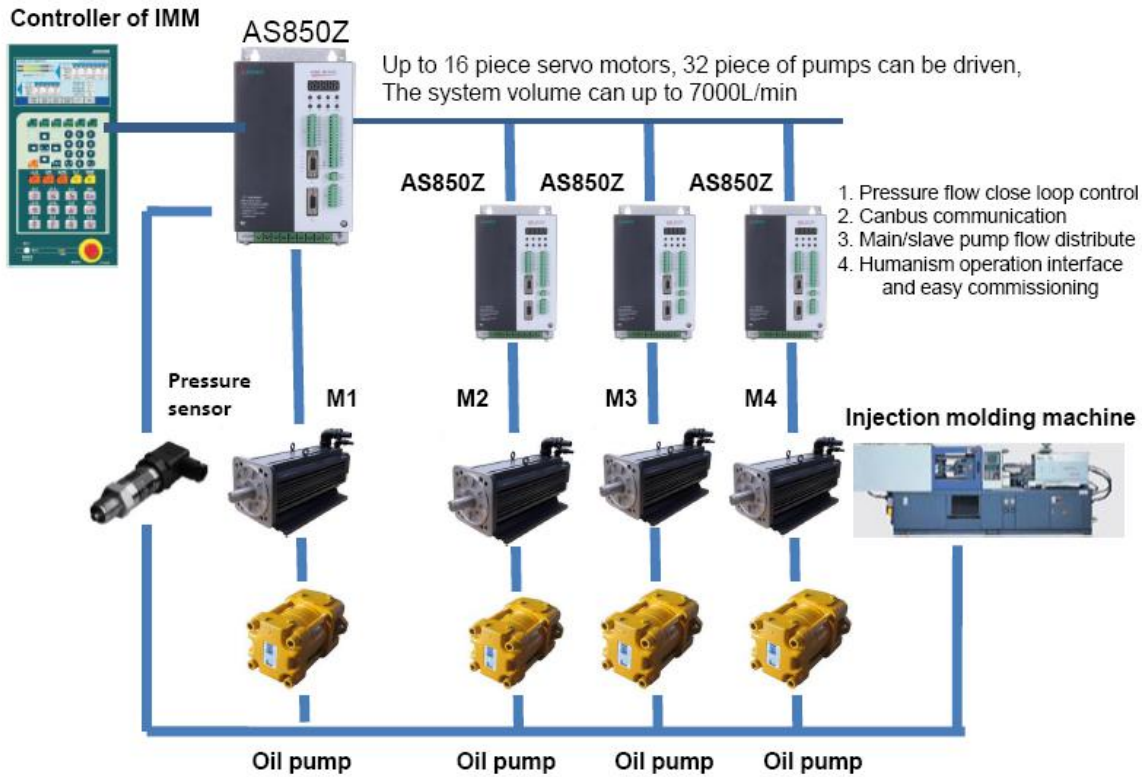


The injection molding machine power consume take up 75% of system total in traditional constant flow of IMM. It need difference flow and pressure during difference working stage of IMM such as mold close, injection, pressure holding, molding open. When the required over the setting pressure and flow, 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.

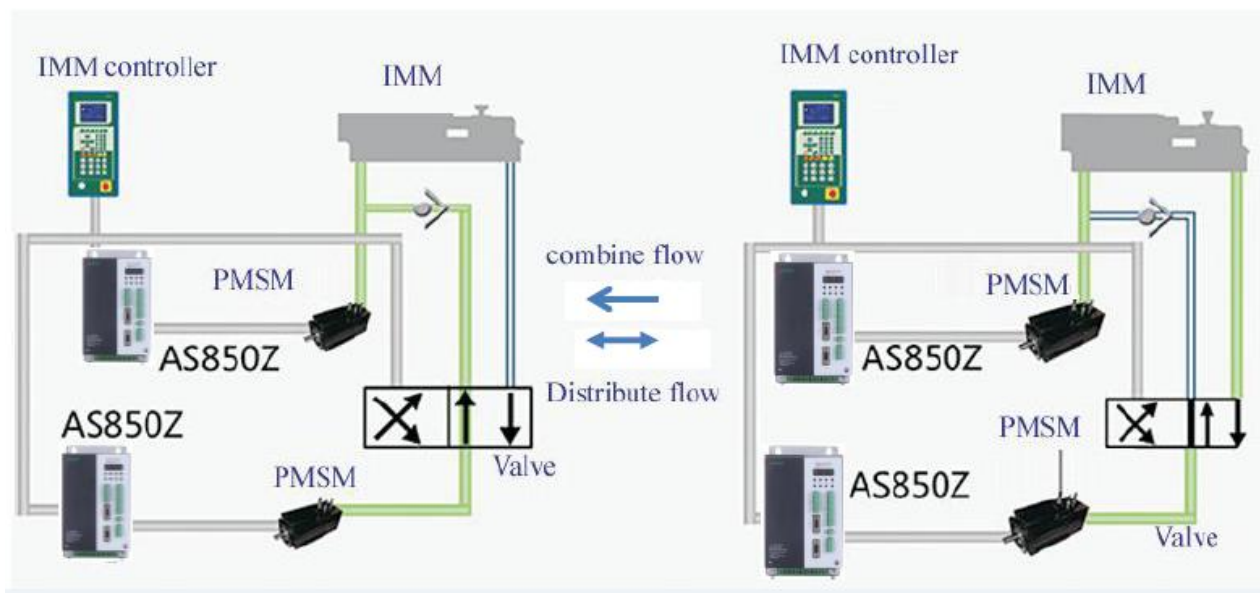
System connection diagram



Multiple pumps combine flow control diagram

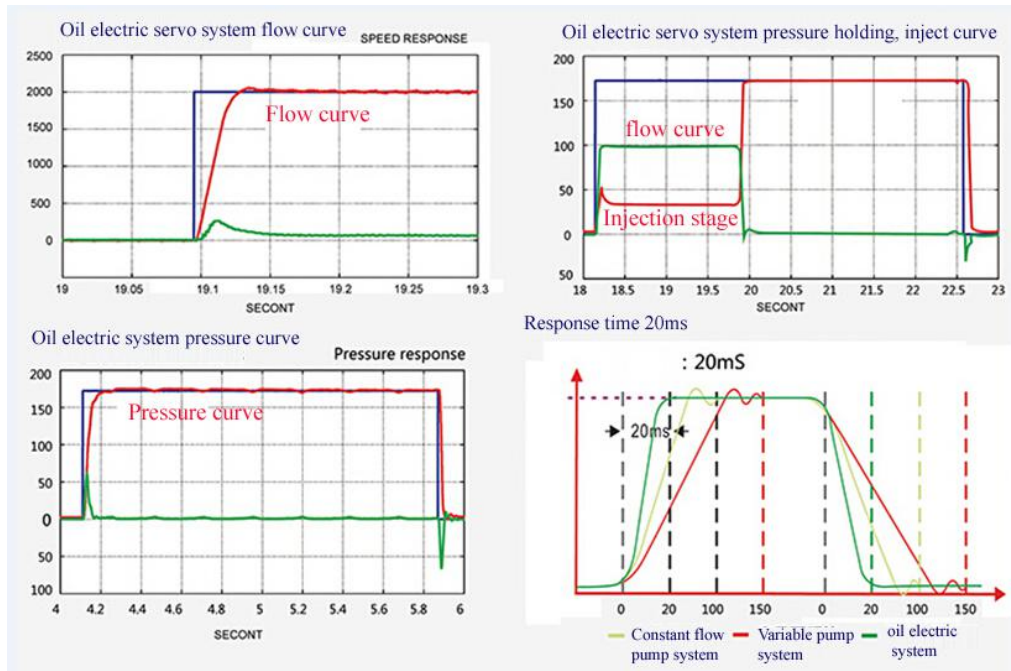


Multiple pumps compound control compound control



Oil servo drive system performance.

System curve of Kewo AD850Z servo drive in IMM application



Technical data

	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	
Cooling method	force cooling	
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 function	Phase missing input, under voltage input, over voltage input, over current, overload of drive, overheat of motor, external interference encoder fault.	
Display	current output display, current rotation, current output current, output voltage, fault alarm, operation parameters, running status.	

	using place	Indoor, no sunlight exposure, no dusty, corrosive atmosphere, no flammable gas, no water dip and not salt.
	Environment temperature	"-10 °C to 50°C
	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 function	Phase missing input, under voltage input, over voltage input, over current, overload of drive, overheat of motor, external interference, encoder fault.	
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	Environment temperature	"-10 °C to 50°C
	Environment humidity	90% below(no condensation)
	shock intensive	0.5g(acceleration) below
	altitude	1000 below.

Model selection

Servo drive model	Input voltage	Rated output power (KW)	rated input power (A)	Rated output current (A)	braking resistor power selecting	braking resistor (Ω)	Braking unit
AS850Z4T017	3 phase 380V	7.5	20.5	17	1000	>90	built in
AS850Z4T025		11	26	25	1000	>40	
AS850Z4T032		15	35	32	1000	>32	
AS850Z4T037		18.5	38.5	37	2500	>32	
AS850Z4T45		22	46.5	45	2500	>16	external connect
AS850Z4T60		30	62	60	2500	>16	
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 Synchron.	Index Plate	Low Torque at low speed



0-200% rated torque output,
Strong power output



Position control ± 1 Pulse, speed
Control $\pm 0.1\%$

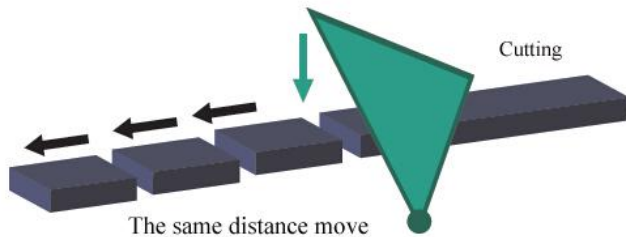
Software function

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

Main features of AS850 Servo Drive

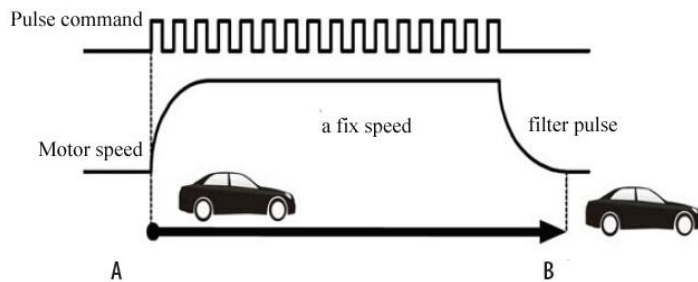
Points positioning control

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.

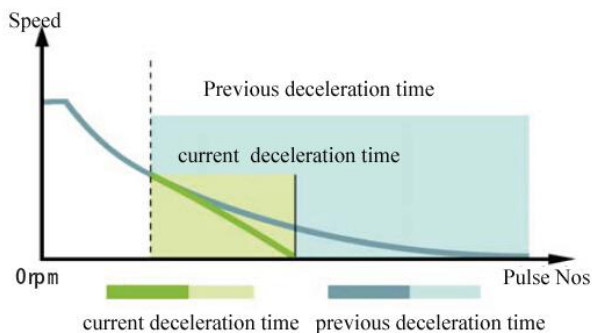


Pulse synchronization position control

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: $\pm 0.1\%$
 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: $\pm 5\%$
 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.

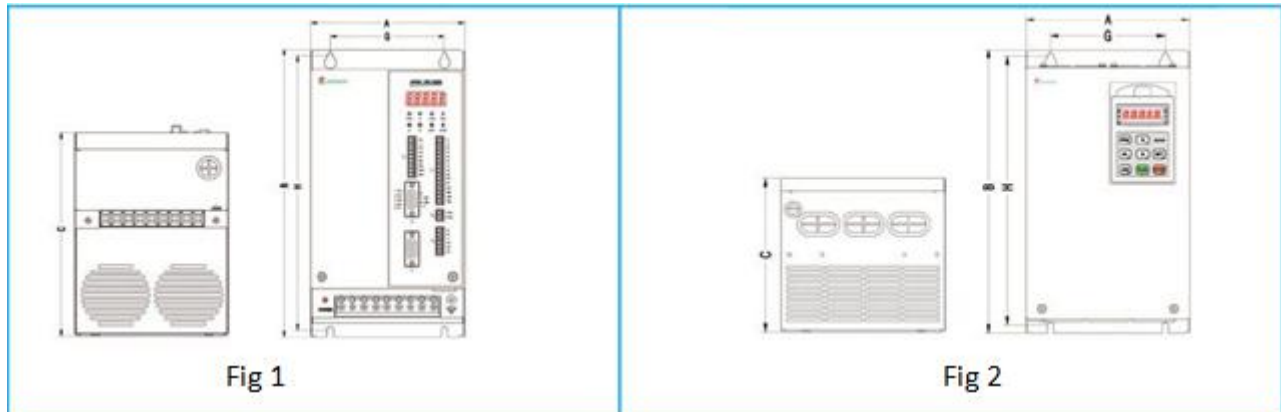


Technical specification

Technical Specification		
Input	rate voltage	380V+ 10% -15%
	rated frequency	50/60Hz
Output	output voltage	0-380V
	output frequency range	0-1000Hz
Control feature	control mode	current/flux, close loop vector control
	starting torque	0.0Hz 180%
	torque limit	0-200% rated motor torque
	torque control accuracy	$\pm 5\%$
	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 input	9 ways digital input, NPN/PNP acceptable
	Programmable external pulse input	pulse+ director, quadrature pulse
	protection function	over current, over voltage, overheat, under voltage, phase missing, motor short circuit.
environment	temperature	"-25°C to 45°C
	humidity	< 90% RH, Non-condensate
	Vibration	below 20Hz, 1G, 20 to 5Hz,, 0.2G
	Heat dissipation	force cooling
	protection grade	IP20,

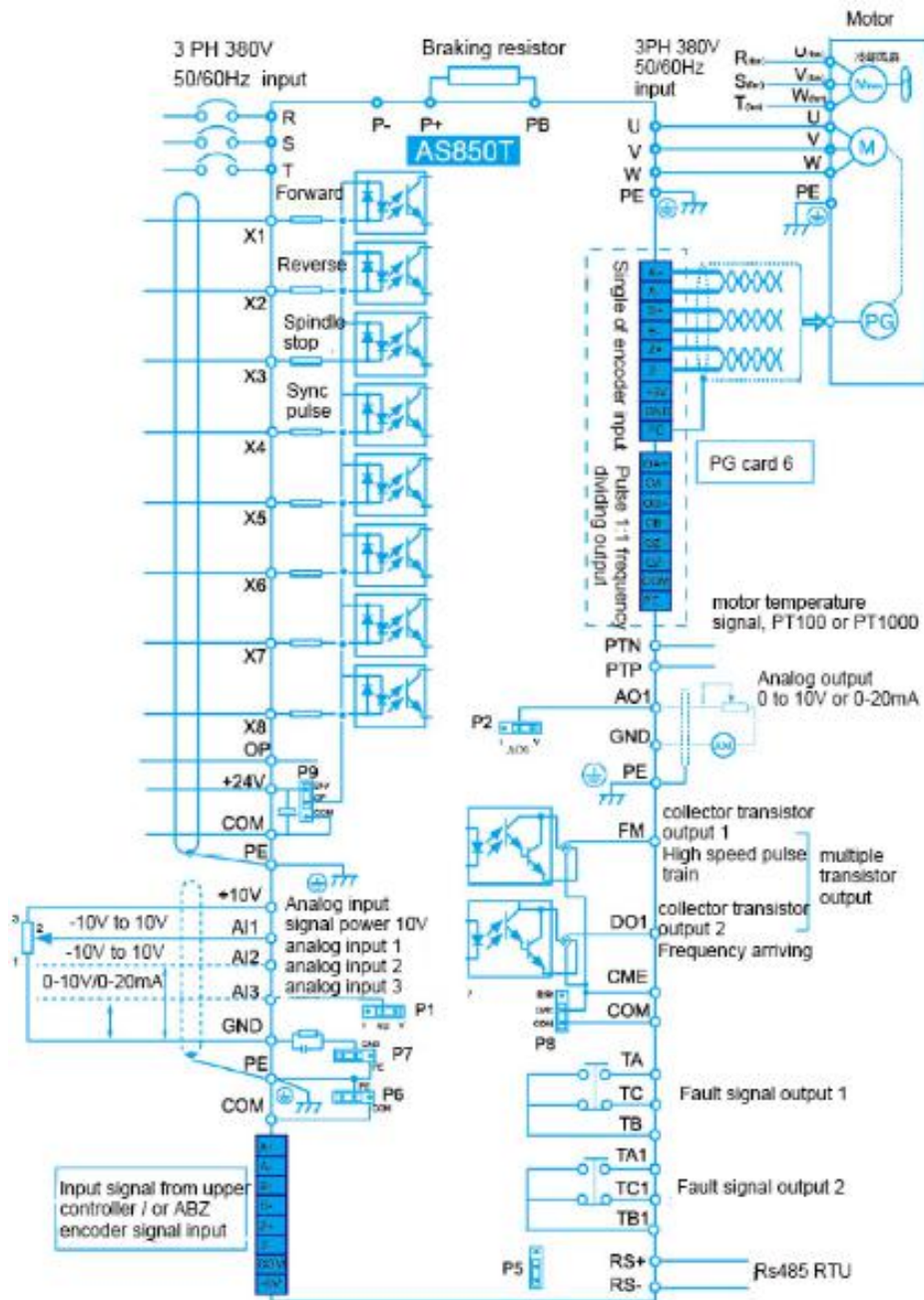
Dimension and selecting.



Model	G	H	A	B	C	Screw H	Model
AS850-4T2.2GB~5.5GB	100	240	135	250	180	M5	Fig 1
AS850-4T7.5GB~11GB	140	325	200	340	185	M5	Fig 1
AS850-4T15GB	120	290	160	300	187	M5	Fig 2
AS850-4T18.5GB~30GB	200	435	270	450	245	M6	Fig 2
AS850-4T37GB~45GB	220	500	300	520	265	M6	Fig 2
AS850-4T55GB~75GB	280	560	350	580	275	M8	Fig 2

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

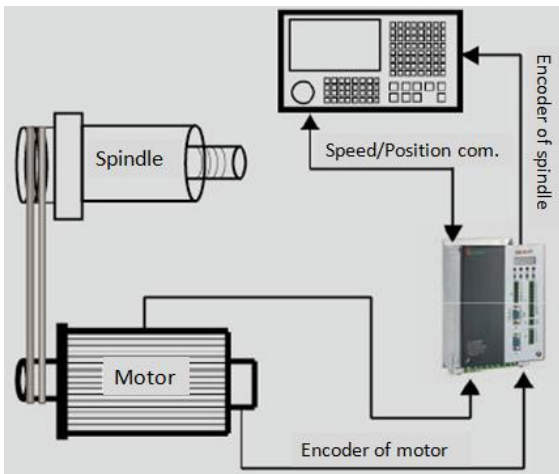


Application Illustrates

Application A of CNC filed.

Application features: belt transmission, suits for all CNC system

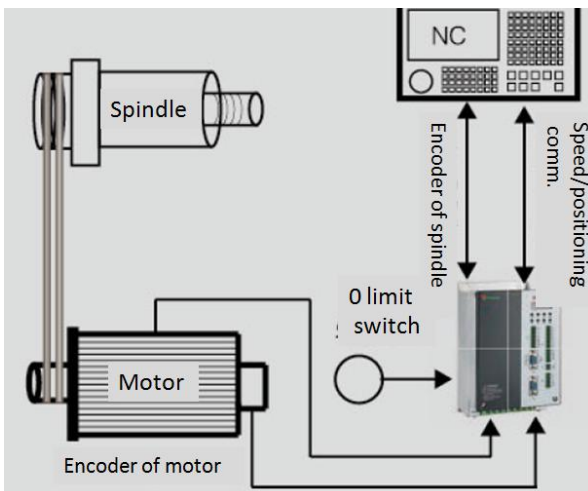
Function features: speed control for spindle, torque switchover under low speed, fast for acceleration and delectation, energy saving up to 80% when driving no load.



Application B For CNC Machine

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

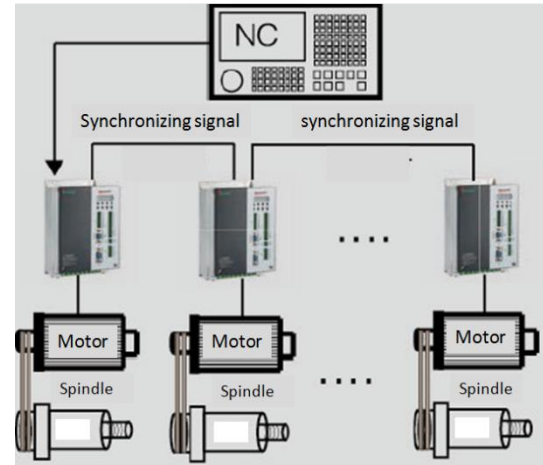
Function features: speed control for spindle, torque switchover under low speed, fast for acceleration and delectation, energy saving up to 80% when driving no load.



Application Of Synchronous Of Multiple Spindle

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

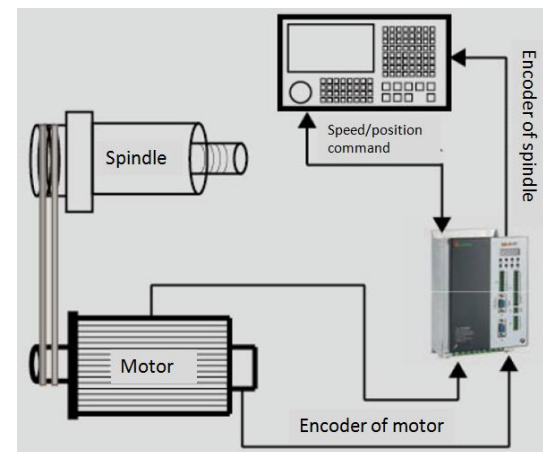
Function features: To realized synchronous speed or synchronous position of multiple spindle.



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

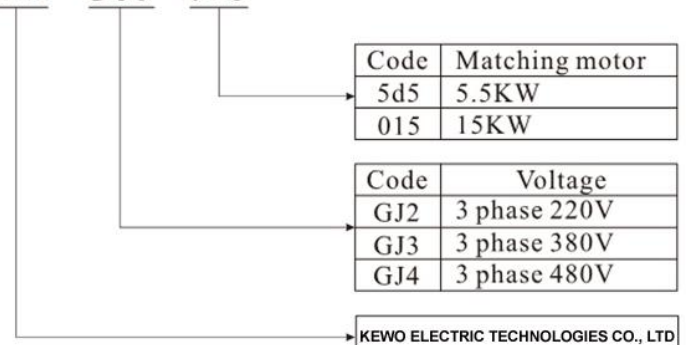
Nameplate explanation

KEWO Soft Starter CE	
Model	EM-GJ3-015
Power	15KW
Input	3PH 380V 50~60Hz
Output	3PH 30A 50~60Hz
 Made In China www.kewodrive.com EMGJ30152013030700001 KEWO ELECTRIC TECHNOLOGIES CO., LTD	

- Soft starter model
- Soft starter power
- Input voltage and frequency
- Output voltage, current and frequency
- Product code and manufacturer

Model explanation:

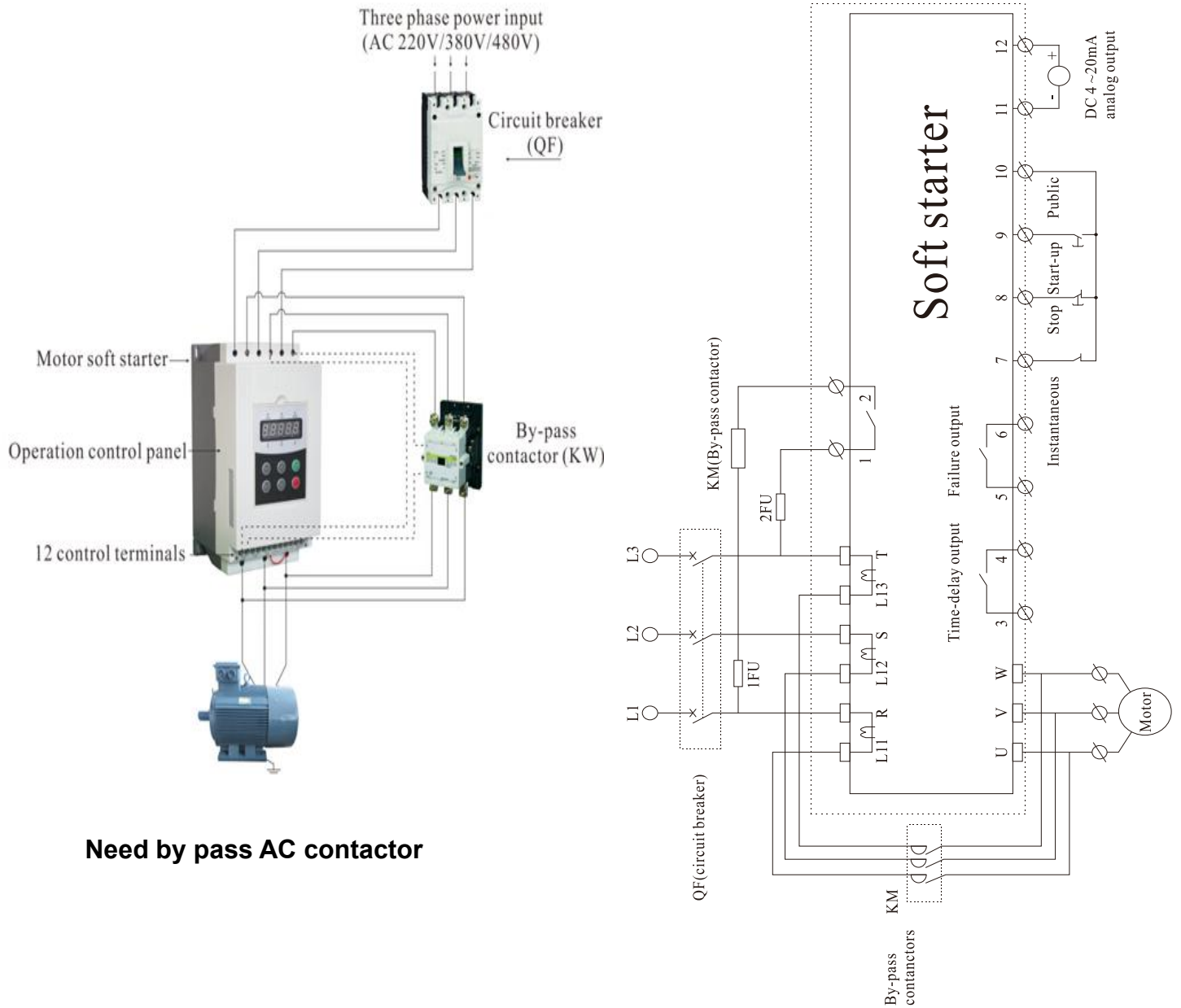
EM-GJ3-015



Technical Specification

Item		Description
Input Power Supply	Input Voltage	Three-phase 220V/380V/480V/660 AC
	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.
Ambient	Place to be used	Indoor location with good ventilation free from corrosive gas and conductive dust.
	Altitude	Below 1000M. It have to rise the rate power when the altitude is more than 1000M.
	Temperature	-30 +55 °C
	Humidity	90%RH without dew condensation.
	Vibration	<0.5G
Structure	Protection Class	IP20
	Cooling Pattern	Natural wind cooling.

Typical applied wiring diagram

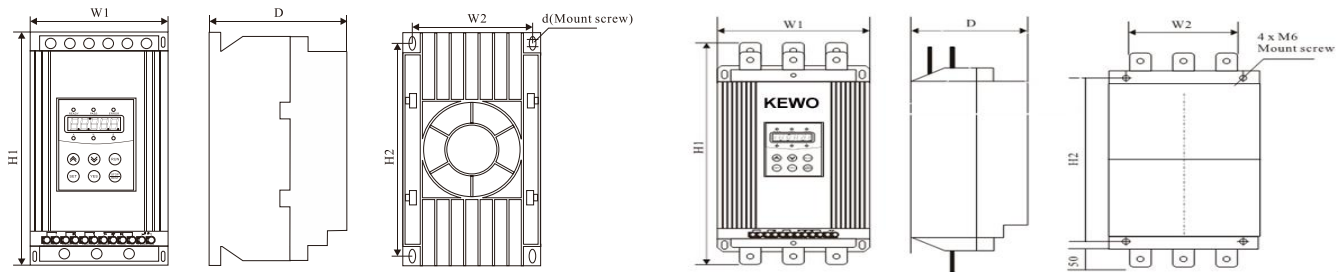


Need by pass AC contactor

Squirrel-cage 3-phase asynchronous motor

The installation dimensions

The external shape and installation dimensions of 5.5KW ~75kw.



Model			Power	Current	External Dimensions (mm)			Installation Dimensions (mm)			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



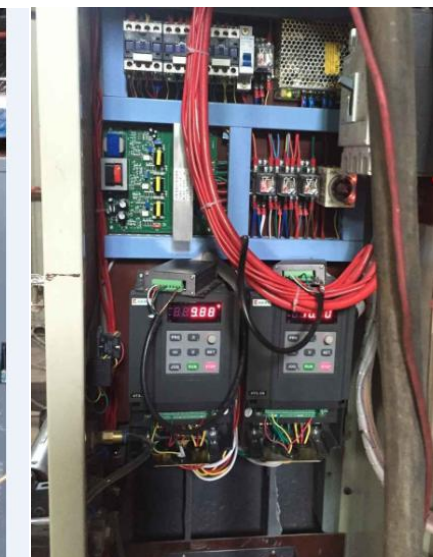
Soft Start Control Panel



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.





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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 reverse...etc.

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

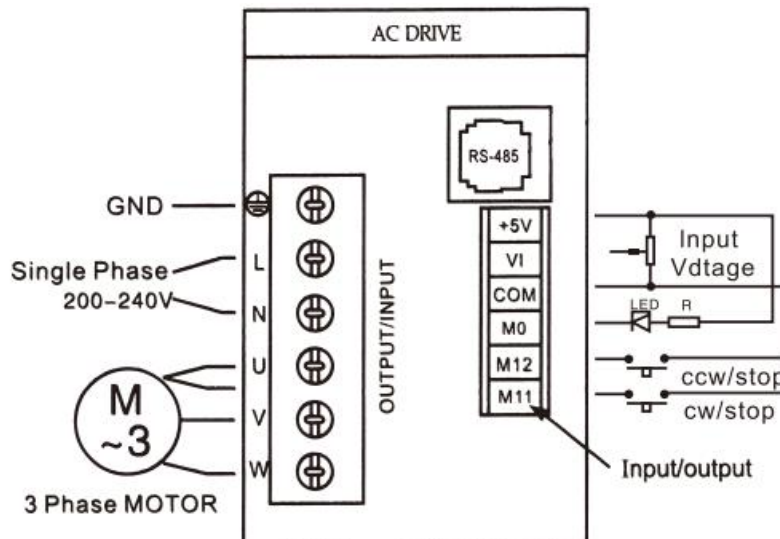
And make every piece of 3 phase 220V smaller power motor with VFD control is available with low cost.



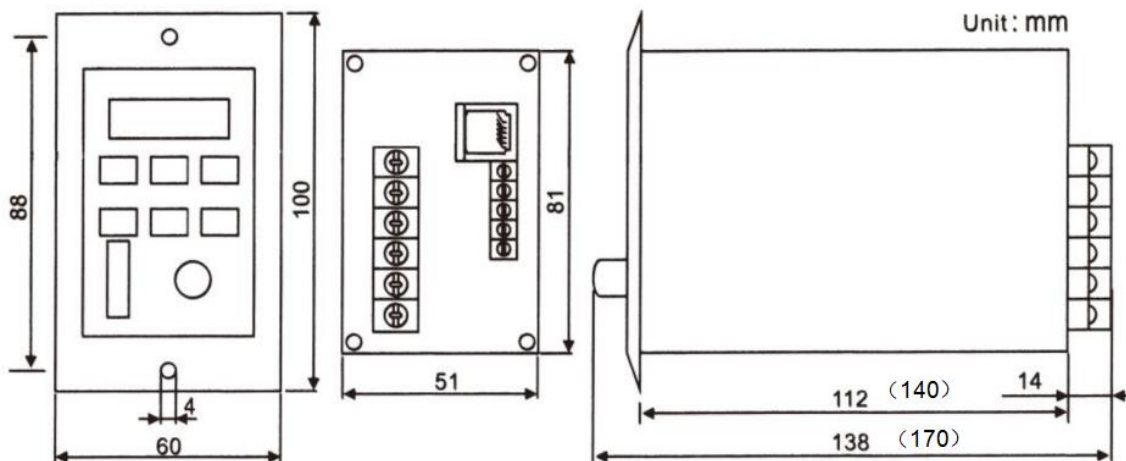
Innovation design, new construction and IPM igt using to ensure good quality

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

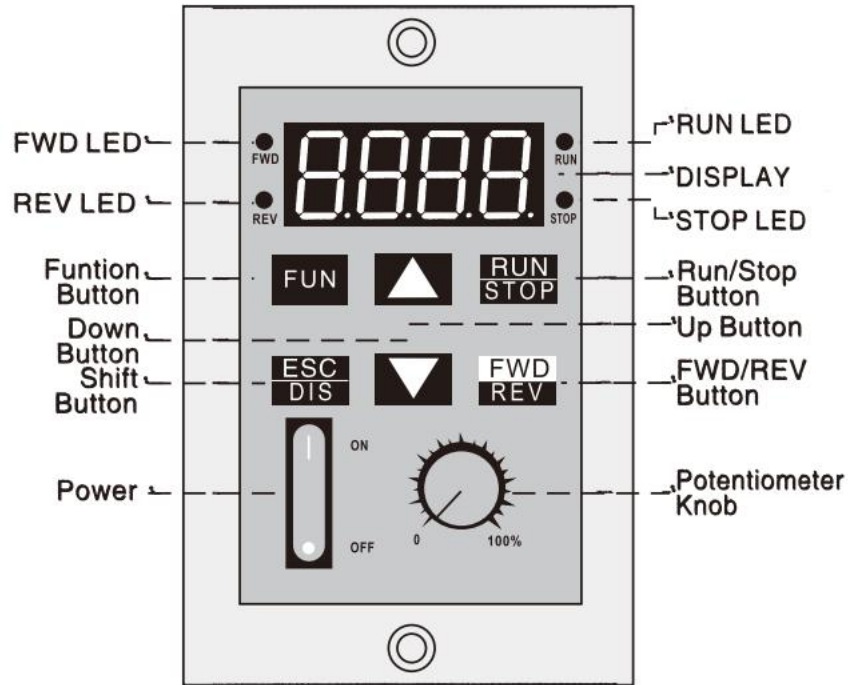


400w, 750w power VFD length is 170mm

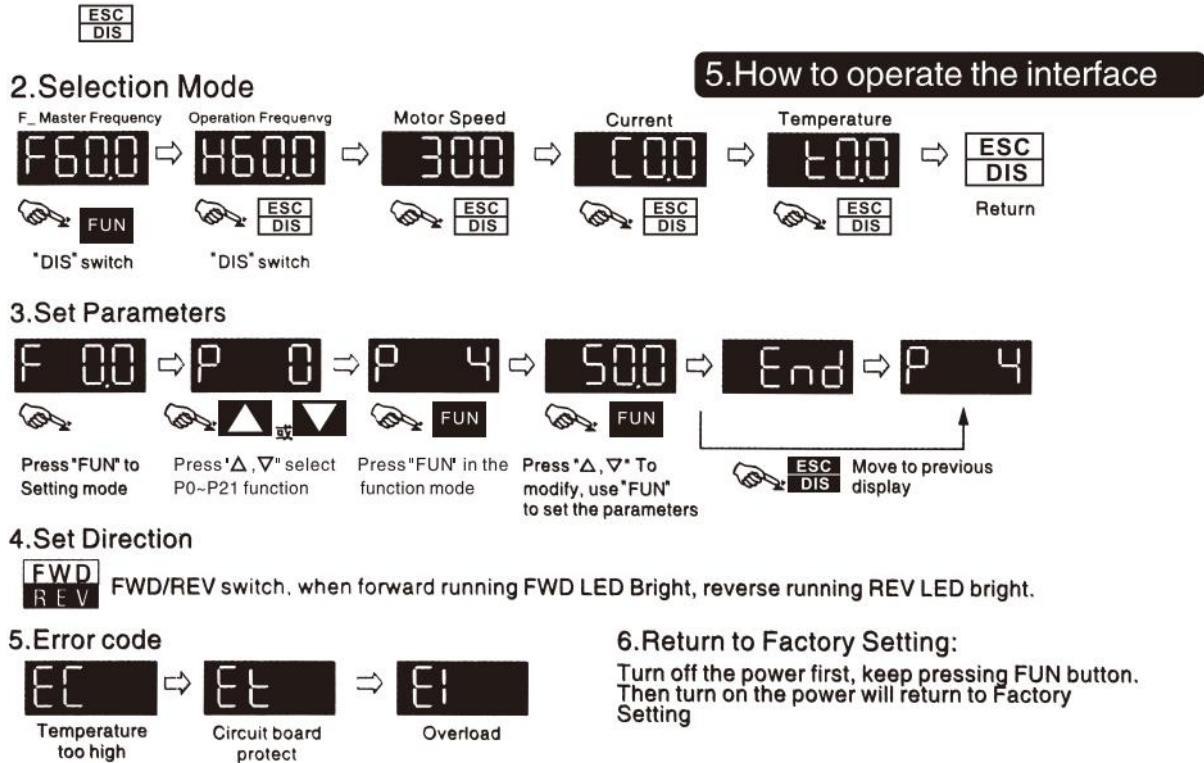
4. Using conditions of AD110 VFD

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

5. Setup with the front panel



5. 6. Operation guide of keypad

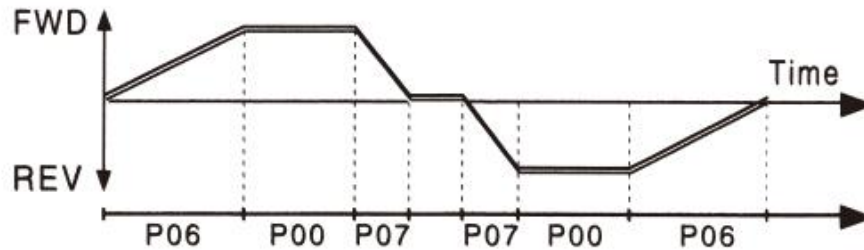


4. Summary of parameters settings of AD110

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	0: Running indication 1: Max output frequency arrive 2: 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.