

## 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 AD DRIVES BRIEF INTRODUCTION

PRODUCTS	SPECIFICATION	PICTURES	BRIEF INTRODUCTION
AD800 Series High Performance Vector Control Drive/ <b>Variable Speed Drive</b>	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, good protection; Sensorless vector control, sensor vector control with PG, VF control, 180% rated starting torque, big allowance IGBT module ,
AD100 Mini Economic AC Drive	1Phase, 220V, 0.4 to 1.5kw		Adopt software platform as same as AD800, easy using and powerful function Mini and Economic type, Using IPM of iGBT
AD350 Mini Vector Control Drive	1 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, rich functions
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%, 5.5kw to 110kw		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

## 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

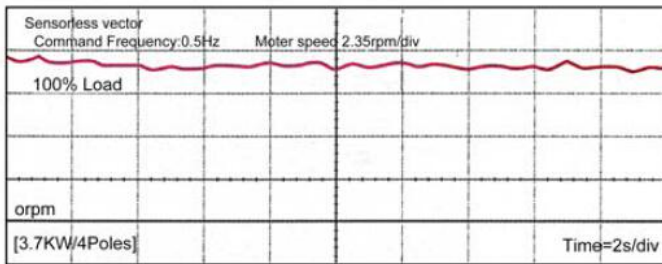
## Features of products.

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 .

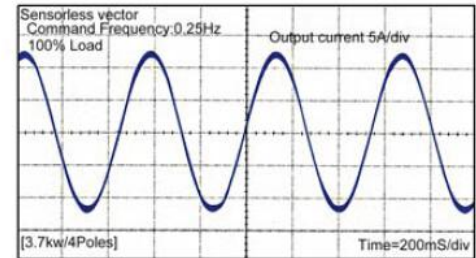
### 1). Wide speed control range

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)



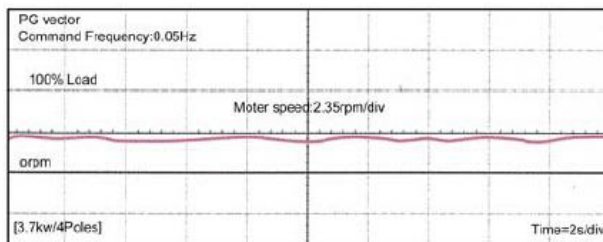
The speed waveform with 100% load under 0.25Hz.



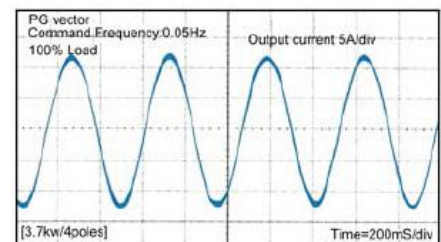
The current waveform with 100% load under 0.25Hz

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

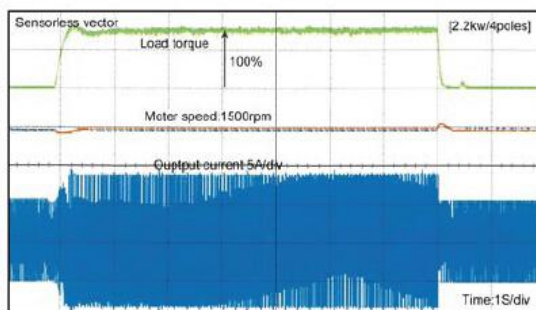
### 2). Response speed improving

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.

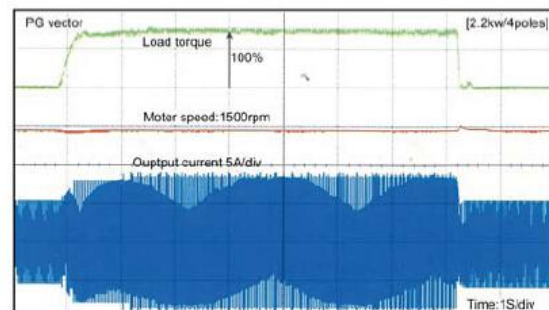
b) . The response 250rad/s, precision  $\pm 0.01\%$  in sensor close loop vector control mode

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  $\pm 0.01\%$

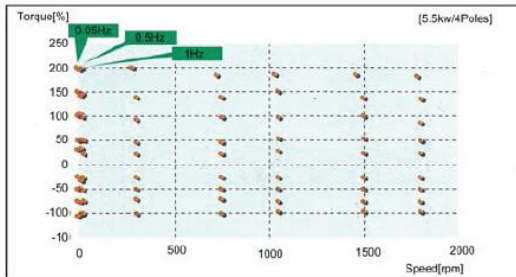


Impact load response characteristic ( Sensorless with PG)

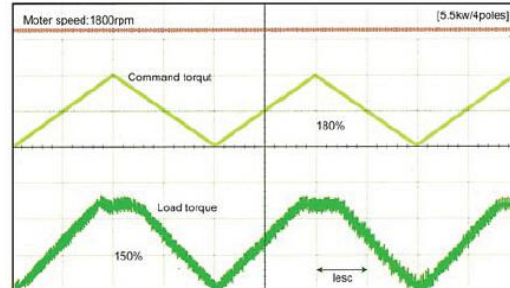
### 3). High torque output under low speed to meet some big inertia load conditions

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

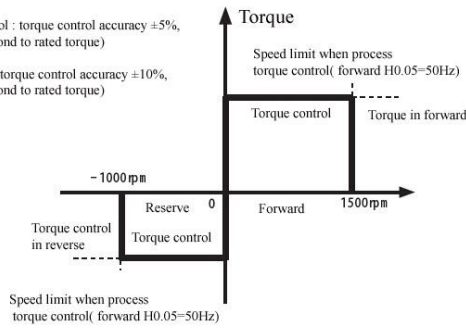


Accuracy torque limit

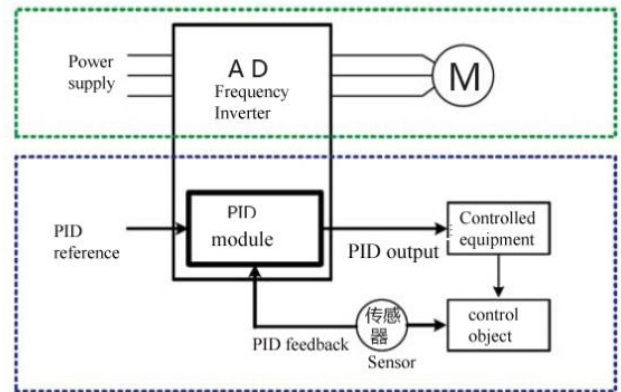
### 4). Torque control in OLV and CLV

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.

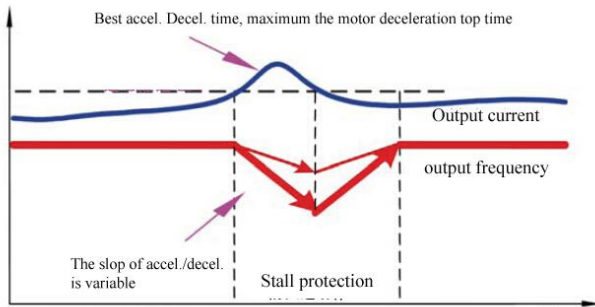
Flexible PID control with sleep mode, configure waking up frequency, sleep frequency, that is very easy using for water supply.

### 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.

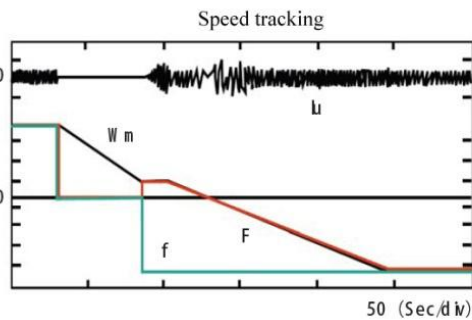
Appropriate acceleration and deceleration will be select according to the load control the motor stopping time even power loss instantaneous.

### Stall protection illustrations



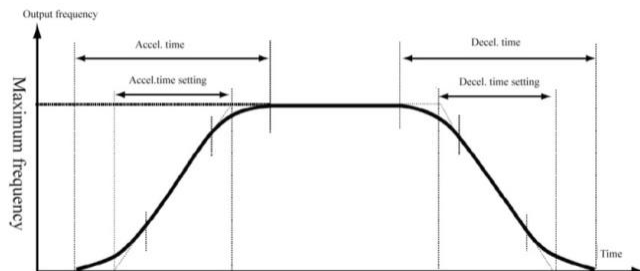
### 7). Speed tracking restart function

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

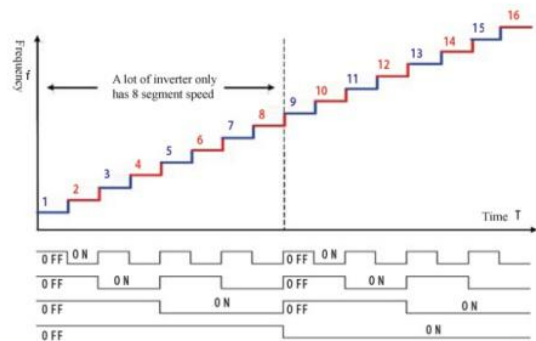
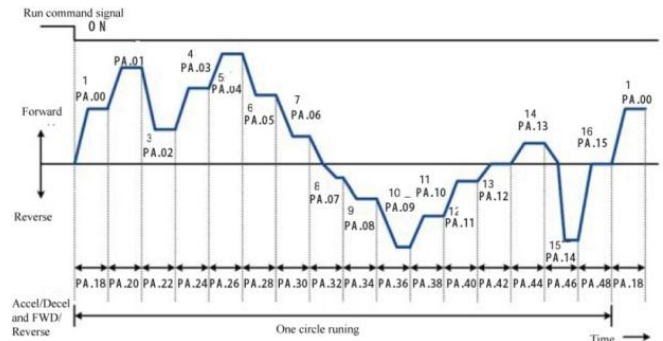


### 8). S curve function

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

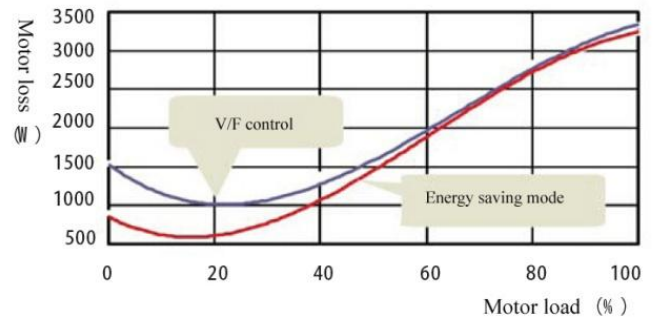


### 9).16 segment speed circle running, easy to configure.



### 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.		
	torque 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℃ ~ +40℃, power derate for 40 ~ 50℃, rated current derated 1% for 1℃ increasing.
	humidity	Less than 95%, no water condense.
	storage	-40 ~ +70℃

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



1.5kw to 11kw

15kw to 93kw

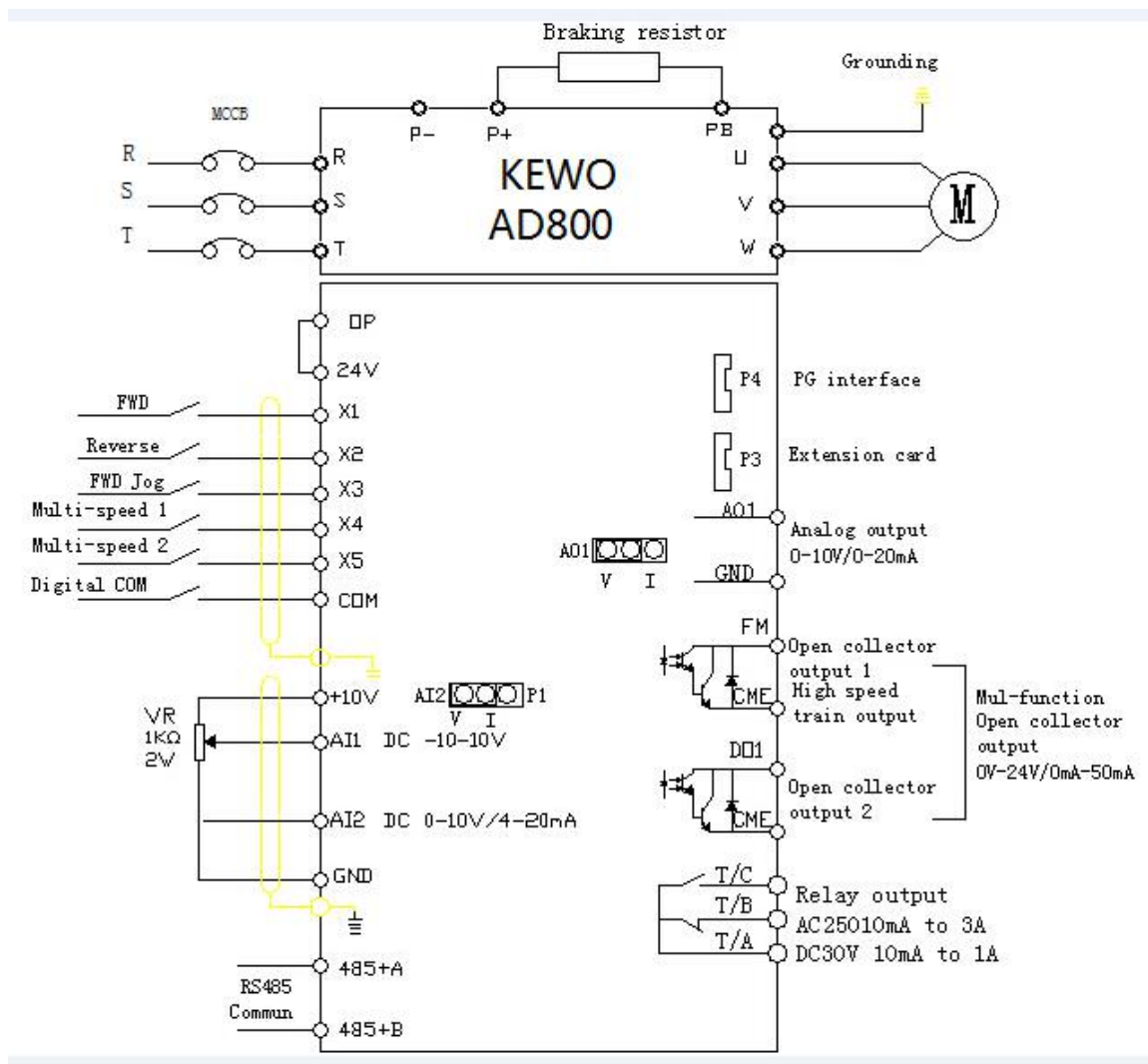
above 110kw

## 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.

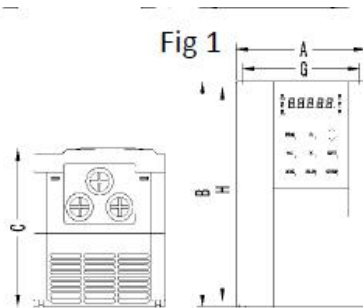


Fig 1

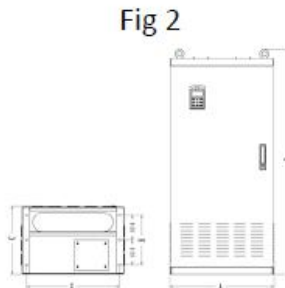


Fig 2

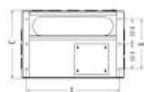


Fig 3

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							
AD800-4T45P							
AD800-4T45G	250	560	352	580	295	M8	Fig2
AD800-4T55P							
AD800-4T55G							
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							
AD800-4T160G	490	--	550	1160	370	M12	Fig 2
AD800-4T185P							
AD800-4T185G							
AD800-4T200P							
AD800-4T200G	530	--	590	1270	390	M12	Fig 3
AD800-4T220P							
AD800-4T220G							
AD800-4T250P							
AD800-4T250G	660	--	710	1450	410	M12	Fig 3
AD800-4T280P							
AD800-4T280G							
AD800-4T315P							
AD800-4T315G							
AD800-4T355P							
AD800-4T355G	770	--	832	1850	410	M16	Fig 3
AD800-4T400P							
AD800-4T400G							
AD800-4T450P							

## 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,**



## 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

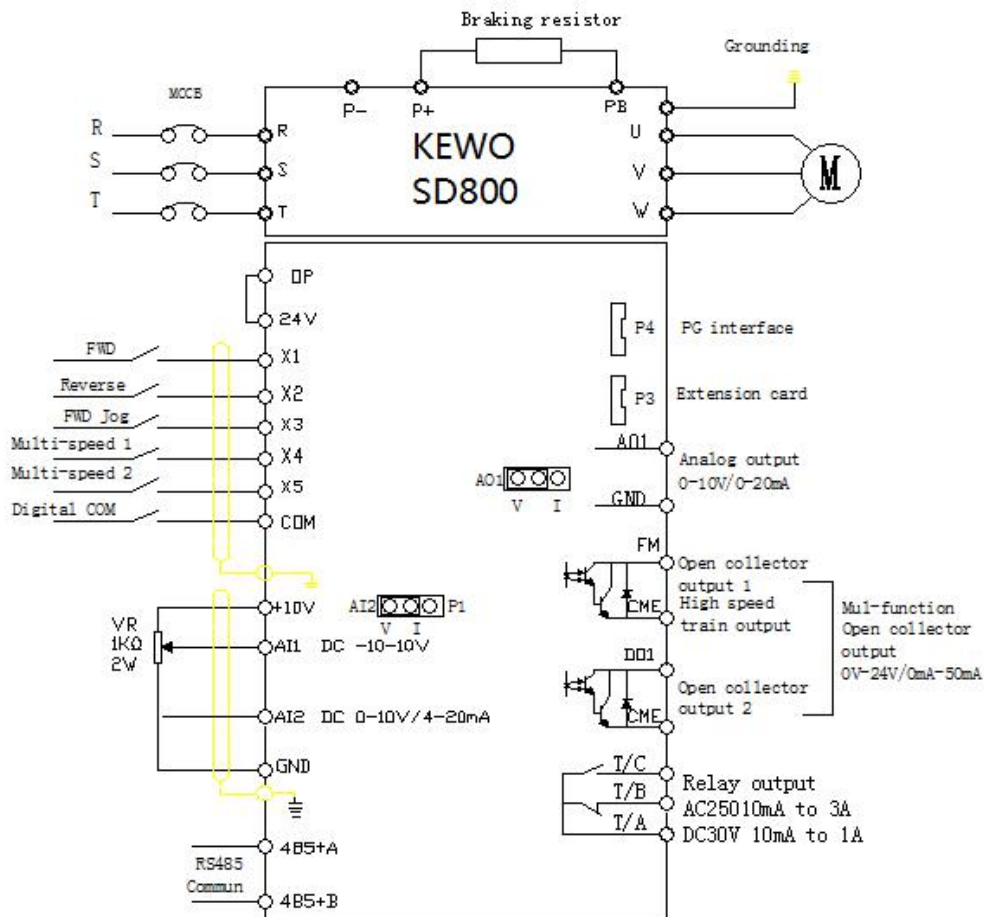
- Torque respond speed  $\leq 5\text{ms}$  in OLV without PG
- Wide input voltage range, and work above  $45^\circ\text{C}$  is available
- Outstanding overload capacity, 150% rated current for 60s, 180% rated current for 3s, 200% rated current for instantaneous.
- Speed range 1:100 (SFVC), 1:1000 (CLVC)
- 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.

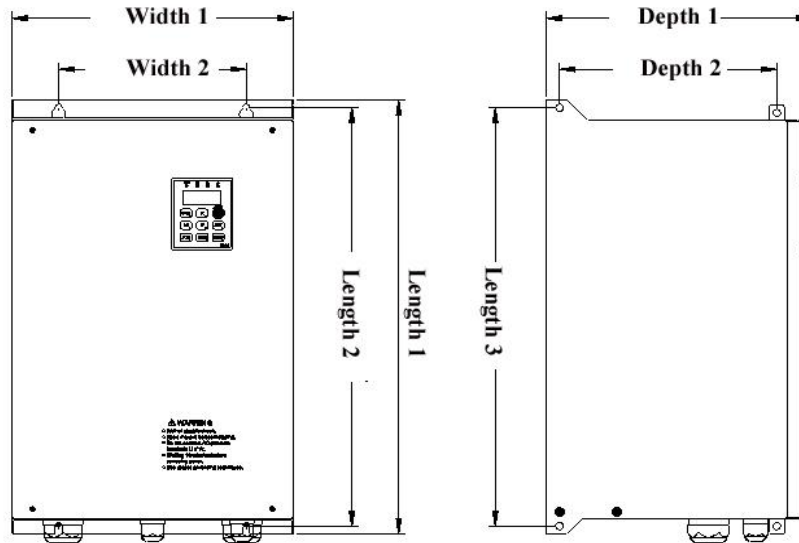
- 1. Ti 's 32 bit DSP ( 28034/35), Germany Infineon intelligent modules;
- 2. Sealed cabinet, conformal coating on PCB;
- 3. Adopt using aviation plugs that have good quality water proof, gas and oil proof. (options)
- 4. Imported high-speed ventilation fan with 24V DC power supply, good cooling effect;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

Paper making equipment, chemical industry, pharmaceutical industry, textile industry