

Energy efficient , beautiful environment



SHENZHEN K-EASY AUTOMATION CO.,LIMITED

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Version: A01



KD600 ALL SERIES CATALOGUE

- **KD600** (General Purpose)
- **KD600E** (Elevator & Lift Series)
- **SP600** (Off Grid Solar Series)
- **KD600-2S/4T** (220V Input, 380V Output Series)
- **KD600-2SS** (Single Phase Output Series)



COMPANY INTRODUCTION

Shenzhen K-Easy Automation Co.,Limited is a professional manufacturer, specialize in R&D And production of AC drives. We have built up a comprehensive product family. Frequency inverters' power covers the range from 0.4 to 630kW, and voltage range is between 220V and 480V. More than inverters are running smoothly 300, 000 units at different industrial sites.

Why Us

- ◆ We believe “**quality is life**”,so we will test all products before shipment,All Module of our VFD will be used quality is life with Infenion only, With years of persistence, the total failure ratio of Our frequency inverters has been controlled below 1%. We never lose a customer because of the quality problem;
- ◆ With Strong R&D and Engineer Team, makes our after-service very easy, For all doubts and requesting for technologies supporting, We can offer detailed Solution without delay, so for us,“Not Only Products, But also solutions”;
- ◆ All our products will be offered with 24 months Warranty Period instead of 18 months.

Join us, enjoy the business.



Name Rules

KD600 - 4T - 0.75G/1.5P

Serial number	Description	Meaning
①	KD600 series	Series Name
②	Voltage level	2S: Single-phase 220V Range:-15%~20% 4T: Three-phase 380V Range:-15%~20%
③	Adaptable motor power(KW)	0.4KW~800KW

QUALITY SERVICE

- Our VFD has been used in Shenzhen and Guangzhou Metrol Since Year 2014.
- Problem Rate Less Than 1%..
- Support OEM Service
- Strong Engineer Team
- 24 Months Warranty Time
- Very Good After Sales-Service, Best Solutions Can be always offered within 2 hours



Products Introduction

- KD600 (General Purpose)
- KD600E (Elevator & Lift Series)
- SP600 (Off Grid Solar Series)
- KD600-2S/4T (220V Input, 380V Output Series)
- KD600-2SS (Single Phase Output Series)

KD600 Series is our general purpose series, which support 110V & 220V & 380V & 480V & 690V, 0.4KW~1132KW, Built In C2/C3 standard EMC filter, Nice torque Vector Control, can add many kinds of PG card to support encoder connection. with 24 months warranty offered, it can almost match all customers' requests.



KD600:Power Rate	1 phase & 3 phase Input 3 phase output	220V (+~20%) 0.4KW~4.0KW	380V (+~20%) 0.4KW~630KW
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Best Solution
For General
Purpose Series

Vector Control

PID

Multi-step Freq.

ModBus

Over-voltage & Over-current stall control

Torque Boost

Wobble Frequency Control

Simple PLC

FDT

.....

Start Torque @0.5Hz
100%

Overload Capability
200%

Speed accuracy ±
0.5%

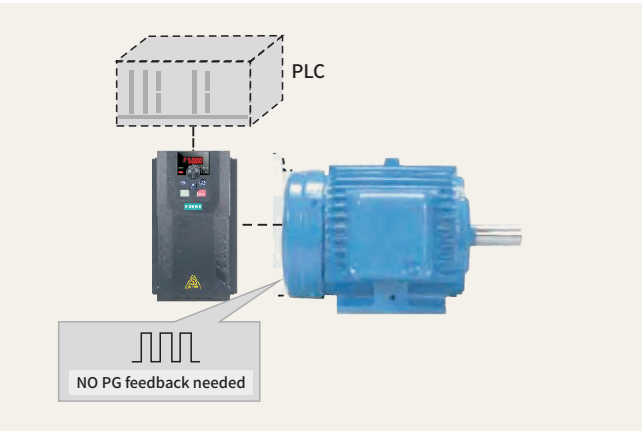
Ambient Temp °C
40

Speed Regulation
1:100

Multi-step speed max.
16



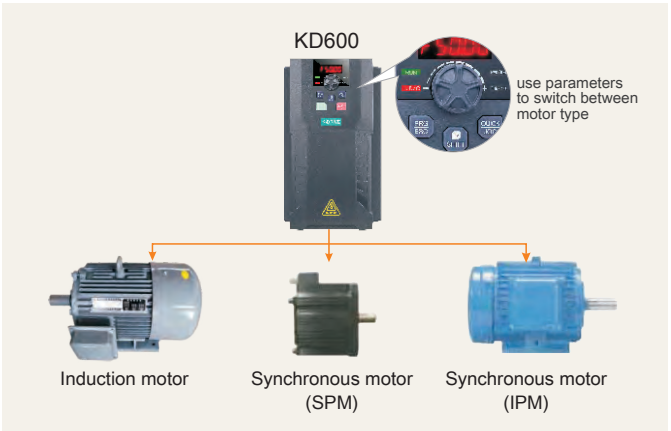
REASONABLE STRUCTURAL DESIGN



Positioning Capability without External Devices

✧ ใช้มอเตอร์ IPM ในการควบคุมตำแหน่งโดยไม่ต้องใช้ฟีดแบ็กมอเตอร์ คุณสมบัติทางไฟฟ้าที่โดดเด่นในมอเตอร์ IPM ทำให้สามารถตรวจจับความเร็ว ทิศทาง และตำแหน่งของโรเตอร์ได้โดยไม่ต้องใช้ฟีดแบ็กมอเตอร์ อุปกรณ์ป้องกันภายนอก

ฟังก์ชันการกำหนดตำแหน่งโดยไม่ต้องใช้ PLC การเขียนโปรแกรมแบบภาพใน Drive Worcs EZ ช่วยลดความจำเป็นในการใช้ตัวควบคุมภายนอก โดยให้ผู้ใช้สามารถสร้างฟังก์ชันที่กำหนดเองได้ เช่นการควบคุมตำแหน่ง



Advanced drive technology

✧ สามารถขับเคลื่อนมอเตอร์ได้หลากหลายประเภท ซีรีส์ KD600 ไม่เพียงแต่ขับเคลื่อนมอเตอร์เหนี่ยวนำเท่านั้น แต่ยังขับเคลื่อนมอเตอร์ซิงโครนัส เช่น มอเตอร์ IPM*1 และ SPM*2 ด้วยการควบคุมเวกเตอร์แบบวงเปิดและวงปิดที่มีประสิทธิภาพสูง

✧ ลดจำนวนอุปกรณ์ที่จำเป็นสำหรับธุรกิจของคุณโดยใช้ไดรฟ์ตัวเดียวกันในการขับเคลื่อนมอเตอร์เหนี่ยวนำและมอเตอร์ซิงโครนัส

- ① มอเตอร์แม่เหล็กถาวรแบบติดตั้งภายใน (มอเตอร์ที่มีแม่เหล็กถาวรฝังอยู่ในโรเตอร์)
- ② มอเตอร์แม่เหล็กถาวรแบบติดตั้งบนพื้นผิว (มอเตอร์ที่มีแม่เหล็กถาวรติดตั้งอยู่บนพื้นผิวของโรเตอร์)



ADVANCED DESIGN

C3

◆ EMC Filter

C3 Level Filter Build-In Standardly
Better EMC Performance

IGBT

◆ IGBT Selection

Selection Of Large Margin
Current>2 Times of VFD Current

200%

◆ Overload Capacity

120% long time running without trip.
150% for 60 seconds
180% for 10 seconds

±15%

◆ Voltage Range

Compatible with ±15% input voltage
fluctuation, output voltage s table.

S Curve

◆ S Curve

S Curve Acceleration/Deceleration
Better Start /Stop Performance

Flying Start

◆ Flying Start Function

Restart The Running Motor Smoothly
No Current Surge
High Accuracy

Protection

◆ Protection

Overcurrent, Overvoltage, PID feedback failure, Overheat, Undervoltage, The main contactor is abnormal, Motor overload, Fast protection, Unbalanced output, Frequency conversion overload, System abnormal, Motor detection abnormal, Output phase loss, Input phase loss, Short circuit protection of control board power supply.



SPECIFICATION

Input & Output	
Input voltage	1AC 220~240V(± 15%)
	3AC 220~240V(± 15%)
	3AC 380~460V(± 15%)
Input frequency	50Hz/60Hz ±5%
Output voltage	0~input voltage, deviation<±3%
Output frequency	0~ 600Hz
Control Characteristics	
Control mode	V/f control Sensorless vector control Torque control
Speed accuracy	±0.5% (V/f) ±0.2% (SVC)
Speed fluctuation	±0.3% (SVC)
Torque response	< 10ms (SVC)
Starting torque	0.5Hz : 150% (V/f) 0.25Hz:180% (SVC)
Overload capability	150% Rated Current60s 180% Rated Current10s 200% Rated Current1s
Simple PLC Multi-step speed	16 steps speed External digital signal control Internal clock
PID function	Standard build-in
Communication	Modbus

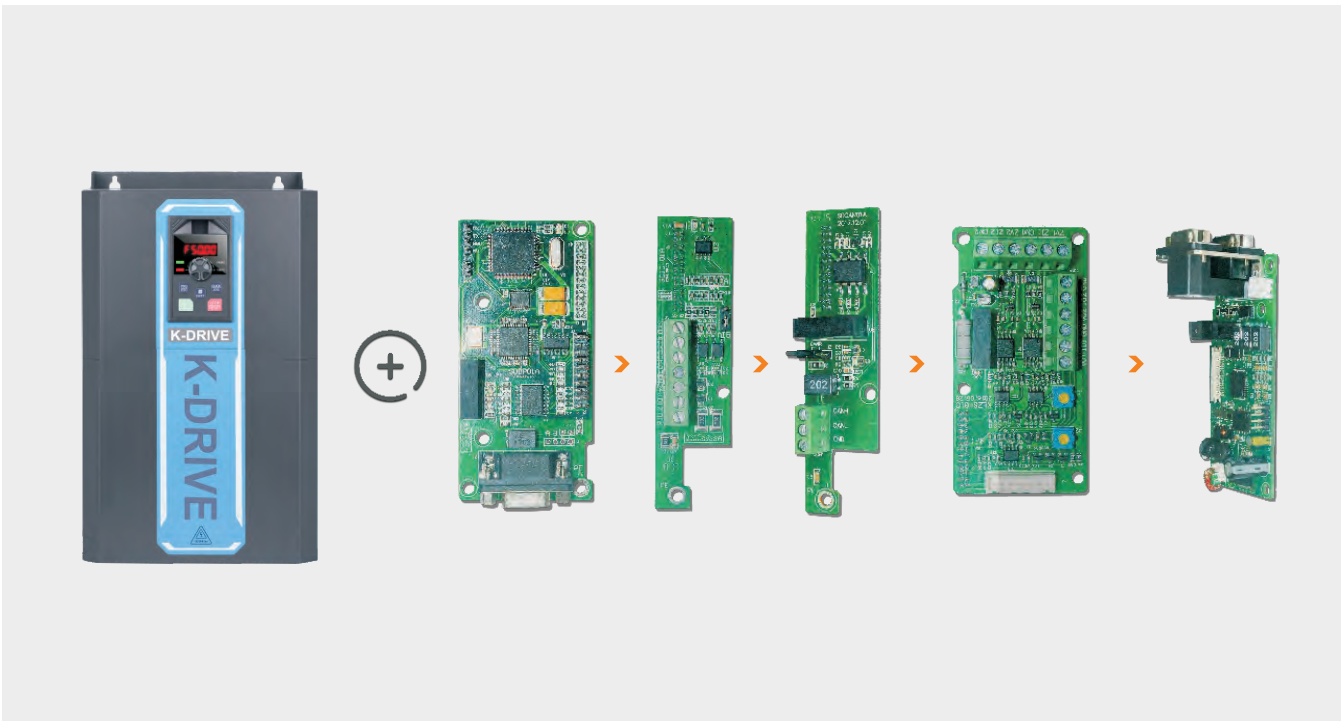
Featured Functions	
Featured functions	Input & Output delay
	Flexible parameters display
	AVR (Automatic Voltage Regulation)
	Timing control , fixed length control, etc.
	Simple PLC, 16-steps speed control
	Torque control build-in
	S curve acceleration/deceleration
	Multi-functional programmable keypad
	V/ f separated control

Environment Limitation	
Installation location	Without direct sunlight, free from dust, corrosive gases, oil mist, flammable gases, water vapor, water drop and salt, etc.
Altitude	0~ 2000m Derated 1% for every 100m when the altitude is above 1000meters
Ambient temperature	-10°C ~ 50°C (Output derated while the temperature is higher than 40°C)
Storage temperature	-20°C ~ +70°C
Relative humidity	5~ 95%, no condensation



EXTERNAL AND EXPANSION CARDS

Various function expansion cards, IO cards, relay output cards, and various PG cards can be selected according to requirements to match various encoders, communication expansion cards, etc. Can be customized according to demand.



Name	Model	Function
I/O expansion card 1	KD600-IO1	5 digital inputs, one relay output, one analog AO2 output, one digital y2 output, and one temperature detection (PT100/PT1000/PTC/KTY).
I/O expansion card 2	KD600-IO2	Two digital inputs, one relay output, one analog AO2 output, and one LCD expansion network port RJ45 socket.
RS-485 communication card	KD600-ISO485	One isolated MoDBus communication adapter card
CAN communication expansion card	KD600-CAN	CANOPEN communication adapter card
ProFinet communication card	KD600-PN	ProFinet communication card
Profbus-DP communication card	KD600-DP	Profbus-DP communication card
Ethercat communication card	KD600-Ethercat	Ethercat communication card
Open collector ABZ encoder	KD600-PG1	Open collector PG card (PG card 1 can only be applied to asynchronous machines; compatible with complementary output, the encoder card output DC power supply can be selected +12V or +5V (jumper selection))
Differential input ABZ encoder card	KD600-PG3	ABZ differential signal input PG card
Resolver Interface Card	KD600-PG6	Applicable to resolver, DB9 interface, optional matching shielded encoder cable.
LCD screen	KD600-LCD	The LCD screen needs to be used with a 102 expansion card.



COOPERATION BRAND

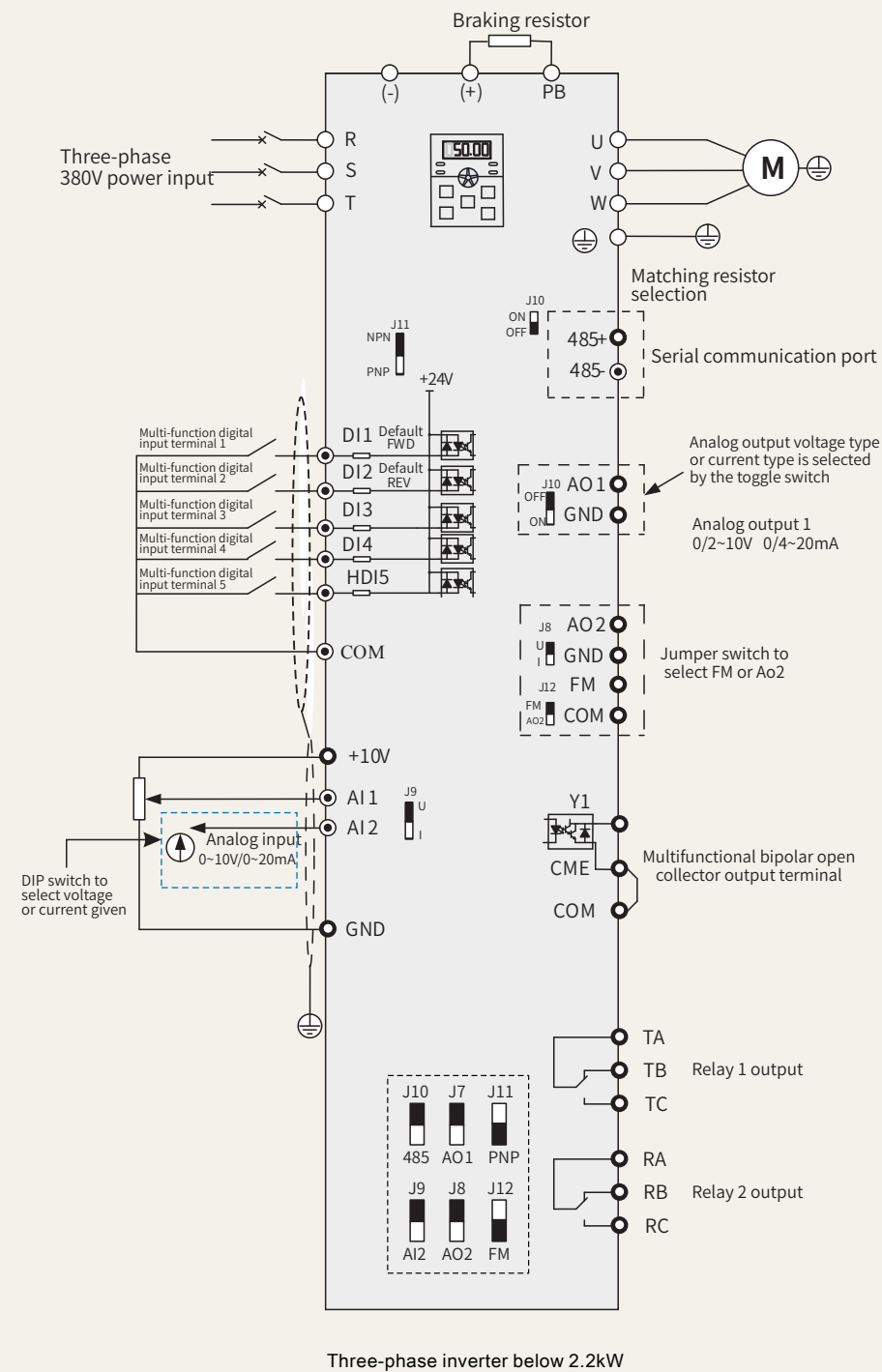


World-class components inside, stronger “bones”, healthier “body”.

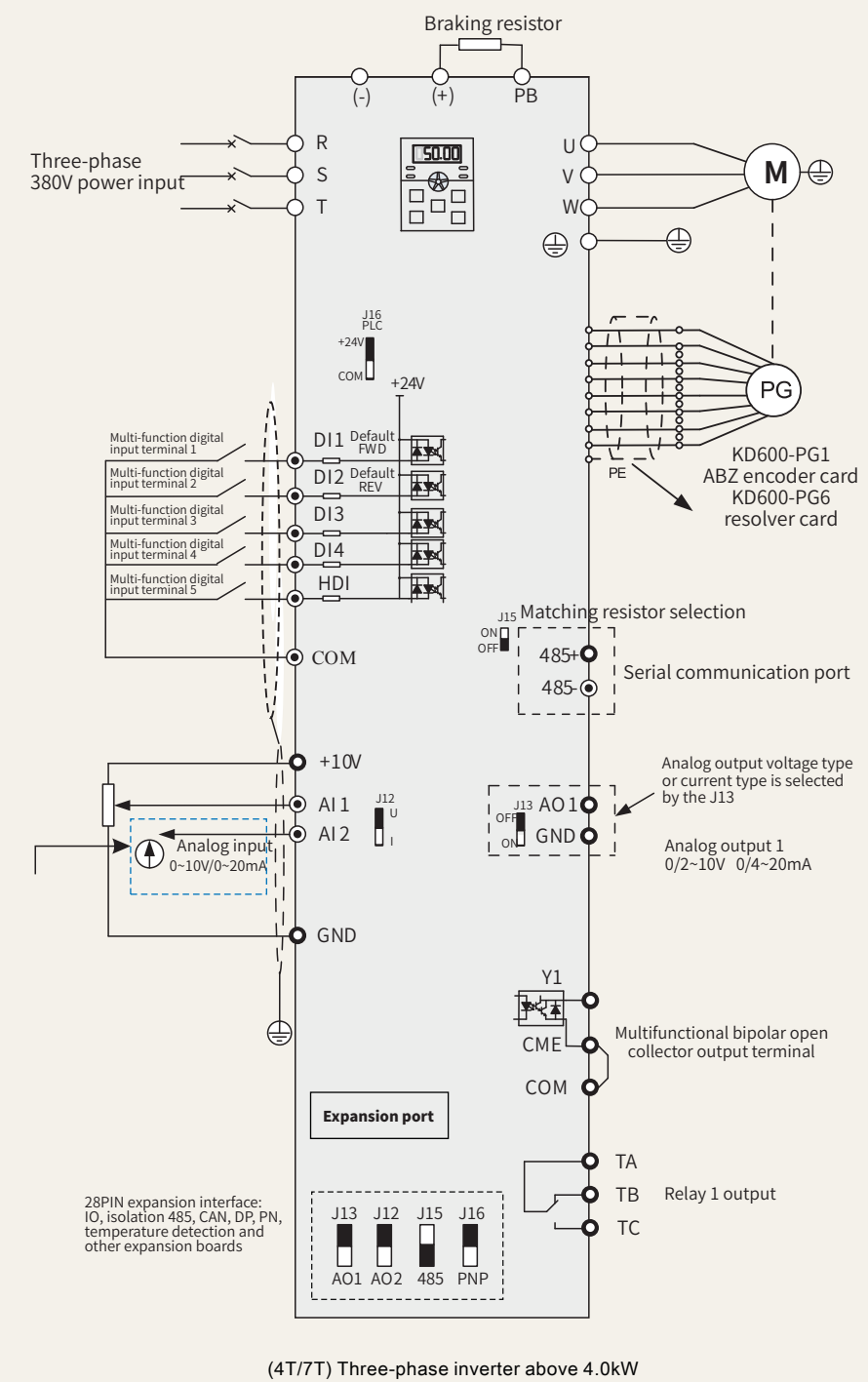




BASIC WIRING DIAGRAM

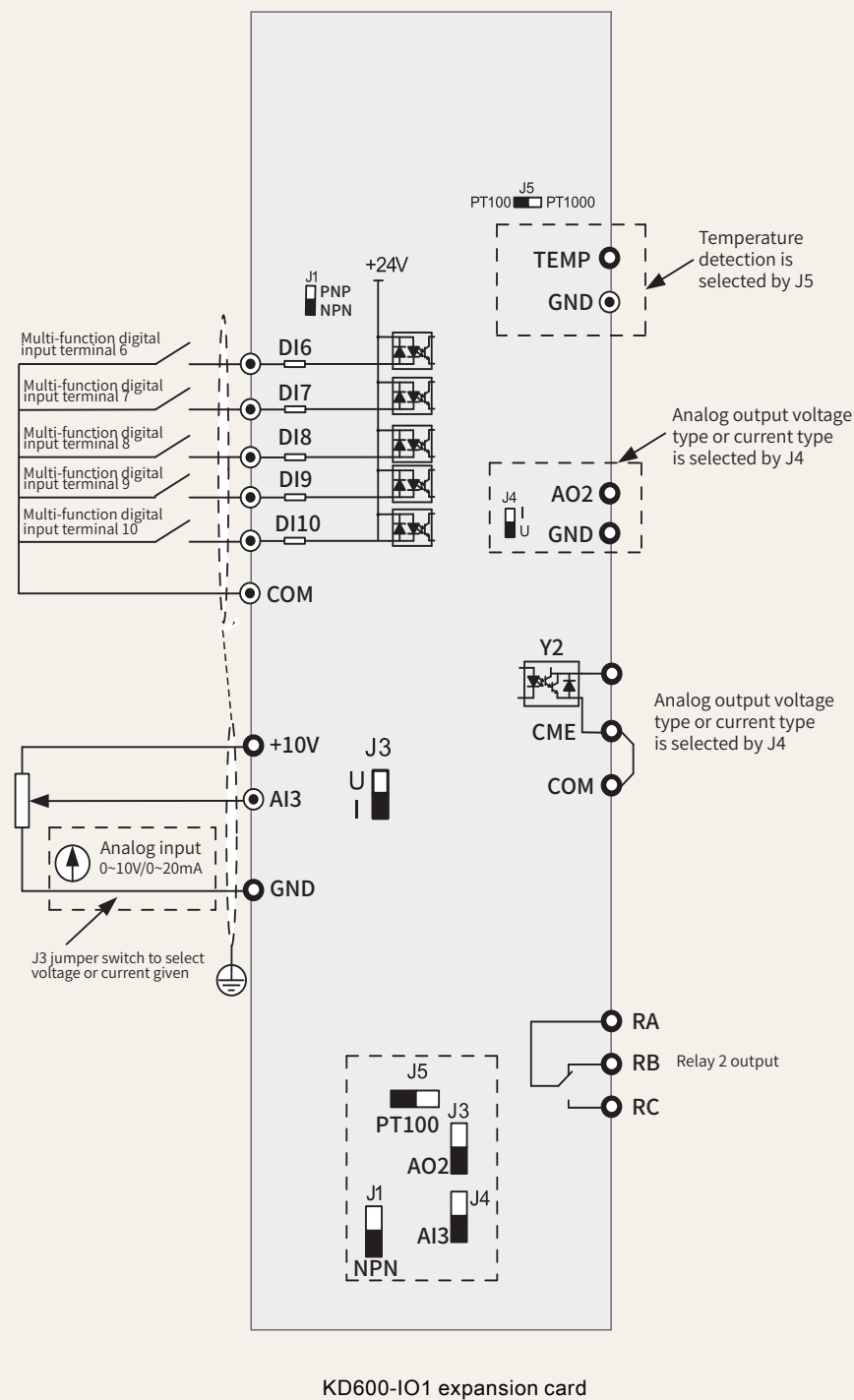


BASIC WIRING DIAGRAM



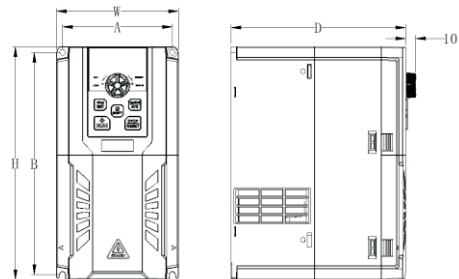


BASIC WIRING DIAGRAM

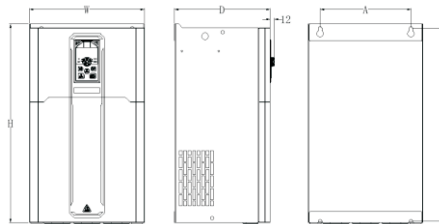


OUTLINE AND INSTALLING DIMENSION

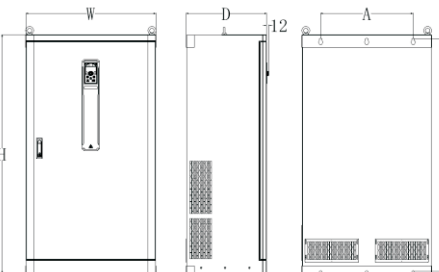
AC Drive Model	Adapter motor (KW)	Rated Input Current(A)	Rated Output Current(A)	Installation size(mm)		Dimensions (mm)			Apert ure
				A	B	H	W	D	
Input voltage: single-phase 220V				Range: -15%~20%					
KD600-2S-0.4G	0.4	5.4	2.3	76	156	165	86	140	5
KD600-2S-0.7G	0.75	8.2	4.0						
KD600-2S-1.5G	1.5	14.0	7.0						
Input voltage: three-phase 380V				Range: -15%~20%					
KD600-4T-0.7G/1.5P	0.7	3.4	2.1	76	156	165	86	140	5
KD600-4T-1.5G/2.2P	1.5	5.0	3.8						
KD600-4T-2.2G/4.0P	2.2	5.8	5.1						
KD600-4T-4.0G/5.5P	4.0	10.5	9.0	98	182	192	110	165	5
KD600-4T-5.5G/7.5P	5.5	14.6	13.0						
KD600-4T-7.5G/9.0P	7.5	20.5	17.0						
KD600-4T-9.0G/11P	9.0	22.0	20.0	111	223	234	123	176	6
KD600-4T-11G/15P	11	26.0	25.0						
KD600-4T-15G/18.5P	15	35.0	32.0						
KD600-4T-18.5G/22P	18.5	38.5	37.0	174	319	330	189	186	6
KD600-4T-22G/30P	22	46.5	45.0						
KD600-4T-30G/37P	30	62.0	60.0						
KD600-4T-37G/45P	37	76	75	200	410	425	255	206	7
KD600-4T-45G/55P	45	92	91						
KD600-4T-55G/75P	55	113	110						
KD600-4T-75G/90P	75	157	152	290	544	560	350	268	10
KD600-4T-90G/110P	90	180	176						
KD600-4T-110G/132P	110	214	210						
KD600-4T-132G/160P	132	256	253	320	678	695	410	295	10
KD600-4T-160G/185P	160	307	304						
KD600-4T-185G/200P	185	345	340						
KD600-4T-200G/220P	200	385	380	380	1025	1050	480	330	10
KD600-4T-220G/250P	220	430	426						
KD600-4T-250G/280P	250	468	465						
KD600-4T-280G/315P	280	525	520	500	1170	1200	590	365	14
KD600-4T-315G/350P	315	590	585						
KD600-4T-350G/400P	350	665	650						
KD600-4T-400G/450P	400	785	725	500	1255	1290	700	400	16
KD600-4T-450G/500P	450	883	820						
KD600-4T-500G/550P	500	920	900						
KD600-4T-550G/630P	550	1020	1000	/	/	1800	1000	500	/
KD600-4T-630G/710P	630	1120	1100						
KD600-4T-710G/800P	710	1315	1250						
KD600-4T-800G/900P	800	1525	1450	/	/	2200	1200	600	/



Schematic diagram of plastic dimensions and installation dimensions below 22KW



Schematic diagram of overall dimensions and installation dimensions of 30~132KW sheet metal chassis



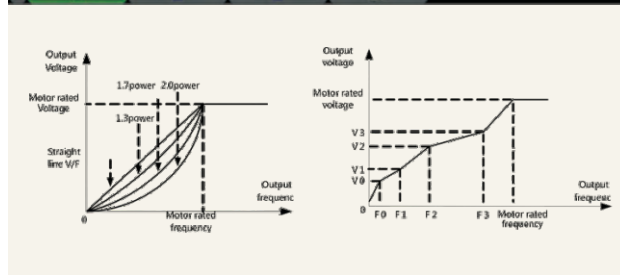
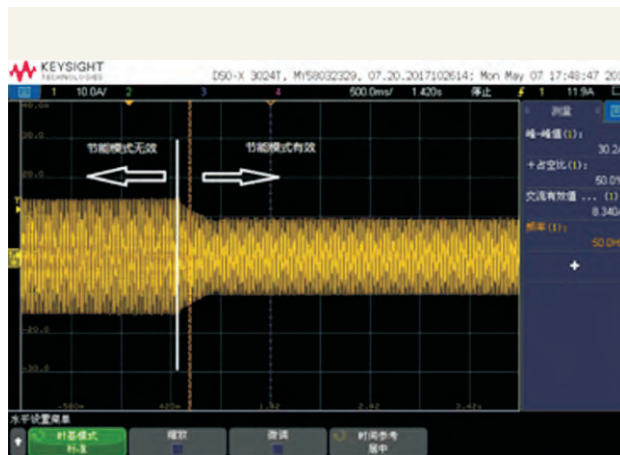
160KW Inverter Dimensions and Installation Dimensions

INSTRUCTION

- All KD600 Series Has Brake Unit Built In.
- KD600 Series 0.4KW~22KW All Has Brake Unit Built In, and 30KW~400KW, All Can Make Brake Unit Built in.
- All Series Can Changed Into 480V Series.



DRIVE DESIGN & FEATURES



Energy saving function

- It has excellent automatic energy saving function, only need to set the maximum energy saving target, as long as the operation meets the energy saving condition, it can enter the automatic skill state.
- By setting the VF function, it can realize the application of 1 drag and long distance control to meet the application of the transformation occasion.

Perfect protection system



- Designed for 10 years of maintenance-free operation.
- Cooling fan, capacitors, relays, and IGBT have been carefully selected and designed for a life expectancy up to ten years.

※ Assumes the drive is running continuously for 24 hours a day at 80% load with an ambient temperature of 40°C.



Independent duct design

- Independent air duct design, effectively preventing dust entering inverter, causing short-circuit and other faults and improving reliability;
- Use bigger air volume and long life cooling fan effectively reduces the internal temperature rise of the inverter and ensures reliable and stable operation of inverter.

All series support LCD panel



DRIVE DESIGN & FEATURES

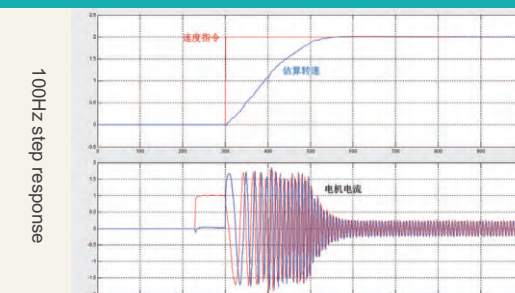
High speed accuracy and wide speed range

High speed accuracy and wide speed range:

Steady speed accuracy: $\pm 0.5\%$ (SVC), $\pm 0.02\%$ (VC);
Speed range: 1:200 (SVC), 1:1000 (VC),

Heavy load overload capability:

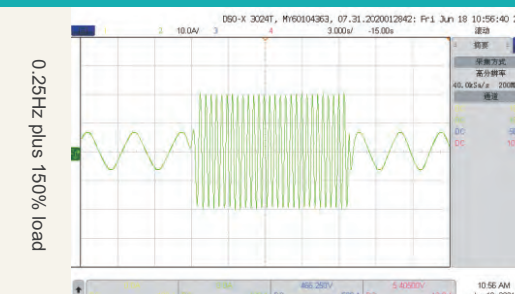
110% rated current for long-term stable operation;
150% rated current for 1 minute;
180% rated current 10s.



High torque in low speed, fast response

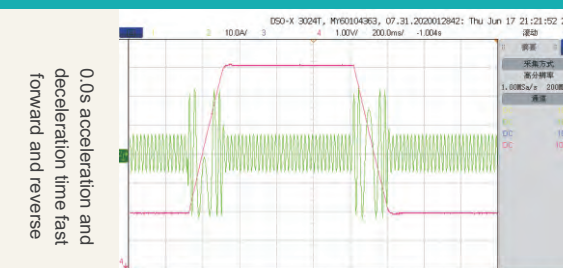
High torque in low speed, fast response Load capacity in low speed:

VF: 180% @ 0.50Hz ;
SVC: 180% @ 0.25Hz ;
VC: 200% @ 0.00Hz.



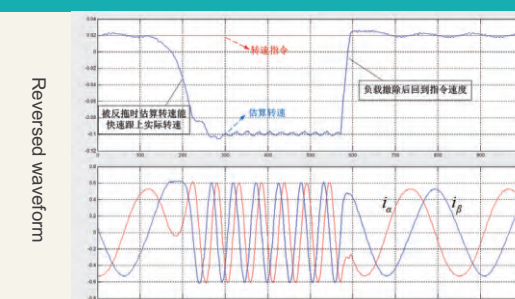
Rapid response to impact loads

- When it meets with sudden load change, inverter can quickly restore the speed, reduce the speed fluctuation, and ensure the production stability and high quality finished products.



Optimized SVC algorithm, stable operation in power generation

- At present, most of the inverters can not work stably under the SVC mode (especially in the case of being reversed).
- KD600 can run very well, and it achieves great convenience in some special applications (such as tension control in rewinding and winding) .





PERFORMANCE FEATURES



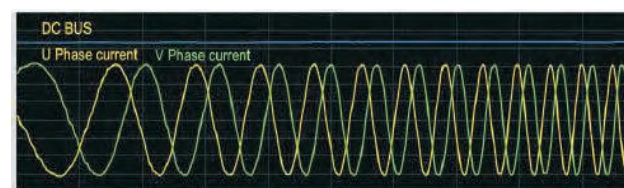
Rotary self-tuning



Fully static self-tuning

Self-tuning of motor parameters

- ✦ It could accurately acquire the motor parameters both in rotary and static self-tuning, so as to provide higher control accuracy and response speed, which is convenient and simple.
- ✦ **Rotary self-tuning:** Must unload the motor. Suit for applications with higher requirement of control accuracy.
- ✦ **Fully static self-tuning:** Leading motor tuning algorithm, can acquire the motor parameters in static status, which is comparable to the rotary self-tuning.



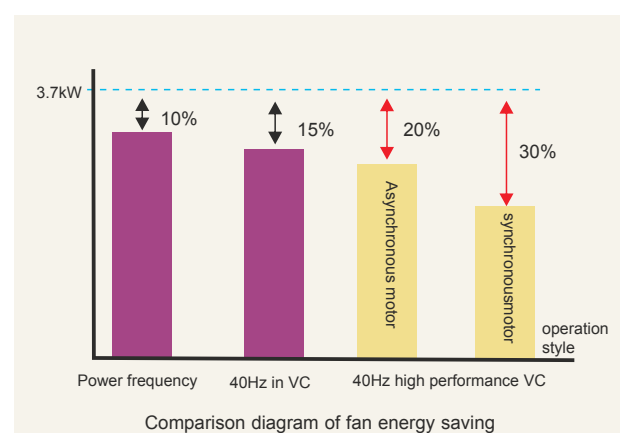
Over current suppression

The current suppression function could avoid the frequent OC fault of inverter. While the current is over the current protection point, it could continuously limit the current below the protection point, so as to protect devices, prevent the overcurrent fault caused by sudden load or interference and reduce the loss caused by stop without reason.



Over voltage suppression

The overvoltage suppression function could prevent inverter from overvoltage fault in ACC/DEC process. During ACC/DEC, if the bus voltage of inverter reaches or exceeds the overvoltage protection point, the overvoltage suppression function could suppress the rising of bus voltage by automatically adjust the operation frequency, so as to protect the devices and avoid the overvoltage fault caused by the rising of bus voltage.



Comparison diagram of fan energy saving

Excellent energy-saving functions

Adopt the new generation of energy-saving control technology to realize the high-efficiency operation of induction motor; reduce the excitation current according to the load current, and automatically adjust according to the loading condition; improve the motor efficiency at most; reduce the motor consumption and energy consumption. 30% of AM&PMSM adopt the VC mode to drive PMSM and the energy utilization could increased by more than 10%.

APPLICATIONS



Printing Dyeing



Wire Drawing Machine



Water Supply



Packing Machine



Industrial Washing Machine



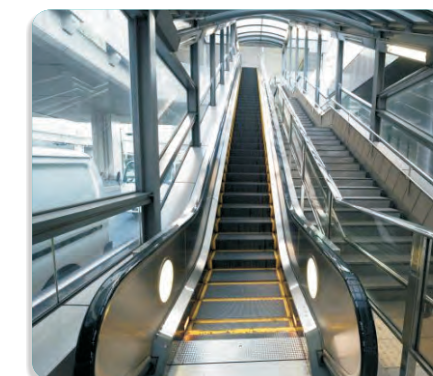
Construction Hoist



Ball Mill



Air Compressor



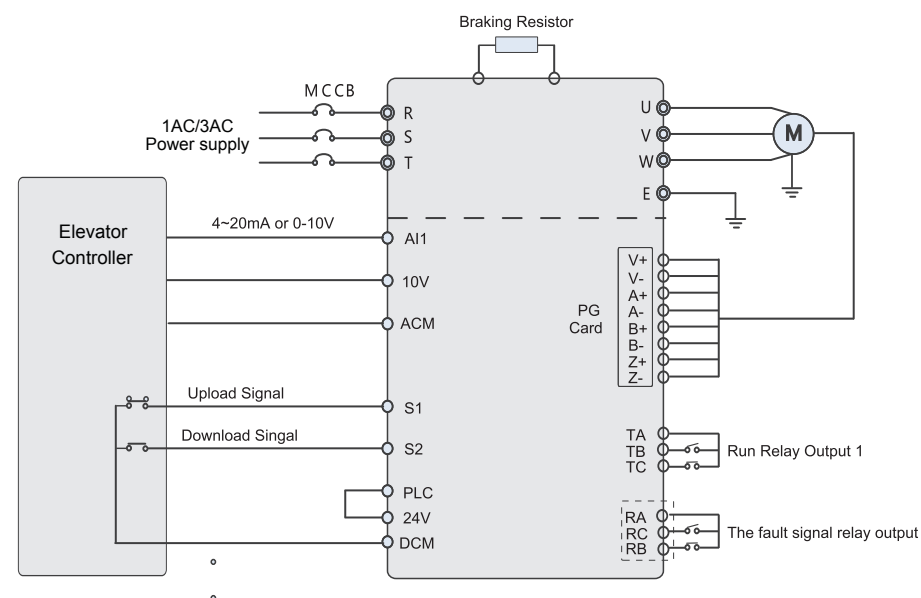
Escalator



KD600E (Elevator & Lift Series)

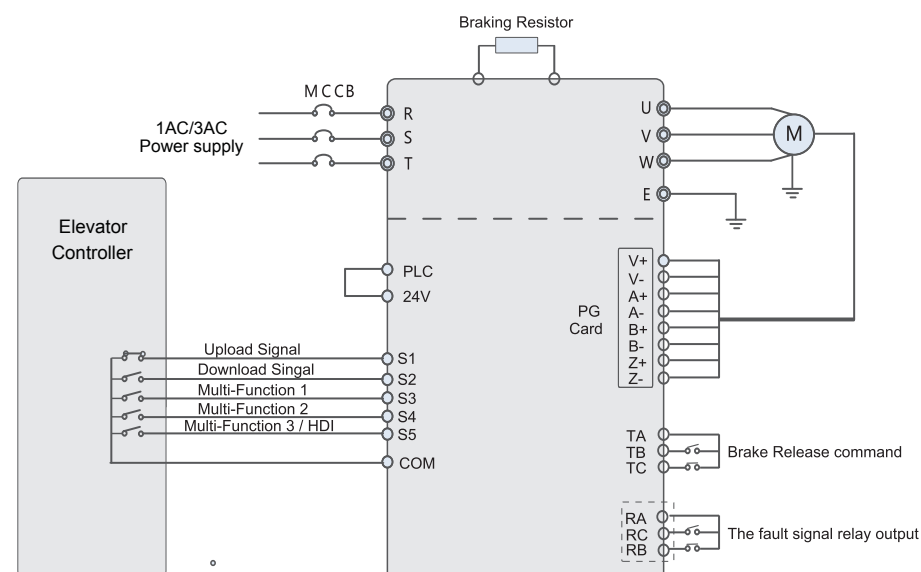
Analog speed given

KD600E supports two kinds of speed given: Analog speed given and multi-stage speed given;
Life controller sends out speed command curve, inverter get speed given command through the analog signal.



Multi-stage speed given

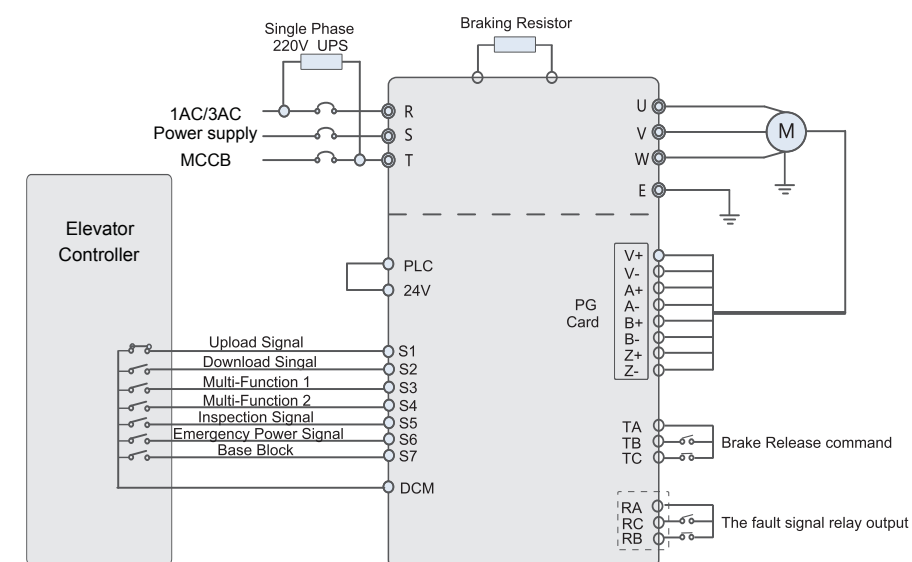
Elevator controller provide speed command, after receiving the command, inverter will automatically calculate S curve acceleration and deceleration speed.



KD600E (Elevator & Lift Series)

Built-in Emergency leveling mode

In the using of elevator, if the power is cut suddenly, passengers may be kept in the cage. KD600E series inverters can support emergency UPS power running, Both the main circuit of KD600E and the working are powered by 220V UPS.

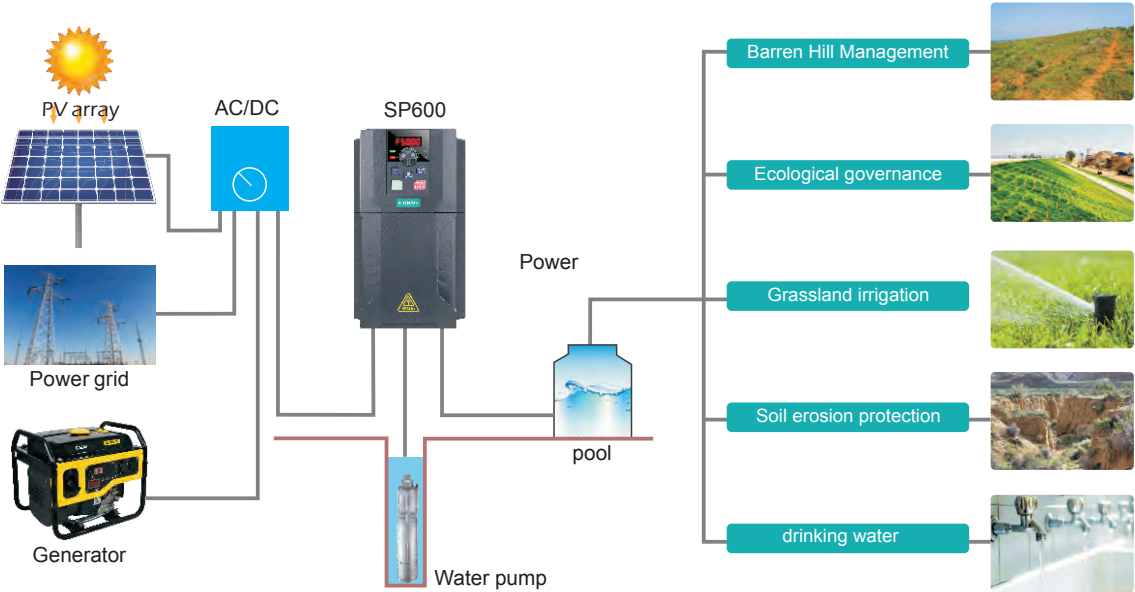




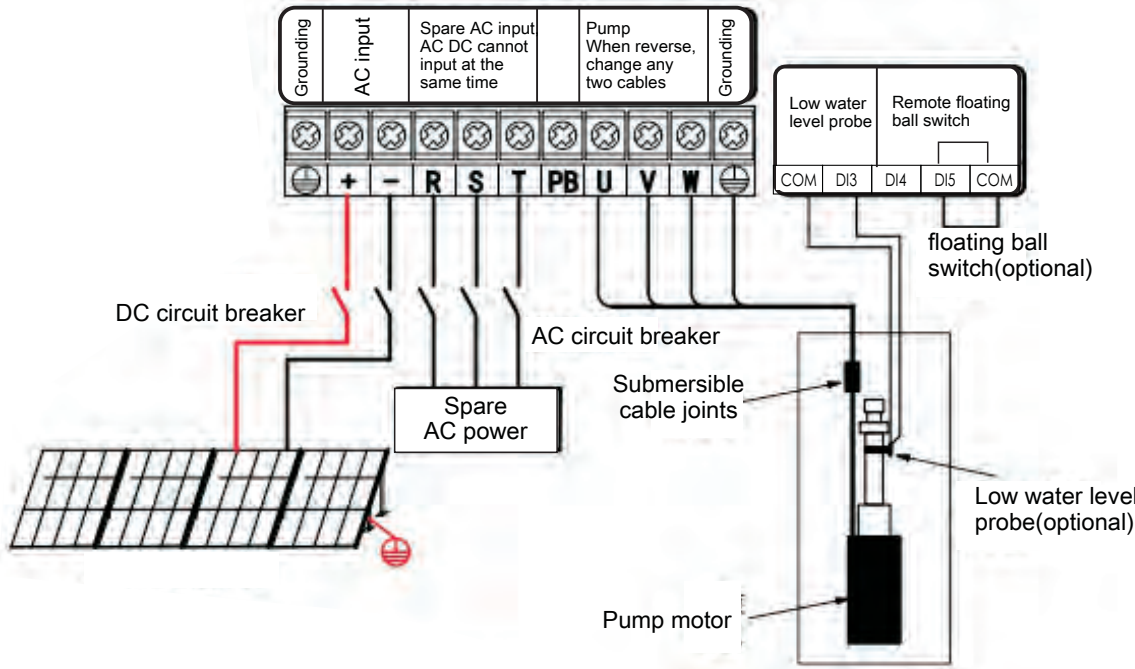
SP600 (Off Grid Solar Series)

SP600 series inverters for photovoltaic pumps use a new hardware technology platform and an optimized global MPPT algorithm to maximize the efficiency of equipment conversion and output communication.

Applicable to all kinds of constant water pump; support DC and AC input. When there is no solar energy, the controller can be switched to a single-phase or three-phase AC input such as a generator or utility power.



Three phase 380 VAC Alternate AC power supply, for example, wiring diagram such as following:



SP600 (Off Grid Solar Series)

Basic Technical Specification

Items	Specifications
Recommended MPPT voltage range	3 AC 220V / 130~380V DC (Recommend 330V DC) 3 AC 380V / 330~780V DC (Recommend 560V DC)
MPPT efficiency	99.9%
Rated output voltage	3AC 220V/ 380V
Output frequency range	0~60Hz
Cooling method	Air cooling
Protection degree	IP20/54

Model (380V)	Max DC input current (A)	Rated output current (A)	Applicable water pump (KW)
SP600-4T0007G/0015P	4.2	2.5	0.75
SP600-4T0015G/0022P	6.1	4.0	1.5
SP600-4T0022G/0037P	7.1	6.0	2.2
SP600-4T0037G/0055P	16.5	9.6	3.7
SP600-4T0055G/0075P	23.9	14.0	5.5
SP600-4T0075G/0110P	30.6	17.0	7.5
SP600-4T0110G/0150P	39.2	25	11
SP600-4T0150G/0185P	49	32	15

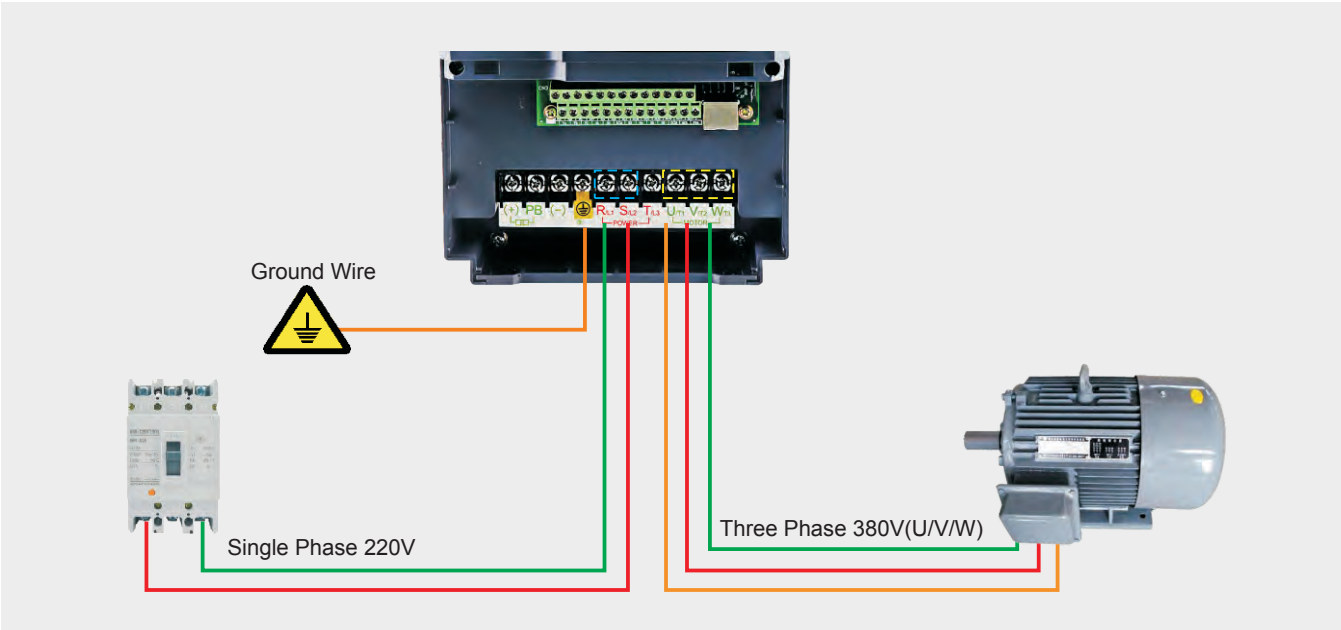
Analysis For Systems

System	Type Benefits	Disadvantages
Solar-Powered Pumping	Low maintenance; No fuel costs; Easy Installation; Reliability unattended operation; Portable;	Higher Initial Costs;Variable water delivery dependingon sun intensity; Higher return on investment depending on the insolation of installation.
Diesel-powered Pumping	Moderate initial Costs; Movable or Portable; Easy Installation; Requires certain system Experience;	Requires regular maintenance and replacement of diesel; Inadequate maintenance will reduce life expectancy; the higher cost of fuel and long-term fuel cost trend is upward; Environmental pollution of noise, smoke,and waste oil; Requires an understanding of installation enviroment.
Wind-Powered Pumping	Long life Span; Lower Initial Costs; No fuel costs	High maintenance and replacement cost; Difficult to purchase the replace components locally; Greatly influenced by season; Requires special tools to install; High labor costs; Only work when wind conditions are adequate.
Ram Pumping	Lower Initial Costs; Low maintenance costs;No fuel costs; Easy installation;Reliable; Simple;	Rushing water is required.
Hauling Water	Low Initial Costs; Excellent Mobility;	Highest labor cost.



KD600-2S/4T (220V Input, 380V Output Series)

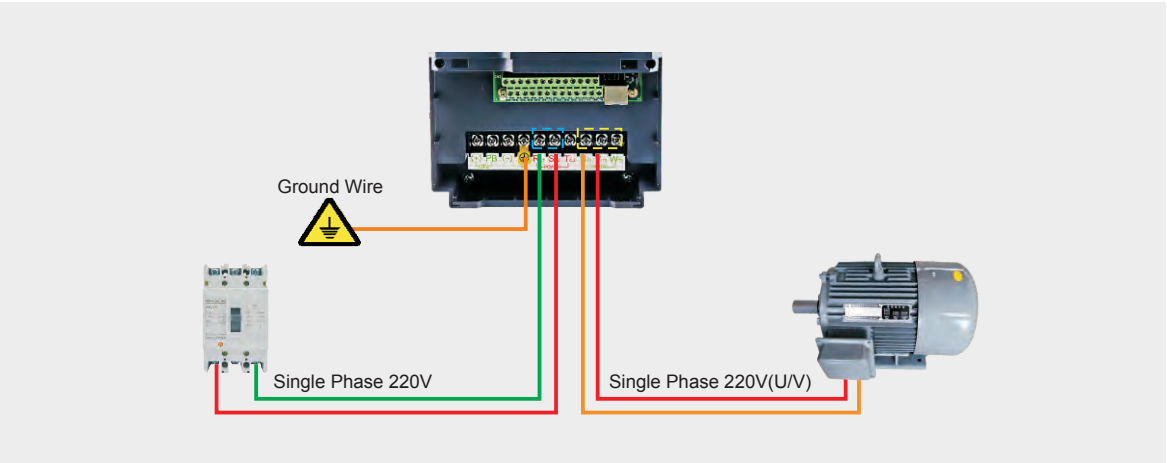
ซีรีส์ KD600-2S/2S/4T เหมาะสำหรับงานที่ต้องการไฟเข้า 220V เฟสเดียว แต่ต้องการไฟออก 380V สามเฟส สำหรับมอเตอร์ AC โดยทั่วไปแล้ววิธีแก้ปัญหานี้คือการเพิ่มหม้อแปลงไฟฟ้าไว้ด้านหลัง VFD 220V แล้วต่อเข้ากับมอเตอร์ แต่วิธีนี้ยุ่งยากและมีค่าใช้จ่ายสูงมาก ปัจจุบันซีรีส์ KD600-2S/2S/4T ของเราสามารถแก้ปัญหานี้ได้โดยไม่มีปัญหาใดๆ แผนผังการต่อสายโดยละเอียดมีดังต่อไปนี้



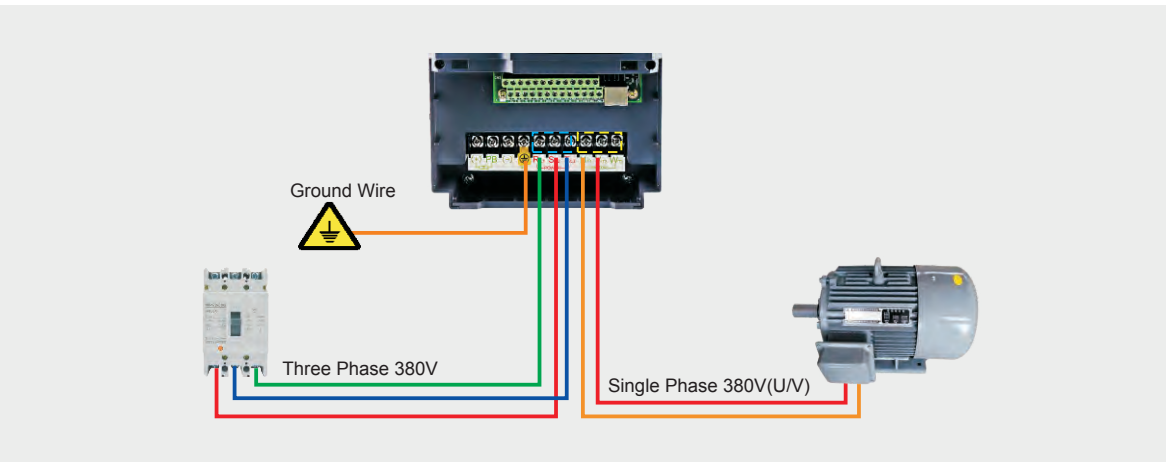
KD600-2SS (Single Phase Output Series)

ซีรีส์ KD600-2SS/4TS เหมาะสำหรับงานที่ต้องการแรงดันไฟฟ้าขาเข้า 220V เฟสเดียว และแรงดันไฟฟ้าขาออก 0~220V เฟสเดียว หรือแรงดันไฟฟ้าขาเข้า 380V สามเฟส และแรงดันไฟฟ้าขาออก 0~380V เฟสเดียว เนื่องจากซีรีส์นี้ไม่ค่อยพบในท้องตลาดจึงผลิตออกมาเป็นแบบไม่มาตรฐาน แต่มีฟังก์ชันพื้นฐานเหมือนกับ KD600 ทั่วไป แผนผังการต่อสายและตารางกระแสไฟมีดังต่อไปนี้

220V Single Phase Output Series



380V Single Phase Output Series



Model List

Model	Motor (KW)	Rated Input Current (A)	Rated Output Current (A)
KD600-2SS/4T-0.75KW/1.5P	0.75KW/1HP	9.2	8.3
KD600-2SS/4T-1.5KW/2.2P	1.5KW/2HP	14.0	12.5
KD600-2SS/4T-2.2KW/3.7P	2.2KW/3HP	20.0	18.3
KD600-2SS/4T-3.7KW/5.5P	3.7KW/5HP	34	30
KD600-2SS/4T-5.5KW/7.5P	5.5KW/7.5HP	48	43.8

Model List

Model	Motor (KW)	Rated Input Current (A)	Rated Output Current (A)
KD600-2S/4T-0.75KW/1.5P	0.75KW/1HP	8.2	2.1
KD600-2S/4T-1.5KW/2.2P	1.5KW/2HP	14.0	3.8
KD600-2S/4T-2.2KW/3.7P	2.2KW/3HP	23.0	5.1
KD600-2S/4T-3.7KW/5.5P	3.7KW/5HP	27	9.0
KD600-2S/4T-5.5KW/7.5P	5.5KW/7.5HP	39	13.0
KD600-2S/4T-7.5KW/11P	7.5KW/10HP	53	17.0
KD600-2S/4T-11KW/15P	11KW/15HP	77	25.0
KD600-2S/4T-15KW/18.5P	15KW/20HP	99	32.0
KD600-2S/4T-18.5KW/22P	18.5KW/25HP	121	37.0
KD600-2S/4T-22KW/30P	22KW/30HP	145	45.0
KD600-2S/4T-30KW/37.5P	30KW/40HP	196	60.0
KD600-2S/4T-37.5KW/45P	37.5KW/50HP	247	75.0
KD600-2S/4T-45KW/55P	45KW/60HP	306	91.0
KD600-2S/4T-55KW/75P	55KW/70HP	366	112.0
KD600-2S/4T-75KW/90P	75KW/100HP	481	150.0