

The logo for Krube, featuring the word "krube" in a bold, lowercase, sans-serif font. The letter "k" is black with a small orange dot above it. The letter "e" is black with a small blue dot above it. The logo is enclosed in a white circle with a blue border.

**krube**

# SPECIFICATION

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**MODEL  
K-DC305-A24-44**

## 1. Operating environment

1-1. EC axial flow fans are suitable for automotive air conditioners;

1-2. Temperature and humidity for motor end: (1) Temperature: -35°C~+95°C, (2) Humidity: below RH95%;

1-3. Storage temperature and humidity: (1) Temperature: -35°C~+125°C, (2) Humidity: below RH95%, no dew on the motor and packaging;

1-4. Use air environment: Do not use and store this product in a gas environment with corrosive gas, flammable gas and dust.

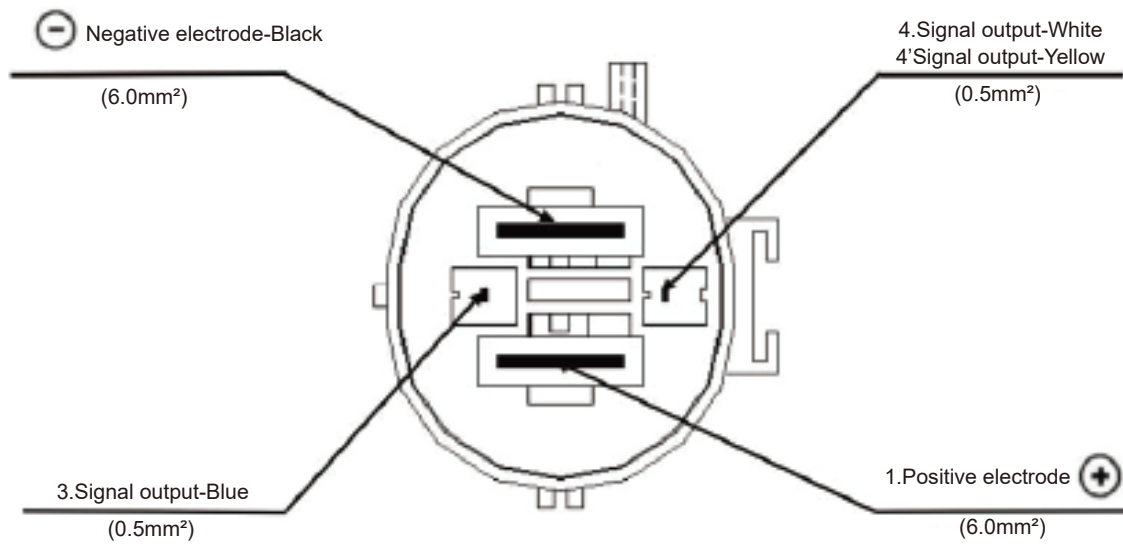
## 2. Rated parameters

Model	K-DC305-A24-44
Rated voltage	24VDC
Rated voltage range	18VDC~32VDC
Power	800W
Input Current	32A
Rotating speed	1300~4800RPM
Number of poles	8
Number of stator phases	3
Protection level	IP68

## 3.3. Technical Parameters

Structure size	φ332
Fan weight	2.7Kg
Blade material	VO grade nylon fiberglass
Grille material	VO grade nylon fiberglass
Moisture-proof grade (F)/environmental protection grade (H)	F4-1
Number of blades	7
Balance quality according to DIN ISO 1940-1	G10
Direction of rotation	Rotor right view
Insulation class	B
Ambient temperature description	Above +90°C with power derating
Installation location	Arbitrarily
Motor bearing structure	Ball bearing (rubber cover)
Life expectancy	40000H(typical)
Technology	Fault output (high side switch max. 30mA)
	Motor Current Limit
	Soft start
	0-10VDC/PWM control terminal input
	Voltage protection
	Electronic equipment overheating protection
	Low voltage protection
Motor protection	Undervoltage alarm
	Overvoltage alarm
	Overcurrent alarm
	Over temperature alarm

## 4.Connectors and wiring harnesses



Connector brand	YAZAKI				
Connector model	7282-8497-90(公头)				
Logo	D+	D-	FO	PWM	VSP
Explanation	Positive electrode	Negative electrode	Signal output	Signal input	Signal input
Terminal No.	1	2	3	4	4A
Harness color	Red	Black	Blue	White	Yellow
Section(mm <sup>2</sup> )	6.0	6.0	0.5	0.5	0.5
Waterproof plug part number	7157-3582-90	7157-3582-90	7158-3030-50	7158-3030-50	7158-3030-50
Terminal part number	7114-3251	7114-3251	7114-4103-02	7114-4103-02	7114-4103-02

## 5.Communication Interface

5-1.signal form can choose PWM (or VSP).

5-2.VSP mode: the white lead is connected to the negative pole, connected to the signal generator for speed regulation; the fan stops working at 0-1.6V, the fan speed is 2.1V-9V, and the fan is at full speed 9-10V.

5-3.PWM mode: Connect to PWM communicator, frequency range 100-500Hz, fan stop working 0%-9% and 99%--100%, fan speed adjustment 15%-90%, fan full speed 90%-98%.

## 6.Drive mode

6-1. There are two drive modes for fan products, namely operation mode and failure mode.

6-2. Operation mode

In the running mode, after the fan is powered on, it runs according to the state of the speed regulation input signal, and the fan works normally in this mode.

6-3. Failure mode

When the fan is abnormal, the fan will start protection according to the abnormal situation and enter the failure mode. In the failure mode, the fan will;The speed of the machine depends on the specific situation. Failure modes are directly fed back via online signals.

6-3-1. When encountering the following conditions, the product driver will enter fault mode and stop driving: (1) Undervoltage, (2) Overvoltage, (3) Driver stall, (4) Overcurrent, (5) Driver overheating, (6) Driver failure, (7) Reverse connection protection.

#### 6-3-2. Failure mode: undervoltage

When the power supply voltage of the fan is lower than 18V, the fan stops and enters the undervoltage failure mode; When the power supply voltage returns to the normal voltage range ( $18V < U < 32V$ ), the fan can resume operation on its own.

When the power input voltage is within the set voltage range and lower than the design voltage (+24V), the fan speed will slow down accordingly. Undervoltage is not reflected in the active-high feedback output signal FO since it is not a drive fault.

When the FO input voltage is  $> 20V$ , the PWM white wire is connected to the positive pole, and the VSP value is input, the fan is reversed, and the speed regulation is used normally.

#### 6-3-3. Failure mode: overvoltage

When the power supply voltage returns to the normal voltage range ( $18V < U < 32V$ ), the fan can resume operation on its own.

Overvoltage is not reflected in the active-high feedback output signal FO since it is not a drive fault. When the power supply voltage of the fan is higher than 32V, the fan stops and enters the overvoltage failure mode.

#### 6-3-4. Failure mode: overcurrent

Overcurrent is manifested as the operating current of the fan exceeds the maximum safe current value. After detecting overcurrent for the first time, the fan will stop immediately and restart after a delay.

If overcurrent is detected again, it will continue to shut down and restart. After 5 consecutive failures, it will delay the start cycle for 30S, and feedback the fault until the fault is resolved.

#### 6-3-5. Failure mode: drive overheating

When the operating temperature of the electronic components in the drive circuit exceeds  $125^{\circ}\text{C}$ , the internal chip has an overheating protection function, and the fan stops working but does not feed back a fault signal. Troubleshooting needs to restart automatically after the temperature drops below  $120^{\circ}\text{C}$ , and it can work normally.

#### 6-3-6. Drive failure in failure mode

When the internal drive fails, the fan will not be able to start normally. After 5 consecutive failures, the start cycle will be delayed for 30S, and the fault will be reported.

#### 6-3-7. Reverse polarity protection for failure mode

The circuit part of the drive is protected against reverse polarity, which means that the drive will not malfunction when the power line is temporarily or permanently reversed during the application process.

#### 6-3-8. Failure mode notification

After the fan detects a corresponding fault, FO will output a high level, without distinguishing the specific fault phenomenon. After the fan status returns to normal operation, the output of FO will be pulled back to low level.

### 6-3-9.Fault recovery

The design of the drive complies with the following basic and mandatory requirements: In any case, any drive failure cannot cause a subsequent failure that would lead to a major accident of the vehicle. After ensuring the above security requirements, it is still necessary to meet the maximum availability requirements of the driver. This means that appropriate restart procedures or methods should be configured for all failure modes. In any event, the drive will attempt to recover from the fault when it receives a valid governor signal to run the drive. If the fault disappears, the drive should immediately exit the failure mode.

## 7.Fuse protection

According to ISO8820 part 3, specified fuses must be used in the circuit. The specific fuse rating needs to be determined by the customer with reference to the specific application (such as the harness length of the application vehicle, the cross-section thickness of the power harness, and the type of fuse).

## 8.Precautions

The performance and characteristics described in this document refer to the performance and characteristics of the motor alone, rather than the performance and characteristics of the motor when it is installed in the customer's complete machine.

## 9.Air volume data

Voltage	VSP	Static pressure	Current [A]	Air volume [m <sup>3</sup> /h]	Speed [RPM]
26V	9V	0	17.9	3540	4150
		20	18.2	3453	4135
		40	18.2	3400	4140
		60	18.2	3328	4138
		80	18.2	3250	4134
		100	18.4	3202	4136
		120	19	3143	4140
		140	19.2	3072	4145
		160	19.2	3002	4135
		180	19.4	2926	4136
		200	19.6	2864	4137
		220	19.6	2791	4150
		240	19.7	2682	4146
		260	19.7	2603	4138
		280	19.7	2503	4128
		300	19.7	2405	4139
		320	19.4	2303	4137
		340	18.6	2107	4142
350	18.4	2036	4118		

## 10.Outline drawing

