PRODUCT SPECIFICATION

Customer _____

Name EC AXIAL FAN

Model **FL-EC630V-T230-S13740-B1**

Version V3

Edit _____ Proofread _____ Auditing _____ Approval _____

Records of revision

Revision no.	Reason for revision	Contents	Revised by	Date
V0	**/**	**/**		**2022/12/02**
V1	**Error correction**	IP54	**Zhang RG**	**2022/12/23**
V2	**Error correction**	Wire diagram	**Zhang RG**	**2023/1/4**
V3	**/**	**Add data**	**Zhang RG**	**2023/02/10**

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General

This specification defines the general data, mechanical, electrical characteristics, environment and experiment, performance curve, Outline Drawing and precautions of the EC brushless external rotor motorized axial fan and so on.

Standard：

- GB 12350-2009 《Safety requirements of small power motors》
- GB/T 21418-2008 《General specification for permanent magnet brushless motor system》
- JB/T 10562-2006 《General technical requirement for general axial fan》

1. General Data

No.	Name		Parameter
1.1	Rated Voltage	V	230VAC
1.2	Frequency	Hz	50/60
1.3	Rated Speed	r/min	820
1.4	Rated Current @Max ηst	A	1.6
1.5	Input Power @Max ηst	W	400
1.6	Static Pressure@Max ηst	Pa	73
1.7	Air Flow@Max ηst	m^3/h	6614
1.8	Lp Noise Level	dB(A)	65.4
1.9	Static Pressure EfficiencyMax	ηst(%)	37.1
1.10	Energy Efficiency Value N	N40	46.2

2. Operating Range Parameters

No.	Name		Parameter
2.1	Max pst	Pa	90.6
2.2	Power@ Max pst	W	389
2.3	Current @ Max pst	A	1.7
2.4	Speed @ Max pst	r/min	825
2.5	Air Flow@ Max pst	m^3/h	5498
2.6	Noise Level@ Max pst	dB(A)	67.9
2.7	Min pst	Pa	0
2.8	Power@Min pst	W	264
2.9	Current@Min pst	A	1.2
2.10	Speed@Min pst	r/min	828
2.11	Air Flow@Min pst	m^3/h	9676
2.12	Noise Level@Min pst	dB(A)	62

3. Basic requirements

No.	Name	Parameter
3.1	IP Class	IP54
3.2	Insulation Class	F
3.3	Power Line To Ground Withstand Voltage	DC2100 V/1min
3.4	Power Line To Control Line Withstand Voltage	DC2100 V/1min
3.5	Control Line To Ground Withstand Voltage	DC2100 V/1min
3.6	Insulation Resistance	≥50MΩ
3.7	Grounding Resistance	≤0.1Ω
3.8	EMC	☑ Industrial ☐ household
3.9	Certification	CE
3.10	Life time	40,000h At nominal supply voltage, environment temperature 20℃，running at full speed。

4. Mechanical

No.	Name	Parameter
4.1	Dimension	(See dimension drawing)
4.2	Lead Wire	RV90 3X0.75mm^2 L=4m
4.3	Control wire	RV90 4X0.5mm^2 L=4m
4.4	Material of Blades	SPCC
4.5	Number of Blades	5
4.6	Impeller Plate	/
4.7	Impeller Color	Black
4.8	Surface Coat	Plastic-sprayed
4.9	Bearing Grease	Temperature Resistance -60~200℃
4.10	Vibration	≤ 4.6mm/s
4.11	Dynamic Balance	G4.0

5. Controller and Protection

No.	Name	Parameter
5.1	Operating Voltage	200~277 VAC
5.2	APFC	☑Y ☐N
5.3	Motor Control Method	☐ FOC ☐ Sensorless ☑ FOC ☑PWM
5.4	Controller Protection	☑ Undervoltage ☑ Overvoltage ☑ Overcurrent ☑Incoming Line Phase Loss
5.5	Motor Protection	☑ Current limiter ☑Speed limiter☑ Power limiter ☑

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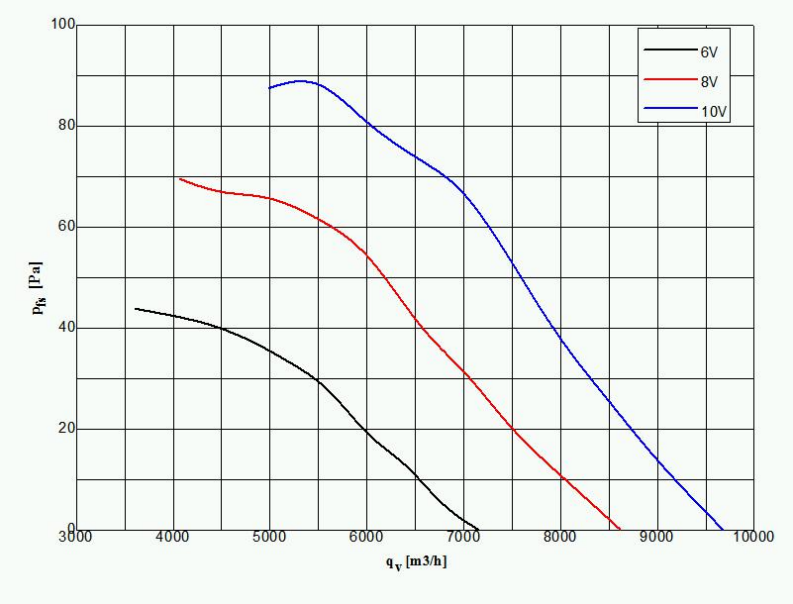
		Temperature ☑Locked rotor ☑ Lack of Phase
5.6	Motor Start	☑ Soft start ☑ Automatic restart ☑ Low Speed Headwind Start ☑ Start With Speed Downwind
5.7	Fan Control Mode	☑ Speed ☐ Torque ☐ Power
5.8	Adjustment Range	36%~100%
5.9	Adjustment control function	☑ Vsp:0~10 V ☑ PWM ☐ 4~20mA ☐ RS485
5.10	Vsp starting voltage	1.0V
5.11	FG Signal Feedback	1 pulses / r， Open Collector Output，(internal pull-down resistance)R≥10kΩ
5.12	Auxiliary Voltage Output	+10VDC, 3.5mA max

6. Performance Curve And Nameplate drawing



10V：

Standard state test data

Test point	Voltage V	Frequency Hz	Current A	Power W	Speed r/min	Flow Rate m^3/h	Static Pressure Pa	Dynamic Pressure Pa	Total Pressure Pa	Fan noise dB (A)	Efficiency %	Static %
1	229.3	50.0	1.18	263.6	828	9676	0.1	41.9	42.0	62.0	42.9	0.1
2	229.3	50.0	1.17	268.1	811	8997	13.5	36.2	49.7	61.0	46.3	12.6
3	229.3	50.0	1.26	287.6	812	8502	25.6	32.3	57.9	61.3	47.6	21.0
4	229.3	50.0	1.32	293.7	811	7985	37.6	28.5	66.2	61.4	50.0	28.4
5	229.3	50.0	1.41	320.2	818	7511	52.8	25.2	78.0	63.8	50.8	34.4
6	229.3	50.0	1.59	357.9	839	7000	68.0	21.9	89.9	65.2	48.8	36.9
7	229.3	50.0	1.57	360.0	832	6614	72.6	19.6	92.2	65.4	47.0	37.1
8	229.3	50.0	1.57	361.1	824	6004	80.0	16.1	96.2	66.1	44.4	37.0
9	229.3	50.0	1.70	388.9	825	5498	90.6	13.5	104.1	67.9	40.9	35.6
10	229.3	50.0	1.69	380.6	812	4988	87.6	11.1	98.7	68.3	35.9	31.9

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8V：

Standard state test data

Test point	Voltage V	requenc Hz	Current A	Power W	Speed r/min	Flow Rate m^3/h	Static Pressu Pa	Dynamic Pressur Pa	Total Pressure Pa	Fan noise dB (A)	Efficie ncy %	Stati c %
1	229.5	50.0	0.82	186.3	731	8613	0.2	33.2	33.3	62.5	42.8	0.2
2	229.5	50.0	0.84	187.7	715	8010	10.7	28.7	39.4	61.2	46.7	12.7
3	229.5	50.0	0.90	188.3	715	7491	19.7	25.1	44.8	60.6	49.5	21.8
4	229.5	50.0	0.94	202.9	715	7017	31.8	22.0	53.8	60.0	51.7	30.5
5	229.5	50.0	0.97	215.5	715	6561	39.2	19.3	58.5	60.3	49.5	33.2
6	229.5	50.0	1.11	245.9	741	6007	55.9	16.1	72.1	64.4	48.9	38.0
7	229.5	50.0	1.13	251.8	734	5494	61.9	13.5	75.4	63.7	45.7	37.5
8	229.5	50.0	1.08	247.1	720	4995	66.5	11.2	77.7	27.0	43.6	37.4
9	229.5	50.0	1.15	259.9	716	4497	66.5	9.0	75.6	64.6	36.3	32.0
10	229.4	50.0	1.19	263.1	719	4070	69.6	7.4	77.0	24.8	33.1	29.9

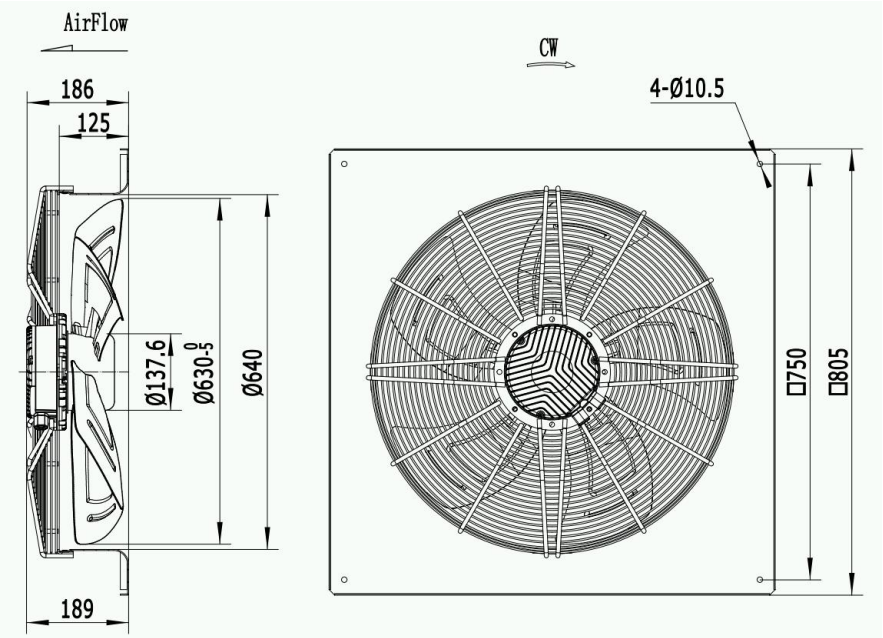
6V：

Standard state test data

Test point	Voltage V	requenc Hz	Current A	Power W	Speed r/min	Flow Rate m^3/h	Static Pressu Pa	Dynamic Pressur Pa	Total Pressure Pa	Fan noise dB (A)	Efficie ncy %	Stati c %
1	229.6	50.0	0.54	115.4	613	7146	0.2	22.8	23.0	58.0	39.6	0.3
2	229.6	50.0	0.56	111.5	605	6783	4.5	20.6	25.1	56.7	42.5	7.7
3	229.6	50.0	0.57	124.6	604	6406	13.5	18.4	31.9	56.2	45.6	19.3
4	229.6	50.0	0.58	121.4	597	6012	18.2	16.2	34.3	55.5	47.2	25.0
5	229.6	50.0	0.66	142.3	612	5600	28.7	14.0	42.7	60.3	46.7	31.4
6	229.6	50.0	0.65	135.1	605	5200	33.3	12.1	45.4	59.3	48.6	35.6
7	229.5	50.0	0.66	144.3	600	4807	37.7	10.3	48.0	58.8	44.5	34.9
8	229.5	50.0	0.66	133.6	596	4397	40.8	8.6	49.5	58.6	45.2	37.3
9	229.6	50.0	0.67	140.8	596	4034	42.4	7.3	49.6	58.8	39.5	33.7
10	229.6	50.0	0.71	153.6	593	3609	43.9	5.8	49.7	60.4	32.5	28.7
11	229.5	50.0	0.79	177.4	622	3205	52.9	4.6	57.5	66.5	28.9	26.6

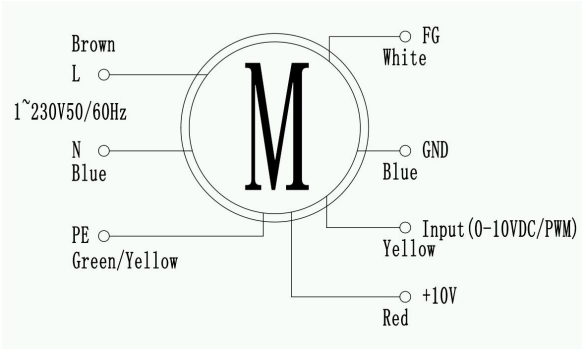
free air **Parameters**	**v**	**Hz**	**A**	**W**	**r/min**
	Voltage	Frequency	Current	Power	Speed
	230	**50/60**	**1.8±10%**	**330±10%**	**820±10%**

7. Outline Drawing



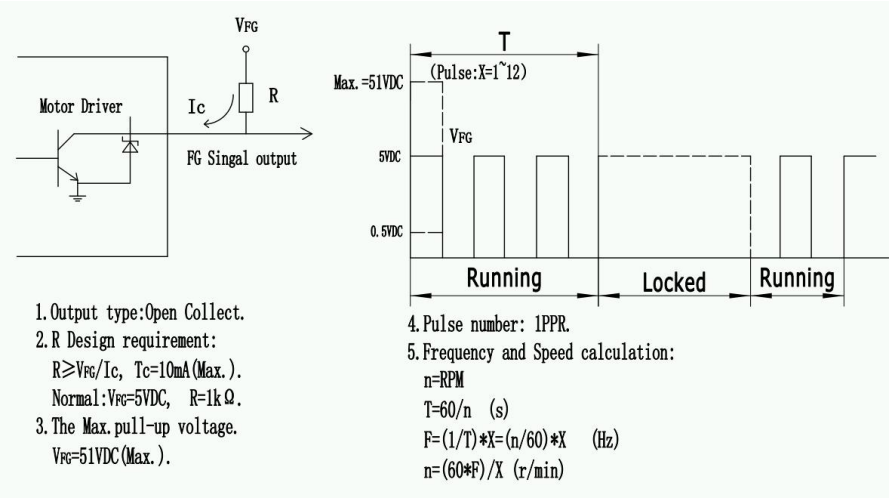
8. Connection and Control Characteristics

8.1 Wire diagram：

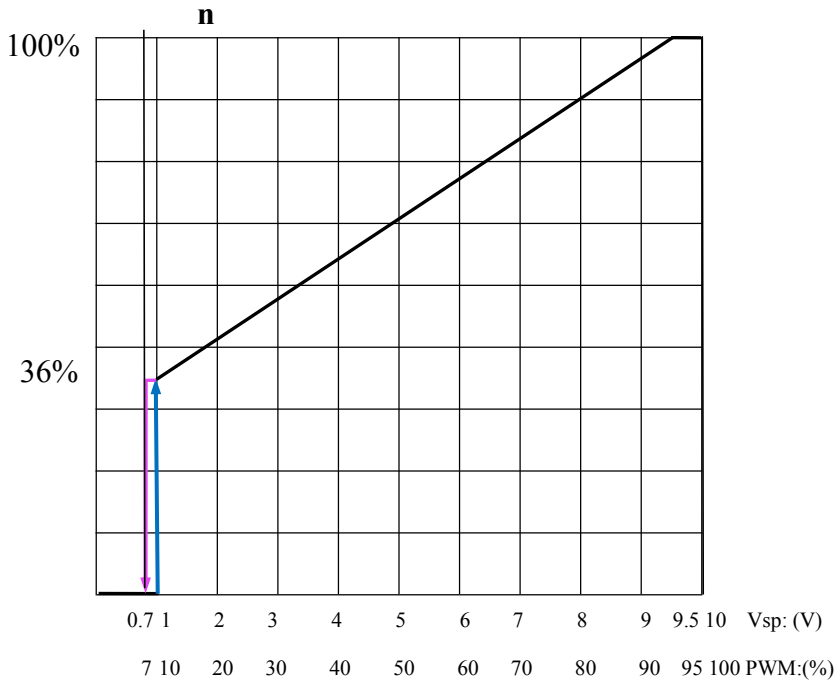


	Color	Connection	
Power	Green/Yellow	EARTH	L=4m
	Brown	1~230V	
	Blue	50Hz/60Hz	
		200-277V	
Control	Red	+10V supply	3.5mA max
	Yellow	VSP:0~10V	10V-PWM
	Blue	0V	
	White	FG output	1 pulses/r

8.2 FG signal connection diagram：



8.3 Control Characteristics：



9. Usage and Packaging

No.	Name	Parameter
9.1	Operating Temperature	-25℃ to 60℃
9.2	Storage Temperature	-40℃ to 75℃
9.3	Operating Humidity	5% to 90% RH
9.4	Storage Humidity	5% to 95% RH
9.5	Net Weight	22.8kg（1pc）
9.6	Gross Weight	24.5kg（1pcs）
9.7	Carton Size	82.5X82.55X20.5cm（1pcs）
9.8	Package	Carton with shock- absorption material, put on pallet

10. Precautions

Notes:

1. Before connect with power, please fix the fan firmly and provide personal protection to prevent the human body from the damaging caused byfan shaking and blade rotation .
2. Do not open the connection box cover to prevent residual high-voltage electricity from hurting people, and it also affect the waterproof performance and electrical safety of the motor.
3. The fan shall be operated when the yellow - green wire of the fan connect the ground effective, to prevent electric shock or affect operation due to ungrounded.
4. The blue 0V control line of the fan is connected to the negative pole of the DC power supply of the external host computer. Do not connect it wrongly and damage the control circuit. The applied voltage of other control lines to the blue 0V control line is not allowed to be higher than DC +15V. The white FG signal line is the collector OC output, and it is forbidden to directly connect with the positive pole of any power supply. It is

necessary to pull up the positive pole of the low-voltage DC power supply of the external host computer through the resistance of not less than 10k ohms and the red +10VDC auxiliary voltage output line or the positive pole of the low-voltage DC power supply of the external host computer to obtain the square wave speed signal output.When the red +10VDC auxiliary voltage output line load exceeds 3.5mA, it may cause permanent damage.

5. The fan has delayed start and restart functions. If the fan does not run after the power is turned on, please cut off the power first, and then check whether the power line and the control line are connected normally, whether the speed regulating voltage value meets the starting requirements, and whether there is any mechanical obstacle to the rotation of the impeller. After confirming that it is correct, power on and run again. Prevent personal injury or other injury from sudden start of the fan.
6. There is an EMC electromagnetic compatibility device connected between the inside of the fan and the casing, and a DC withstand voltage tester must be used for the safety withstand voltage test.
7. Please read the "Technical Specification" carefully before use the product.