# KEWO AD Sereis AC Drive, Frequency Inverter, Variable Speed Drive

## KEWO Products Range:

VSD, Frequency Inverter, Servo Drive, Soft Starter, Solar Pump Inverter

| | | |
|---|---|---|
| AD100 (VFD) | AD350(VFD) | AD800( Vector Control Inverter) |

## KEWO Products Range

| | | | |
|---|---|---|---|
| SD800 VFD | AD850Z/T ( Servo Drive) | Soft Starters | PV350/800 Solar Pump Inverter |

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# KEWO AD DRIVES BRIEF INTRODUCTION

| PRODUCTS | SPECIFICATION | PICTURES | BRIEF INTRODUCTION |
|---|---|---|---|
| AD800 Series High Performance Vector Control Drive/Variable Speed 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 AC Drive | 1Phase, 220V, 0.4 to 1.5kw | | Adopt software platform as same as AD800, rich functions 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 |
| 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 |

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:

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

Three phase, 220V, 0.75kw to 75kw

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

Products range: AD100, AD350, AD800, AD800S

## 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.

| Model / Take example with 380V model | Input voltage / Rated power (kw) | 220V (1/2T) / Output current(A) | 380V (4T) / Output current(A) | 660V (6T) / Output current(A) |
|---|---|---|---|---|
| AD100-2S0.4G | 0.4 | 2.5 | | |
| AD350-4T0.75 | 0.75 | 4 | 2.3 | |
| AD350-4T1.5G | 1.5 | 7 | 3.7 | |
| AD350-4T2.2G | 2.2 | 10 | 5.0 | |
| AD350-4T3.7G | 3.7 | 16 | 8.5 | |
| AD800-4T5.5G/ | 5.5 | 20 | 13 | |
| AD800-4T7.5G/ | 7.5 | 30 | 17 | 10 |
| AD800-4T11G/ | 11 | 42 | 25 | 15 |
| AD800-4T15G/ | 15 | 55 | 32 | 18 |
| AD800-4T18.5 | 18.5 | 70 | 38 | 22 |
| AD800-4T22G/ | 22 | 80 | 45 | 28 |
| AD800-4T30G/ | 30 | 110 | 60 | 35 |
| AD800-4T37G/ | 37 | 130 | 75 | 45 |
| AD800-4T45G/ | 45 | 160 | 90 | 52 |
| AD800-4T55G/ | 55 | 200 | 110 | 63 |

| Model / Take example with 380V model | Input voltage / Rated power (kw) | 220V (1/2T) / Output current(A) | 380V (4T) / Output current(A) | 660V (6T) / Output current(A) |
|---|---|---|---|---|
| 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 .
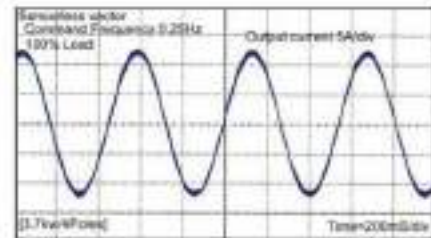
## 1. Wide speed control range

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

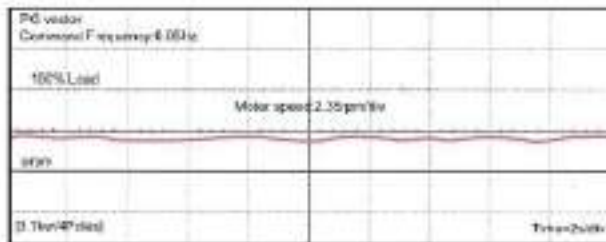Sensorless without PG mode: 0.5 to 400Hz (1:100/50Hz)
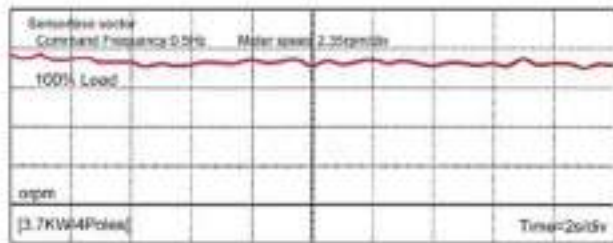
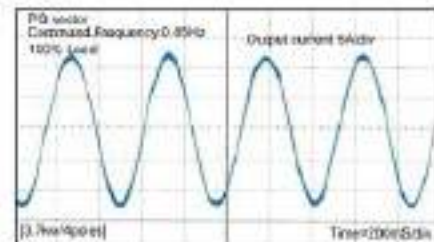The speed waveform with 100% load under 0.25Hz.

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 0.05Hz with full load in sensor close loop mode

Current wave form under 0.05Hz with full load in sensor close loop mode

## 2. Response speed improving

Adopting high speed 32 bit DSP to get the high speed response of frequency inverter.
a)  The response 100rad/s, precision ± 0.5% in sensorless open loop vector control mode.
b)  The response 250rad/s, precision ± 0.01% in sensor close loop vector control mode

Sensorless vector control mode: response 100 rad/s, accuracy ±0.5%

Sensor vector control mode: response 250rad/s, accuracy ±0.01%
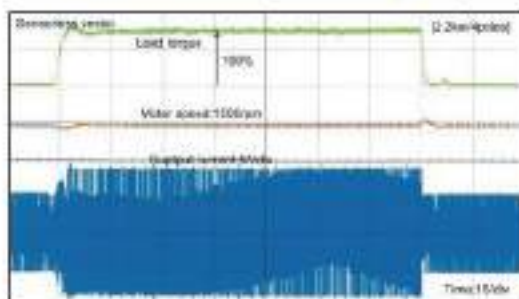
Impact load response characteristic ( Sensorless without PG )

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.

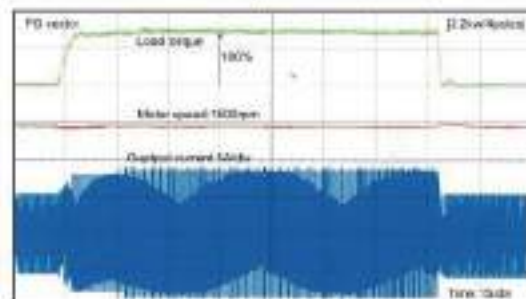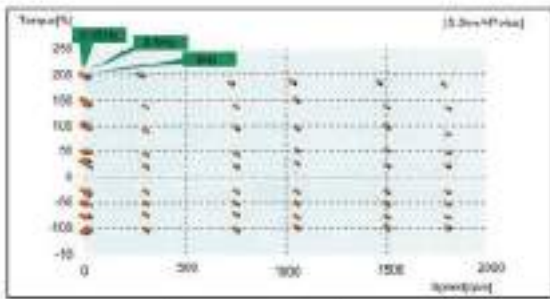Adopting advanced current vector control technology and motor parameters detecting to make high torque under low speed is available.



Torque characteristic
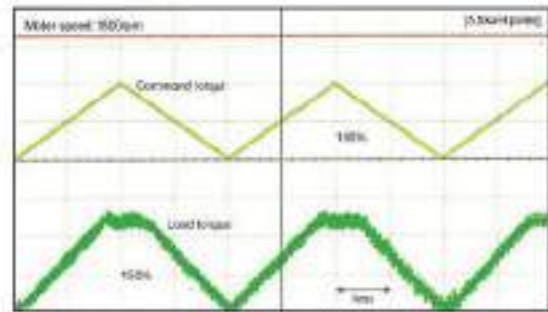


Accuracy torque limiting

### 4. Torque control in OLV and CLV



Speed lmimit in torque control mode
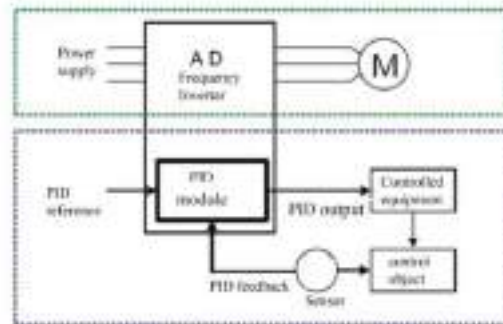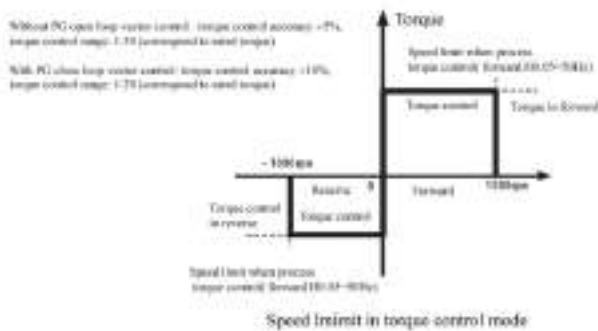


### 5. Powerful PID function

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.

### 7. Stall protection illustrations
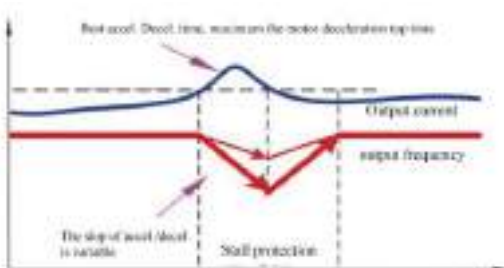
## 8. Speed tracking restart function

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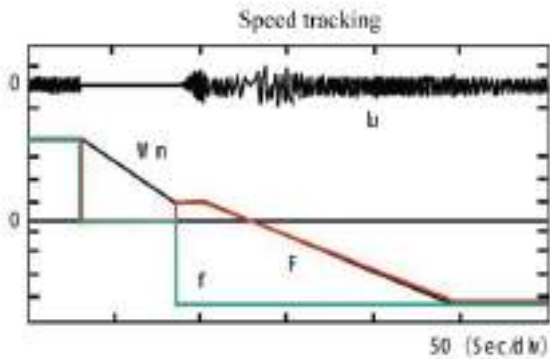


## 9. S curve function

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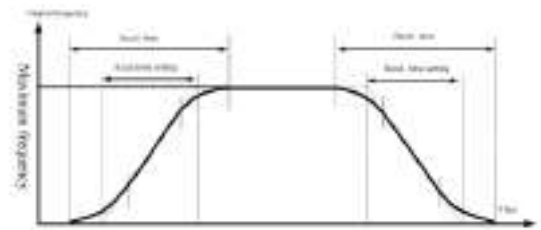


## 10. 16 segment speed circle running, easy to configure





## 11. 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

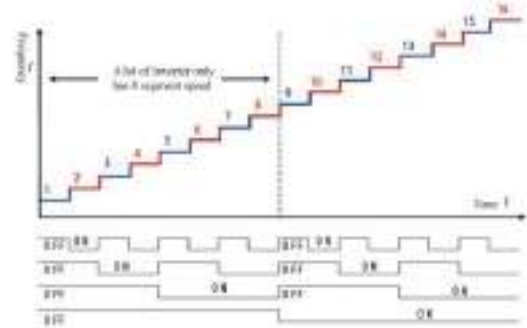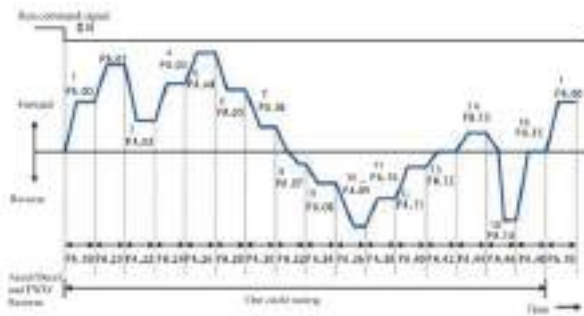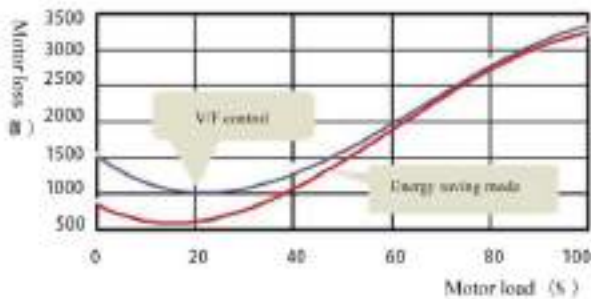| Items | | Specification | | |
|---|---|---|---|---|
| Control mode | Control mode | SVC in open loop | V/F control | Close loop vector control |
| | Starting torque | 0.5Hz 180% | 0.5Hz 150% | 0.00Hz 180% |
| | Speed adjust range | 1:100 | 1:100 | 1:1000 |
| | Speed stabilizing precision | | | ±0.02% |
| | Torque precision | NO | NO | ±5% |
| | Motor type | General induction motor,permanent magnet synchronous motor* | | |
| Functin 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 button | It can set for Forward Jog, reverse Jog, forward/reverse switch | | |
| | 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

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# AD800 AC Drive models



| 1.5kw to 11kw | 15kw to 93kw | Above 110kw |

## Wiring diagram of AD800

I. PG card external connection as show bellow diagram.

2. Built in PG card.

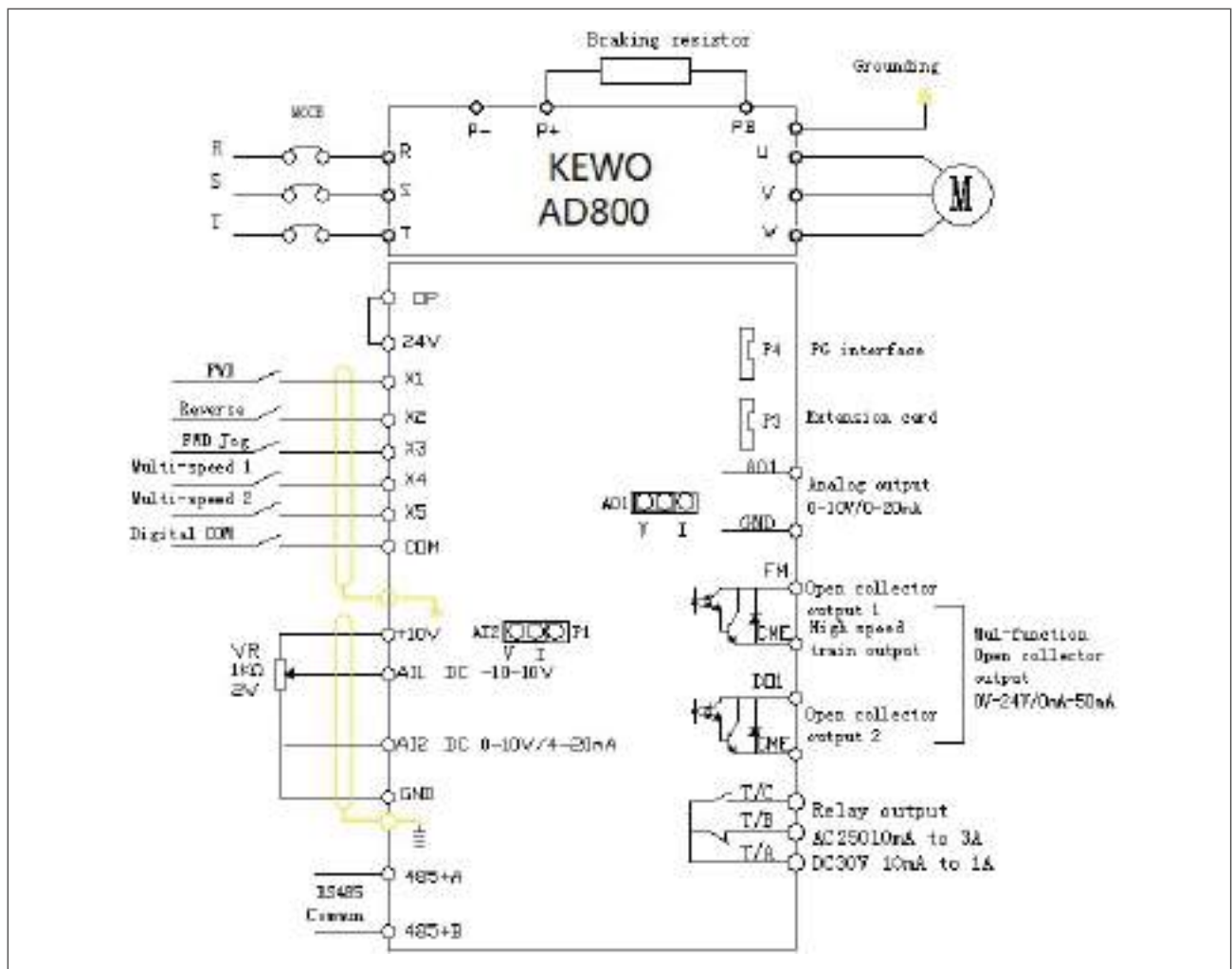   It has 5 digital I/O input, compatible sink and source way.

   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).
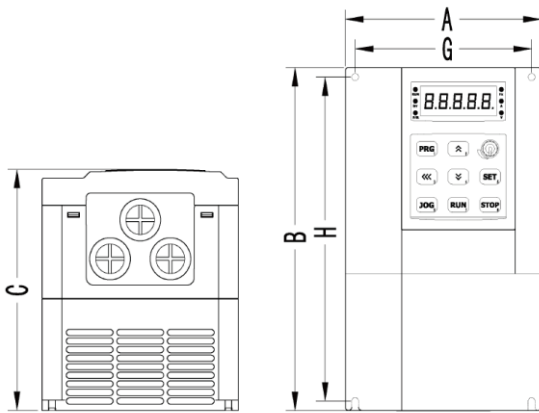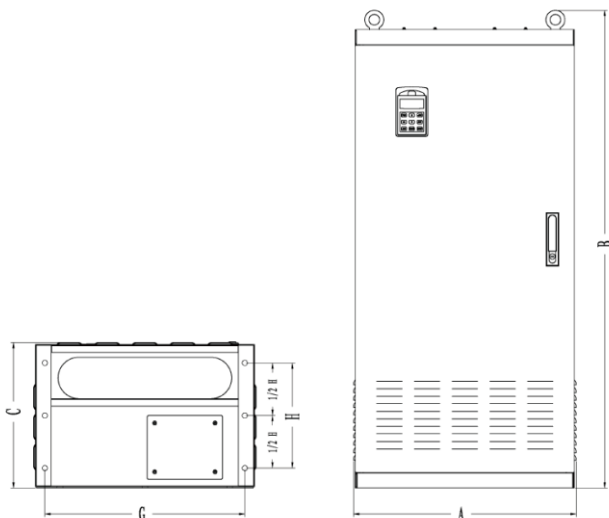
   1 relay output.

   Extension card is available.

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# AD800 Inverter Data sheet



### AD800 Series 3PH,220V

| AC drive models | Install lot (mm) | | Dimension (mm) | | | Bolt (mm) |
|---|---|---|---|---|---|---|
| | G | H | A | B | C | |
| AD800-2T0.75GB | 117 | 135 | 125 | 155 | 130 | M4 |
| AD800-2T1.5GB | | | | | | |
| AD800-2T2.2GB | | | | | | |
| AD800-2T3.7GB | 140 | 260 | 160 | 270 | 165 | M5 |
| AD800-2T5.5GB | | | | | | |
| AD800-2T7.5GB | 140 | 350 | 210 | 370 | 178 | M6 |
| AD800-2T11GB | | | | | | |
| AD800-2T15GB | 200 | 410 | 270 | 430 | 225 | M6 |
| AD800-2T18.5GB | | | | | | |
| AD800-2T22GB | 200 | 500 | 290 | 520 | 225 | M8 |
| AD800-2T30GB | | | | | | |
| AD800-2T37GB | 250 | 580 | 352 | 600 | 285 | M8 |
| AD800-2T45GB | | | | | | |
| AD800-2T55GB | 300 | 700 | 458 | 720 | 310 | M8 |
| AD800-2T75GB | | | | | | |

### Ad800 Series 3PH,380V/440V

| AC drive models | Install lot (mm) | | Dimension (mm) | | | Bolt (mm) | AC drive models | Install lot (mm) | | Dimension (mm) | | | Bolt (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | G | H | A | B | C | | | G | H | A | B | C | |
| AD800-4T1.5GB | 117 | 210 | 130 | 220 | 165 | M4 | AD800-4T45P | 200 | 500 | 290 | 520 | 265 | M8 |
| AD800-4T2.2GB | | | | | | | AD800-4T45G | 250 | 560 | 352 | 580 | 295 | M8 |
| AD800-4T3.7GB | | | | | | | AD800-4T55P | | | | | | |
| AD800-4T5.5PB | | | | | | | AD800-4T55G | | | | | | |
| AD800-4T5.5GB | 140 | 260 | 160 | 270 | 190 | M5 | AD800-4T75P | 300 | 700 | 458 | 720 | 320 | M8 |
| AD800-4T7.5PB | | | | | | | AD800-4T75G | | | | | | |
| AD800-4T7.5GB | | | | | | | AD800-4T93P | | | | | | |
| AD800-4T11PB | | | | | | | AD800-4T93G | | | | | | |
| AD800-4T11GB | 140 | 355 | 210 | 370 | 190 | M6 | AD800-4T110P | | | | | | |
| AD800-4T15PB | | | | | | | AD800-4T110G | | | | | | |
| AD800-4T15GB | | | | | | | AD800-4T132P | | | | | | |
| AD800-4T18.5PB | | | | | | | AD800-4T132G | 400 | 700 | 508 | 720 | 360 | M8 |
| AD800-4T18.5G | | | | | | | AD800-4T160P | | | | | | |
| AD800-4T22P | 200 | 410 | 270 | 430 | 235 | M6 | AD800-4T160G-C | | | | | | |
| AD800-4T22G | | | | | | | AD800-4T185P-C | | | | | | |
| AD800-4T33P | | | | | | | AD800-4T160G | 490 | — | 550 | 1160 | 370 | M12 |
| AD800-4T33G | | | | | | | AD800-4T185P | | | | | | |
| AD800-4T37P | | | | | | | AD800-4T185G | | | | | | |
| AD800-4T37G | 200 | 500 | 290 | 520 | 265 | M8 | AD800-4T200P | | | | | | |



| AC drive models | Install lot (mm) | | Dimension (mm) | | | Bolt (mm) |
|---|---|---|---|---|---|---|
| | G | H | A | B | C | |
| AD800-4T200G | 530 | — | 590 | 1270 | 390 | M12 |
| AD800-4T220P | | | | | | |
| AD800-4T220G | | | | | | |
| AD800-4T250P | | | | | | |
| AD800-4T250G | 660 | — | 710 | 1450 | 410 | M12 |
| AD800-4T280P | | | | | | |
| AD800-4T280G | | | | | | |
| AD800-4T315P | | | | | | |
| AD800-4T315G | | | | | | |
| AD800-4T355P | | | | | | |
| AD800-4T355G | 770 | — | 832 | 1850 | 410 | M16 |
| AD800-4T400P | | | | | | |
| AD800-4T400G | | | | | | |
| AD800-4T450P | | | | | | |

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# 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 is a small and smart frequency 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, Modus communication, that will make you machine become powerful and improving his competitive edge.

**Power range**: 0.4 to 1.5kw

**Input voltage**: single phase 220V ±15%

**Control mode**: Sensorless vector control without PG, V/f control
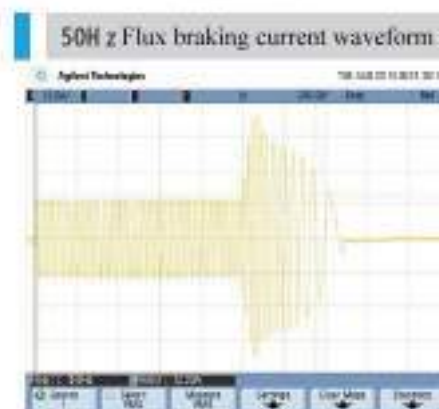
**Protection function**: Provide up to 25 kinds fault protection, over current, over voltage, under voltage, phase missing, overload protection function

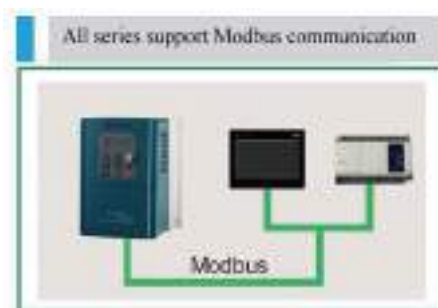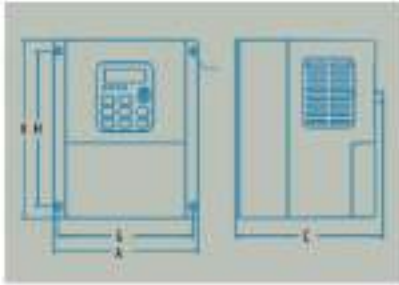**Cooling method**: force coolingInstallation method: wall mount

**IPM iGBT using**



## Good performance for smaller machine



## Built in RS485 interface for forming communication easily

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# Data sheet



| 型号 | G | H | A | B | C |
|---|---|---|---|---|---|
| AD100-250.4~2.2G | 117 | 135 | 125 | 155 | 130 |
| AD350-250.4~2.2G AD350-4T0.75~3.7G | 117 | 135 | 125 | 155 | 130 |
| AD350-5.5~7.5G | ... | ... | ... | ... | ... |
| AD350-11~15G | ... | ... | ... | ... | ... |

# 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: