

2026-07-21

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PBM

SPECIFICATION FOR APPROVAL

Customer:	Customer
Model No:	PY3N250B1E-TZ0
Motor Type:	BE72EC



PBM Motor and Fan (Suzhou) Co., Ltd

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Customer Approved

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

Model: PY3N250B1E-TZ0

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◆ 1. General Characters

1-1	Rated Voltage	115 VAC
1-2	Frequency	50/60 Hz
1-3	Operating Voltage	92~138VAC
1-4	Rated Speed	2800 RPM
1-5	Input Current	2.72A
1-6	Input Power	168W
1-7	Air Flow	1287m ³ /H
1-8	Static Pressure	1000Pa
1-9	Acoustical Noise	72dB(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 B
1-14	Insulation Resistance	50 Mega Ohm minimum at 1000VDC Between frame and (+) terminal
1-15	Motor Protection	Locked rotor protection Polarity protection Automatic restart capability
1-16	Speed Control	Control input 0~10VDC / PWM
1-17	Protection Type	IP55
1-18	Voltage Output	+10VDC (Can be used as speed control input voltage or FG signal pull-up voltage, and need to be circumscribed in series with a pull –up resister, details as connection diagram.)
1-19	Dielectric Strength	10mA maximum at 1500VAC 50Hz five second Between frame and (+) terminal
1-20	Signal Output	FG (Frequency Generator)

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◆ 2. Mechanical Characters

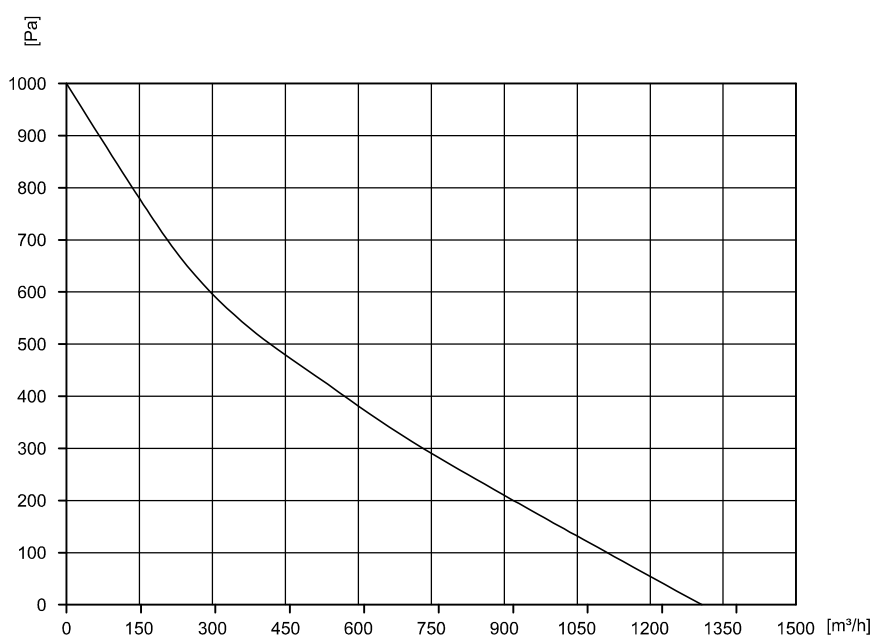
2-1	Dimension	400mm X400mm X127mm (see dimension drawing)
2-2	Material of Impeller	Metal
2-3	Impeller Plate	Injection-moulded round sheet-metal plate
2-4	Mounting Position	Any
2-5	Surface of Rotor	Coated in black
2-6	Bearing System	NMB ball bearing
2-7	Lead Wire	/
2-8	Package	standard

◆ 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	Maximum Current under Locked Rotor	A, Typical inrush current when the motor is trying to re-start under locked rotor conditions is 2~4 times the normal running current reoccurring and for 16~20% of restarting cycle period. B, If the CL function is used this restarting inrush current is about the same as the normal running current.
3-3	Reverse Polarity Protection	No damage if the positive and negative leads are reversed under maximum operation voltage conditions.
3-4	Over Voltage Protection	The circuit will be shut down automatically when input voltage over threshold. And re-started when Voltage down to threshold below.
3-5	Soft Start	In 5 seconds after power on and speed control voltage gets to 1.5V or PWM duty cycle at 10% above.

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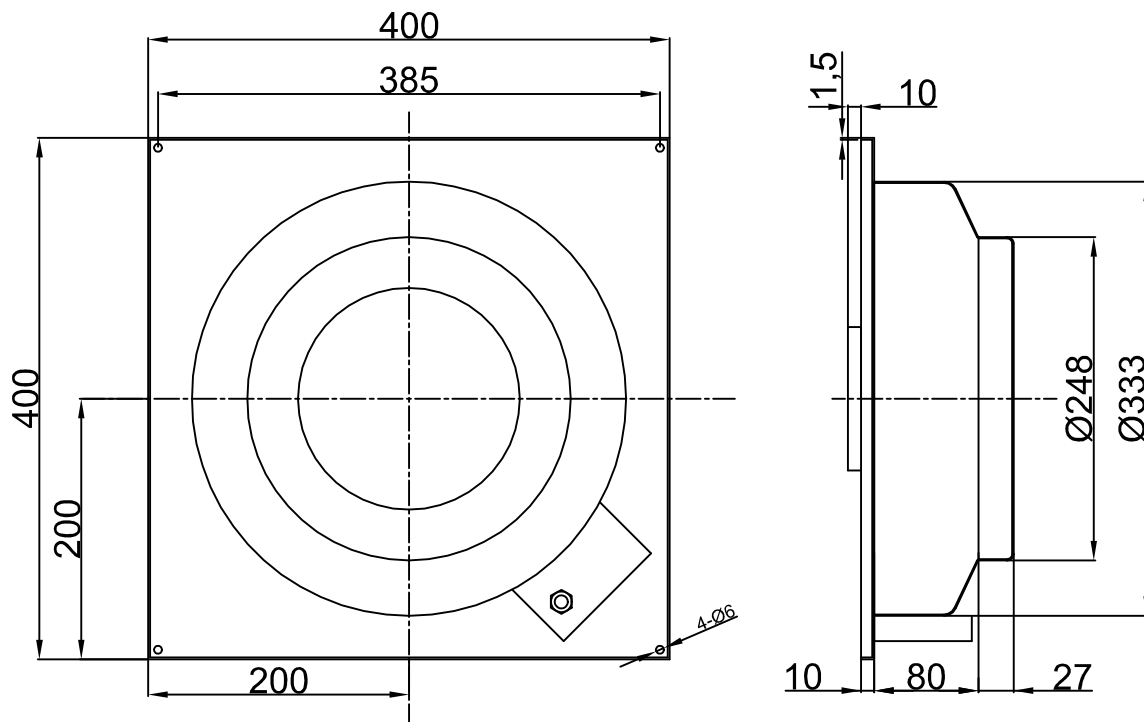
4-1	Operating Temperature	-25℃ to 60℃
4-2	Storage Temperature	-40℃ to 75℃
4-3	Operating Humidity	5% to 90% RH
4-4	Storage Humidity	5% to 95% RH
4-5	Drop Test	In minimum packaging condition fan withstand each one drop of three faces from 30cm distance height onto 10mm thickness of wooden board.
4-6	Vibration Test	Sine Wave. Displacement amplitude: 0.75mm (Equivalent 10G). Frequency Range: 10Hz~55Hz / 30 sec. 55Hz~10Hz / 30 sec Linear Scanning 120 Cycle Endurance timer per axis: 2 Hours Orientation: X,Y,Z.
4-7	Shock Test	Apply peak acceleration 50g and keep duration of the pulses for 11ms (Half sine wave).
4-8	Dustproof Test	Temperature range: 15℃ to 35℃; Dust is not allowed completely going into motor case, besides, few dust get inside won't influence function and safety. Follow IEC 60529 IP5X.
4-9	Waterproof Test	Temperature range: 15℃ to 35℃ and duration of test: at least 10 minutes, to spray water from all direction with pressure of nozzle (360°). Follow IEC 60529 IPX5
4-10	RoHS	All the material meets RoHS standard.

Model: PY3N250B1E-TZ0**Motor: BE72EC****◆ 5. Performance Curve****Testing Condition**

Input Voltage----Operating voltage (115VAC/50Hz)

Temperature-----Room temperature

Humidity-----65%RH

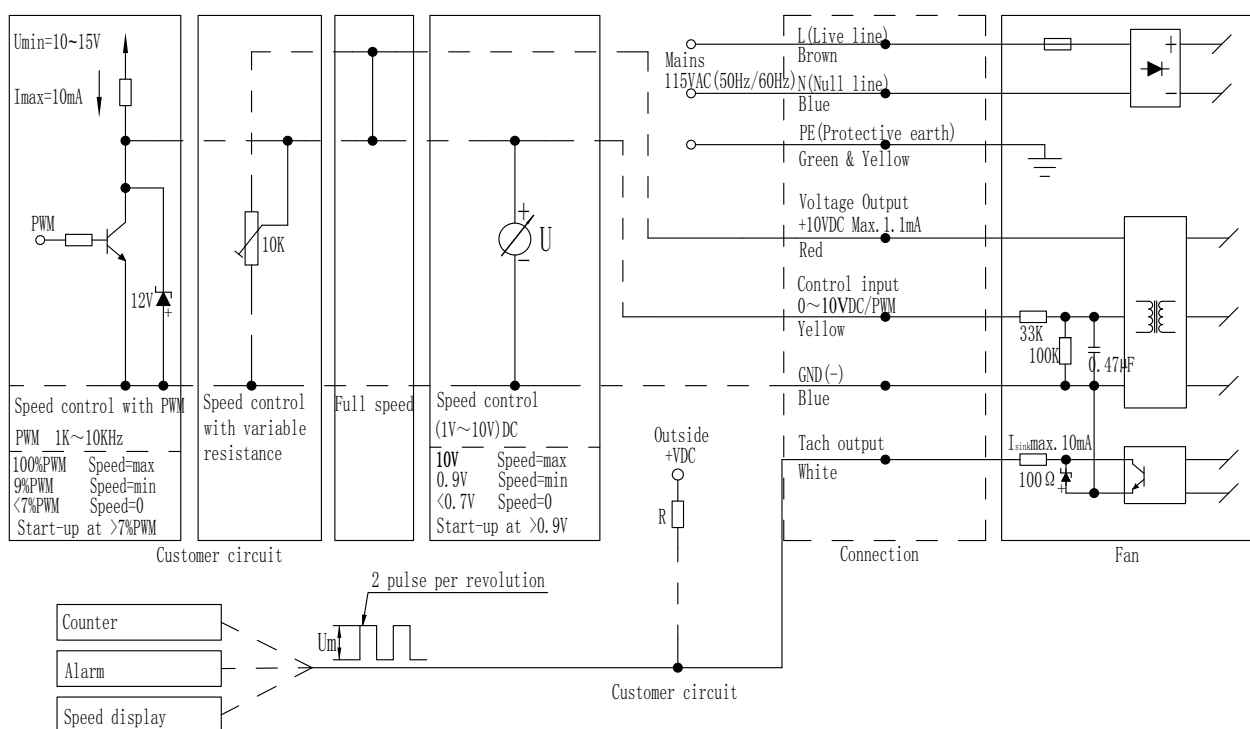
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- 1.Connection line: AC(3×AWG20#), DC(4×AWG24#)
- 2.AC: Brown=Live Line, Blue=Null Line, Green & Yellow=Protecting Earthing;
- 3.DC: Red=Voltage Output +10VDC, Yellow=0-10VDC/PWM, White=FG, Blue=GND;

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7. Connection Diagram



Note

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

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◆ 8. Safety Requirements

1. The red, yellow, blue and white wires of the fan shall not be connected to the high voltage EC power supply in case the fan is burned.
2. Make sure that the metal casing of the stator connected to the ground before being powered on.
3. DO NOT connect the white signal wire directly to the red wire or the external dc power supply. In order to get the square wave speed signal, please circumscribed the pull-up resistors and pull up the power voltage. Details please see the connection diagram.
4. If the fan doesn't work after been powered on, please check the speed control input voltage, it may not be well connected. To prevent the suddenly start of the fan to hurt hands or other personal injury, do not touch the impellers or rotor when the power is on.
5. Fan needs a few seconds to start after being powered on. To prevent personal injury, do not touch the impellers or rotor when the power is on or in a low speed.
6. Unless they are instructed by the person(s) responsible for their safety, those who are lack of re-duced physical, mental or sensory capacities and proper practical experience or expertise cannot use this appliance. Please do not let the children play with this product.
7. If the power cord be damaged, the power cord must be replaced by the manufacturer in order to avoid accident of the proxy service personnel or the equivalent qualification maintenance personnel.
8. As an integral part of the fan, this EC motor cannot be used alone without impeller or load.
9. Please carefully read this technical specification before using the product.