

PBM

SPECIFICATION FOR APPROVAL

Customer: Customer
Model No: PK3N400B4EP
Motor Type: BE188EC

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Customer Approved

Customer

PBM Checked By

Zepsi

This specification defines the Mechanical and Electrical characteristics of the EC brushless external rotor motorized axial fan and centrifugal fan.

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◆ 1. General Characters

1-1	Rated Voltage	3~380 VAC
1-2	Frequency	50/60 Hz
1-3	Operating Voltage	304-456 VAC
1-4	Rated Speed	2100 RPM
1-5	Input Current	6.70 A
1-6	Input Power	3340 W
1-7	Max Air Flow	8039 m ³ /H
1-8	Max Static Pressure	1718 Pa
1-9	Acoustical Noise	80 dB(A)
1-10	Life Expectance	50,000 Hours(L10) At 40℃ room, humidity 15%~65%RH.
1-11	Direction of Rotation	Clockwise seen on rotor
1-12	Direction of Air Flow	All around
1-13	Insulation Class	Class F
1-14	Insulation Resistance	50 Mega Ohm minimum at 500VDC
1-17	Speed Control	Control input 0~10VDC / PWM / RS485 / 4~20mA
1-18	Protection Type	IEC 60529 IP54
1-19	Voltage Output	+10 VDC
1-20	Dielectric Strength	10mA maximum at 2200VAC 50Hz one second
1-21	Signal Output	FG (15 pulse per revolution)
1-22	Touch current	≤3.5mA

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◆ 2. Mechanical Characters

2-1	Dimension	500mm X 500mm X 410mm (see dimension drawing)
2-2	Material of Impeller	Metal
2-3	Number of Blades	5
2-4	Impeller Plate	Metal
2-5	Mounting Position	Any
2-6	Surface of Rotor	Coated in black
2-7	Bearing System	Ball bearing
2-8	Weight	38kg
2-9	Package	standard

◆ 3. Electrical Protection

3-1	Locked-rotor Protection	Over-current limiting circuit protects motor from damage at least for 72 hours of locked rotor condition at rated voltage.
3-2	Thermal Protection	When the motor temperature reaches the preset limit, reduce power or shut down the unit.
3-3	Over or Less Voltage Protection	When the supply voltage exceeds or falls below the preset voltage range, a shutdown is triggered.
3-4	Soft Start	The motor starts slowly at a lower speed to reduce the starting current and the impact on the power grid.
3-5	Over current Protection	When the motor operating current exceeds the preset value, it will trigger a shutdown or power reduction.
3-6	Speed Limiter	The operating speed of the fan will not exceed the maximum preset value.
3-7	Lack of Phase	Protection is triggered when a power failure of any phase of the motor is detected, preventing overheating caused by the motor's single-phase operation.
3-8	Automatic Restart	The motor will automatically restart after detecting rotation stop or stall conditions.

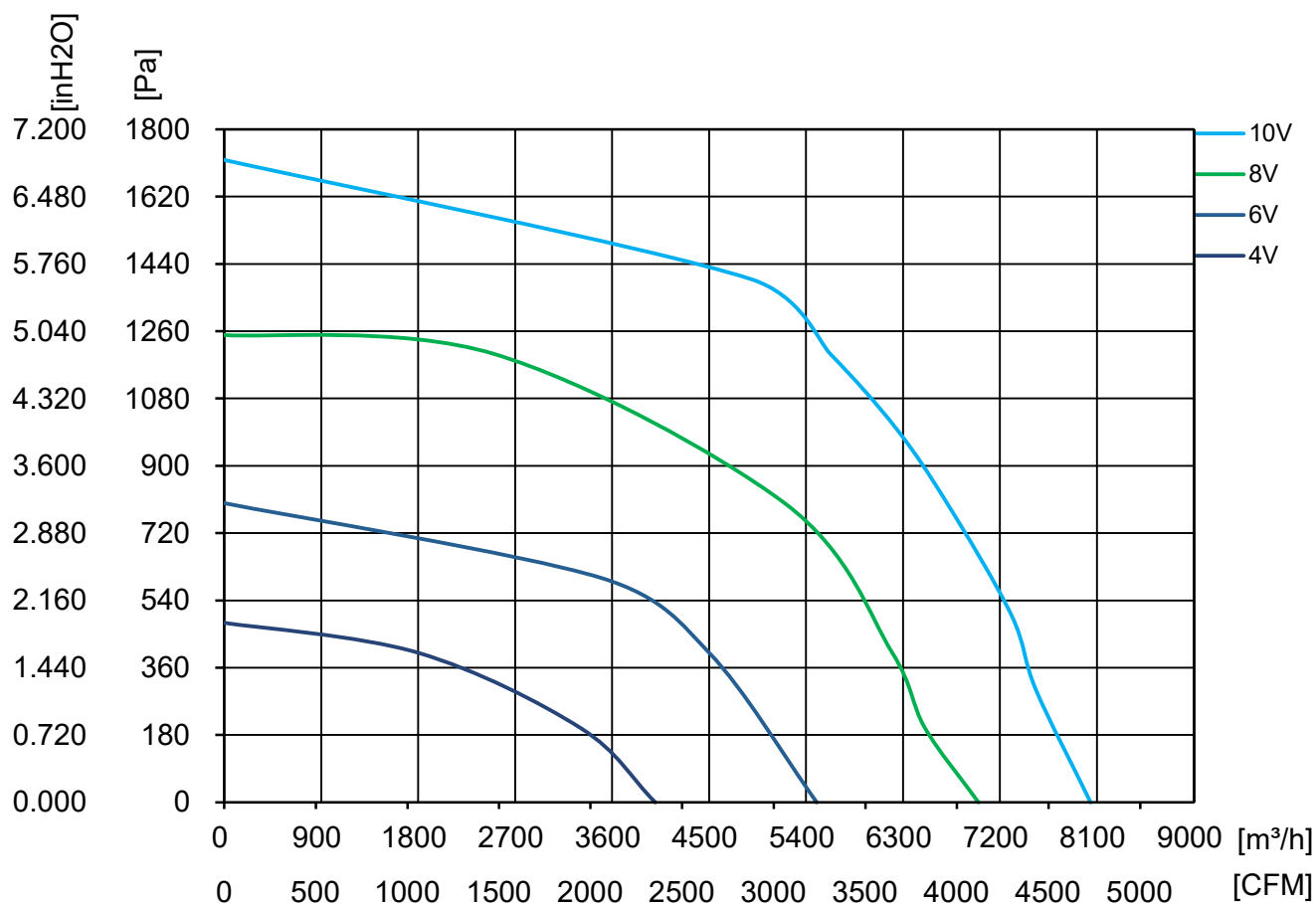
Model: PK3N400B4EP**Motor: BE188EC****◆ 4. Environmental Characters**

4-1	Operating Temperature	-20℃ to 55℃
4-2	Storage Temperature	-40℃ to 70℃
4-3	Operating Humidity	5% to 95% RH
4-4	Storage Humidity	0% to 95% RH
4-5	Drop Test	ISO 4180
4-6	Vibration Test	IEC 60068-2-64
4-7	Shock Test	IEC 60068-2-29
4-8	RoHS	All the material meets RoHS standard.

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◆ 5. Performance Curve



Testing Condition

Input Voltage----Operating voltage

Temperature----Room temperature

Humidity-----65%RH

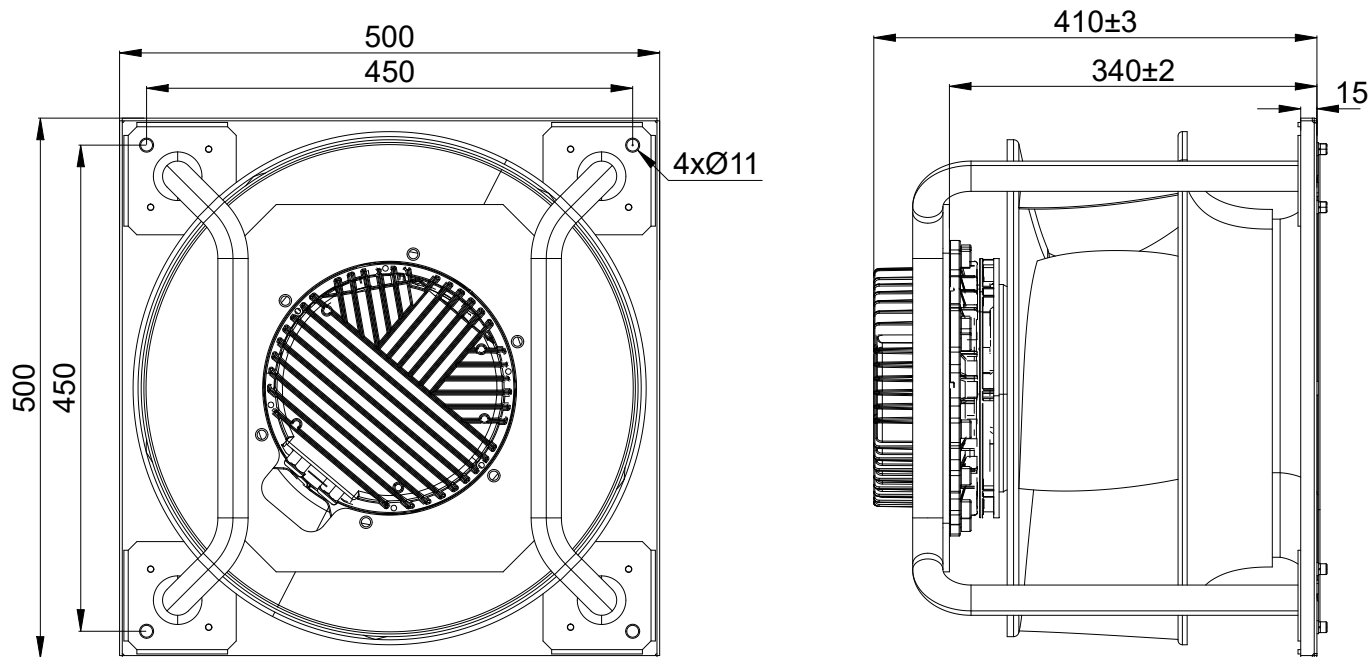
Standard-----AMCA 210

The air flow rate specified in the specification sheet is measured on PBM measurement equipment. The actual installed air flow rate may vary with changes in installation conditions. In case of deviation from the standard air flow rate, the parameters must be verified on the installed equipment.

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◆ 6. Outline Drawing



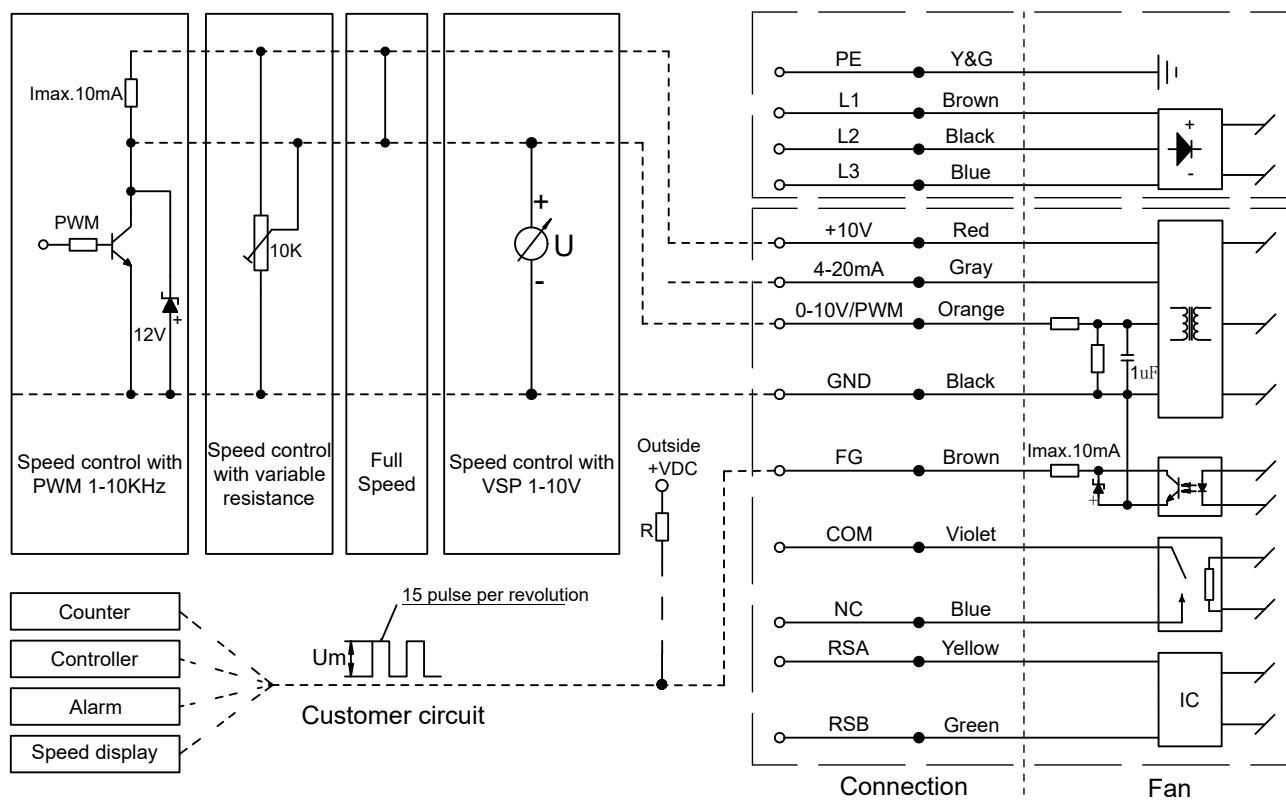
Note

1. Connection line:(L=1500±50)
2. AC:Brown=L1,Black=L2,Blue=L3,Green&Yellow=Protecting Earthing;
3. DC:Red=Voltage Output +10VDC,Orange=0-10VDC/PWM,Brown=FG,Gray=4~20mA,Black=GND,Yellow=RSA,Green=RSB,Violet=COM,Blue=NC.

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7. Connection Diagram



Line	Signal	Colour	Assignment/function
1	L1	Brown	3~380VAC 50/60Hz
	L2	Black	3~380VAC 50/60Hz
	L3	Blue	3~380VAC 50/60Hz
	PE	Green&Yellow	Protection Earth

Line	Signal	Colour	Assignment/function
2	+10VDC	Red	Voltage Output +10VDC
	0-10VDC/PWM	Orange	Control input
	Tach output	Brown	15 pulse per revolution
	GND	Black	GND
	4-20mA	Gray	Control Input
	NC	Blue	NC
	COM	Violet	COM
	RSA	Yellow	Modbus RSA-485
	RSB	Green	Modbus RSB-485

Note

Above outside circuit connection screen are five kinds of most common speed control circuits.

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◆ 8. Safety Requirements

- 1.The power line and control line of the fan should be connected in strict accordance with the wiring diagram;
2. If the fan does not work after starting,please check the input voltage of the speed regulation,which may be poorly connected;
- 3.Please do not touch the impeller or rotor under the condition of electrifying or low speed operating;
- 4.Before turning on the power, please check whether the motor is installed reliably;
- 6.Please do not flush the motor,to prevent leakage accidents caused by reducing the insulation performance of the motor;
- 7.If you need to use special customized products,please consult us first and confirm before use;
- 8.After the fan operation stops,the temperature of the motor casing may be high in a short period of time, please avoid direct touch.
- 9.When installing the equipment, pay attention to check the casing and other shells,no debris can fall in, and clean up the inside if necessary;
- 10.Before the fan is installed and running, need to confirm that there is no collision,or jamming before it can be powered on;
- 11.As a part of the fan, the motor cannot be used alone without impeller or load;
- 12.After the product packaging has been disassembled, it should be repackaged if it needs to be kept in storage. The product shall be stored in a clean, well-ventilated warehouse with ambient temperature of $-40^{\circ}\text{C}\sim+80^{\circ}\text{C}$, relative humidity of no more than 95%, no corrosive gases in the air, and 15cm above the ground;
- 13.Please read this technical specification carefully before use,all operations shall be performed by qualified professionals.