

K-DRIVE

Dedicated to becoming a pioneer in industry system solutions



PRODUCT MANUAL

KD600/IP65 series

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Company Profile

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 Infineon 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.

Qualifications



Product Introduction

Overview

KD600/IP65 series is a high protection performance products, based on the KD600 platform development, efficient, intelligent, easy to use, economy, quality, service as a whole. Realize synchronous, asynchronous motor integration drive, integration of various control, communication, expansion and many other functions. Safe and reliable, excellent control!



Function Introduction

- ✧ Flame retardant ABS thermoplastic polymer material, rice gold baking paint spray process, safer, more corrosion resistant;
- ✧ Built-in 105°C-10000h high quality capacitor, more durable;
- ✧ Independent air cooling design, longer life;
- ✧ 0.1s output 200% curve current protection, more vigorous;
- ✧ Equipped with PID, PLC function, more intelligent;
- ✧ A variety of phase, voltage, current, motor, drive protection, more comprehensive;
- ✧ Motor control mode optional, SVC speed sensorless vector control, more accurate;
- ✧ Thousands of groups of parameter Settings, more powerful;
- ✧ Wide voltage design -15% to +20%, more suitable.

Specification and model

Naming convention

KD600/IP65 S - 4 T 4.0 G B

① ② ③ ④ ⑤ ⑥ ⑦

No.	Content	Instructions
1	Product series	KD600/IP65 High protection series
2	Adaptive motor type	Empty: None S: Synchronous motor
3	Voltage level	3:220V 4:380V 7:690V
4	Voltage classification	S: single-phase T: three-phase
5	Adaptive motor power	0.75kw to 1200kw R indicates the decimal point
6	Applicable model	G: general purpose P: fan pump type
7	Built-in brake unit	B: Built-in brake unit (B) : Optional Built-in brake unit Empty: None

Specification and model

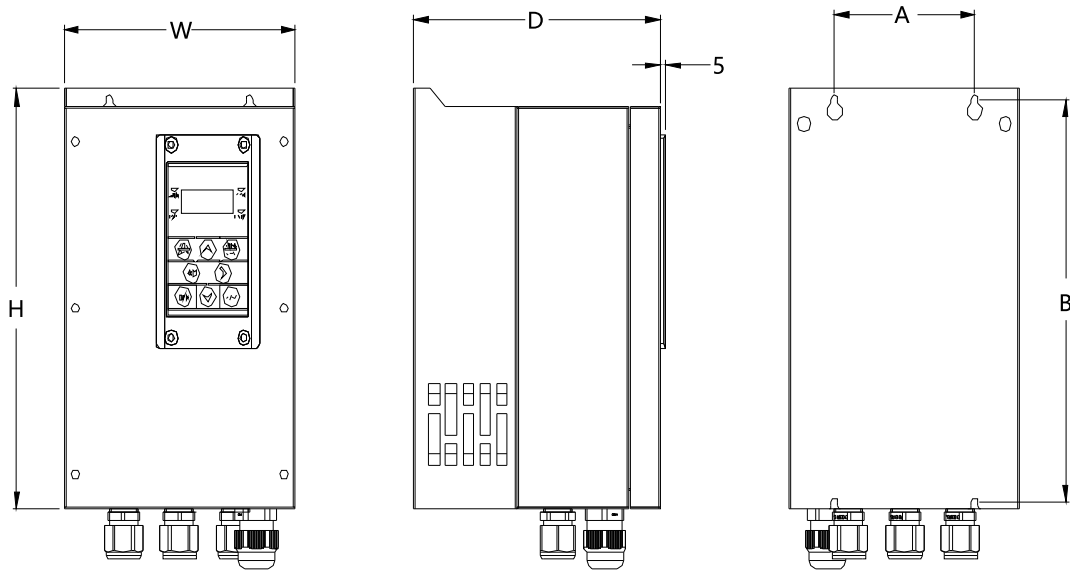
Product model	Input current (A)	Output current (A)	Adaptive motor (KW)
Single phase 220V range: -15% to 20%			
KD600/IP65-2S1.5G	14	7	1.5
KD600/IP65-2S2.2G	23	9.6	2.2
Three phase 380V range: -15% to 20%			
KD600/IP65-4T0.75GB	3.4	2.1	0.75
KD600/IP65-4T1.5GB	5.0	3.8	1.5
KD600/IP65-4T2.2GB	5.8	5.1	2.2
KD600/IP65-4T4.0GB	10.5	9.0	4.0
KD600/IP65-4T5.5GB	14.6	13.0	5.5

Specification and model

Product model	Output current (A)	Input current (A)	Adaptive motor (KW)
KD600/IP65-4T7.5GB	20.5	17.0	7.5
KD600/IP65-4T011GB	26.0	25.0	11.0
KD600/IP65-4T01 5GB	35.0	32.0	15.0
KD600/IP65-4T018GB	38.5	37.0	18.0
KD600/IP65-4T022GB	46.5	45.0	22.0
KD600/IP65-4T030G(B)	62.0	60.0	30.0
KD600/IP65-4T037G(B)	76.0	75.0	37.0
KD600/IP65-4T045G(B)	92.0	90.0	45.0
KD600/IP65-4T055G(B)	113.0	110.0	55.0
KD600/IP65-4T075G(B)	157.0	152.0	75.0
KD600/IP65-4T093G	180.0	176.0	93.0
KD600/IP65-4T110G	214.0	210.0	110.0
KD600/IP65-4T132G	256.0	253.0	132.0
KD600/IP65-4T160G	307.0	304.0	160.0
KD600/IP65-4T185G	345.0	340.0	185.0
KD600/IP65-4T200G	385.0	380.0	200.0
KD600/IP65-4T220G	430.0	426.0	220.0
KD600/IP65-4T250G	468.0	465.0	250.0
KD600/IP65-4T280G	525.0	520.0	280.0
KD600/IP65-4T315G	590.0	580.0	315.0
KD600/IP65-4T355G	665.0	650.0	355.0
KD600/IP65-4T400G	785.0	725.0	400.0

Overall dimension

Product size diagram



Product size

Product model	Mounting dimension (mm)		Overall dimension (mm)			Aperture (mm)	Net weight (kg)
	A	B	H	W	D		
Single phase 220V range: -15% to 20%							
KD600/IP65-2S1.5G	100	230	240	165	176	Φ5	3.5
KD600/IP65-2S2.2G	100	230	240	165	176	Φ5	3.5
Three phase 380V range: -15% to 20%							
KD600/IP65-4T0.75GB	90	205	215	140	160	Φ5	3.5
KD600/IP65-4T1.5GB	90	205	215	140	160	Φ5	3.5
KD600/IP65-4T2.2GB	90	205	215	140	160	Φ5	3.5
KD600/IP65-4T4.0GB	100	230	240	165	176	Φ6	4.2
KD600/IP65-4T5.5GB	100	230	240	165	176	Φ6	4.2
KD600/IP65-4T7.5GB	120	264	275	177	200	Φ6	6
KD600/IP65-4T011GB	130	315	325	205	205	Φ6	8
KD600/IP65-4T015GB	130	315	325	205	205	Φ6	8

Product size

Product model	Mounting dimension (mm)		Overall dimension (mm)			Aperture (mm)	Net weight (kg)
	A	B	H	W	D		
KD600/IP65-4T018GB	175	370	380	250	215	Φ6	11.8
KD600/IP65-4T022GB	175	370	380	250	215	Φ6	11.8
KD600/IP65-4T030G(B)	190	435	450	300	220	Φ7	17
KD600/IP65-4T037G(B)	190	435	450	300	220	Φ7	17
KD600/IP65-4T045G(B)	245	555	570	370	280	Φ10	30
KD600/IP65-4T055G(B)	245	555	570	370	280	Φ10	30
KD600/IP65-4T075G(B)	290	565	580	370	295	Φ10	45
KD600/IP65-4T093G	290	565	580	370	295	Φ10	45
KD600/IP65-4T110G	320	688	705	420	300	Φ10	65
KD600/IP65-4T132G	320	688	705	420	300	Φ10	65
KD600/IP65-4T160G	400	1330	1360	515	380	Φ14	124
KD600/IP65-4T185G	400	1330	1360	515	380	Φ14	124
KD600/IP65-4T200G	400	1330	1360	515	380	Φ14	124
KD600/IP65-4T220G	500	1480	1510	625	415	Φ14	175
KD600/IP65-4T250G	500	1480	1510	625	415	Φ14	175
KD600/IP65-4T280G	500	1480	1510	625	415	Φ14	175
KD600/IP65-4T315G	500	1620	1650	735	450	Φ14	228
KD600/IP65-4T355G	500	1620	1650	735	450	Φ14	228
KD600/IP65-4T400G	500	1620	1650	735	450	Φ14	228



Function introduction

Display and keyboard operation

Item	Content description
Phase loss protection	Input phase loss protection, output phase loss protection
Instantaneous overcurrent protection	Stop when the rated output current is more than 250%
Overvoltage protection	Stop when the main circuit DC voltage is above 820V (for three-phase 380V models) Stop when the main circuit DC voltage is above 410V (for three-phase 220V and single-phase 220V models)
Undervoltage protection	Stop when the main circuit DC voltage is below 350V (for three-phase 380V models) Stop when the main circuit DC voltage is below 190V (for three-phase 220V and single-phase 220V models)
Overheat protection	The inverter bridge will trigger protection when it overheats
Overload protection	Heavy duty application: 150% rated current 60s stop; Light load application: 110% rated current 60s stop
Overcurrent protection	Stop protection over 2.5 times rated current of inverter
Brake protection	Brake unit overload protection, brake resistance short-circuit protection
Short circuit protection	Output interphase short-circuit protection, output short-circuit protection to the ground
Motor protection	Motor lock protection, car protection, overload protection, overheat protection (analog input AI2 can support 4 kinds of motor temperature sensor input PT100, PT1000)

Personalized function

Item	Content description	
The motor is overheated	Can support motor temperature sensor input (PT100.PT1000)	
Run instruction	Operation panel setting, control terminal setting, serial communication port setting (can be switched in a variety of ways)	
Frequency instruction	10 frequency instructions: digital set, analog voltage set, analog current set, pulse set, serial port set (can be switched in a variety of ways)	
Auxiliary frequency instruction	10 auxiliary frequency instructions. It can flexibly realize auxiliary frequency fine-tuning and frequency synthesis	
Input terminal	Standard: 5 DI terminals Two AI terminals, AI1 supports -10V-10V voltage mode input, AI2 supports -10V-10V voltage mode input, 0~20mA current mode input, temperature mode input (switch function via dip switch)	Expansion capacity: 4 DI terminals
Output terminal	Standard: 1 DO terminal 1 relay output terminal 1 FM (optional for high speed pulse output or normal DO function) One AO terminal supports 0~20mA current output or 0~10V voltage output	Expansion capability: 1 DO terminal 1 relay output terminal

Basic function

Item	Content description
Input frequency resolution	Digital setting: 0.01Hz Analog setting: Max frequency x 0.025%
Type of motor that can drive	Induction motor (IM), Permanent Magnet Synchronous Motor (PMSM)
Control mode	Open loop vector control (SVC), Closed loop vector control (FVC), V/f control
Starting torque	0.5Hz/150% (SVC), 0Hz/180% (FVC)
Speed range	1:200 (SVC) 1:1000 (FVC)
Speed stability accuracy	0.3% (SVC) 0.01% (FVC)
Torque control accuracy	FVC:±3% SVC: ±5% above 5Hz
Torque boost	Automatic torque boost; Manual torque is increased by 0.1%~30.0%
V/F curve	Four methods: linear, multi-point, full V/f separation, incomplete V/f separation
Acceleration and deceleration curve	Linear or S-curve acceleration and deceleration mode can be selected, which can reduce the impact of frequency sudden change on the machine through arc smoothing. Four groups of acceleration and deceleration time can be set, and the acceleration and deceleration time range is 0.0-6500.0s
DC braking	Dc braking Starting frequency: 0.00Hz~ Maximum frequency Braking time :0.0s~100.0s Braking current value: 0.0%~ 100.0%
Point control	Starting frequency range :0.00Hz~50.00Hz Starting acceleration and deceleration time :0.0s~6500.0s
Simple PLC, multi-speed operation	Up to 16 segment speeds are possible with built-in PLC or control terminals
Built-in PID	It is convenient to realize the closed-loop control system of process control
Automatic Voltage Regulation (AVR)	When the grid voltage changes, it can automatically keep the output voltage constant
Over voltage over loss rate control	Automatic current and voltage limit during operation to prevent frequent overvoltage trip
Fast current limiting function	Minimize the overcurrent fault and protect the normal operation of the inverter
Torque qualification and control	The "shovel" feature automatically limits torque during operation to prevent frequent overcurrent tripping; Torque control can be achieved by vector control mode

Use environment

Item	Content description
Place of use	The protection level of the whole machine is IP65, heavy and light load models G/P integration, focusing on the application of high performance, functional requirements and high protection level
Altitude	Derating is not required for use below 1000m. Derating is 1% for every increase of 100m above 1000 M. The maximum altitude is 3000m.

Use environment

Item	Content description
Ambient temperature	If the ambient temperature ranges from -10°C to +50°C and the ambient temperature ranges from 40 °C to 5°C, the derating function must be derated by 1.5% for every 1°C increase in the ambient temperature
IP level	IP65
Vibration	Less than 5.9m/s ² (0.6g)
Storage temperature	-20°C~+60°C

Performance characteristics

Control mode selection

Control mode	Speed control	Torque control	Position control	Applicable machine
VF	●			Asynchronous motor
Voltage-frequency separation	●			Torque motor, EPS power supply, series resonance
No PG high-performance vector	●	●		Asynchronous and permanent magnet synchronous
There are PG high-performance vectors	●	●	●	Asynchronous and permanent magnet synchronous

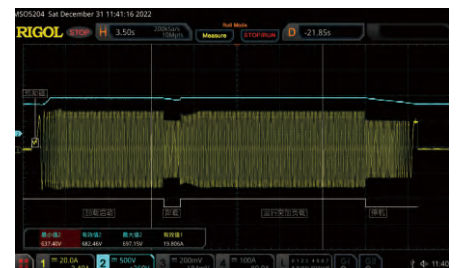
Excellent performance

Control mode	Speed control	Torque control	Applicable machine
No PG high-performance vector	1:200	150%	Permanent magnet synchronous motor
No PG high-performance vector	1:100	150%	Asynchronous motor
There are PG high-performance vectors	1:1000	150%	Asynchronous, permanent magnet synchronous motor

High starting torque characteristics

Low frequency torque is high. In closed-loop vector mode, it can output 200% rated torque at 0.0Hz and run stably with load at ultra-low speed of 0.01Hz. Powerful low torque output can effectively ensure the stability and smooth start.

In torque control mode, the torque output is stable. The linearity deviation is less than 3%, which greatly ensures the stable operation of the equipment.



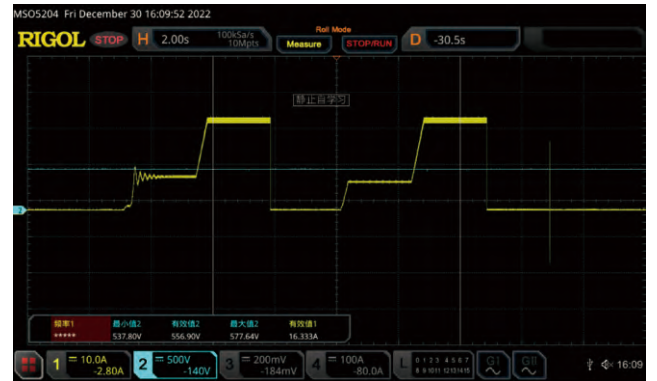
Self-learning of motor parameters

No matter in the rotation or static motor self-learning, the motor parameters can be accurately obtained, convenient debugging, simple operation, providing higher control accuracy and response speed.



Rotary self-learning:

The load learning must be removed, and it is suitable for occasions where the control accuracy is relatively high.



Static self-learning:

powerful motor self-learning algorithm, which can obtain motor parameters in the static state of the motor, the effect is comparable to rotary self-learning.

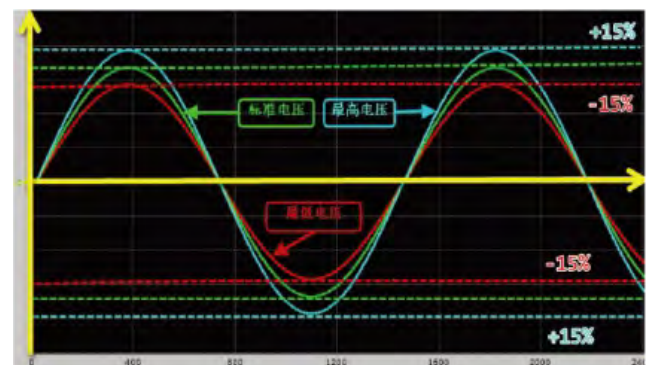
Overexcitation braking function

In the case of partial inertia shutdown, the braking resistance can be not increased, and the over-excited braking function can realize rapid braking, improving the product usability. Overexcitation braking function effectively inhibits the bus voltage rise in the deceleration process, avoids the inverter overvoltage fault, and realizes fast braking to meet the power outage and quick stop.



Wide voltage design

The allowable fluctuation range of the input voltage is 15% of the standard rated voltage taxi, so that the time can be protected from the impact of voltage fluctuations to meet the harsh grid environment.





Ac Drive



Wind power converter



Servo

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