Product specification

Model:ECF(K)6E350-PKA5SK0-PRF

Fan type:EC Mixed flow fan

Manufactory:Zhejiang MingZhen Electric & Electronic Co., Ltd.

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Fan Introduction

This product consist of outer rotor(EC)motor, axial impeller, with features of compact structure, convenient installation, reliable operation, low noise, energy saving etc..

Scope of application

General purpose fan, can be widely used in purification of air conditioning systems, ventilation duct dust, environmental protection, refrigeration equipment and other fields.

Environmental requirements

- ●Operating ambient temperature range:-25℃~+50℃
- ●Working environment humidity range:≤90%
- ●Transportation and storage temperature range:-40℃~+80℃
- ●Transportation and storage environment humidity range:≤80%
- ●The storage place is well ventilated, corrosive gases not contained.

Conformity with standards

- ●JB/T 10562 Technical specification for general purposes axial fans
- ●GB/T 14711 Safety requirements of small and medium size rotating electrical machines
- ●GB/T 755/IEC60034-1 Rotating electrical machines - Part 1: Rating and performance
- ●IEC 60335-2-40:2022 Household and similar electrical appliances - Safety - Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers

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- ●Balance quality grade for rotor is G6.3,in accordance with ISO 1940-1
- ●Vibration testing and vibration velocity effective value referenced to JB/T 8689

Product certification

Not available

Technical features

Mass	9.5 kg
Size	φ350 mm
Impeller material	cold rolled sheet steel
Direction	Suction(Seen from cable exit)
Protection class	IP54
Insulation class	F
Mounting	Shaft horizontal or rotor on bottom; rotor on top on request
Mode of operation	S1(Continuous operation)
Bearings	Maintenance-free ball bearings

Controller Information

Controller connection type	Cable exit
MODBUS protocol series	MZBUS_N
Controller technical features	- Alarm relay - RS485 MODBUS-RTU - Motor current limitation - Soft start - Active PFC - Thermal overload protection for electronics (overheating derating/shutdown protection) - Line undervoltage/ Line overvoltage detection - Output 10 VDC， max.10 mA - Control input 0-10 VDC/PWM - Motor phase failure detection - Motor rotor lock protection - Motor overcurrent protection - Linear control of speed

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Structures

Blades count	5
Impeller type	Integrated blade
Attachment	With wind tube; N/A

Technical parameters

Method of obtaining data	Nameplate nominal value	Max. load	Max. efficiency	Free air
Voltage(V)|Frequency(Hz)|Speed control	230 | 50/60 | FullSpeed	230 | 50/60 | FullSpeed	230 | 50/60 | FullSpeed	230 | 50/60 | FullSpeed
Power(W)	560	558	557	481
Speed(rpm)	2300	2296	2298	2298
Current(A)	2.5	2.43	2.43	2.109
AirFlow(m^3/h)	3160	3267	3200	4847
Static Pressure(Pa)	300	289	296	0
Sound Pressure(1m) Suction-side(dBA)	72	72.3	72.3	75.8
Sound Pressure(1m) Pressure-side(dBA)	-	71.7	71.7	74.9
Sound Power Suction-side(dBA)	-	78.2	78.3	81.6
Sound Power Pressure-side(dBA)	-	81.2	81.4	83.9

Data according to Commission Regulation -ErP2026[(EU) 2024/1834]

Overall efficiency ηes, Actual|Target(%)	52.3|47.8
Measurement category	A
Efficiency category	Static
Efficiency grade N, Actual|Target	65.6|57
Variable speed drive	Yes
Power consumption(W)	557
Air flow Qv(m^3/h)	3200
Pressure increase Pfs(Pa)	296
Speed n(rpm)	2298
Specific ratio(1+Pfs/100000)	1.003

The above data are the results of calculations in accordance with the EU regulations after interpolation to determine the optimum efficiency point based on the measured data of the fan at full speed operation.

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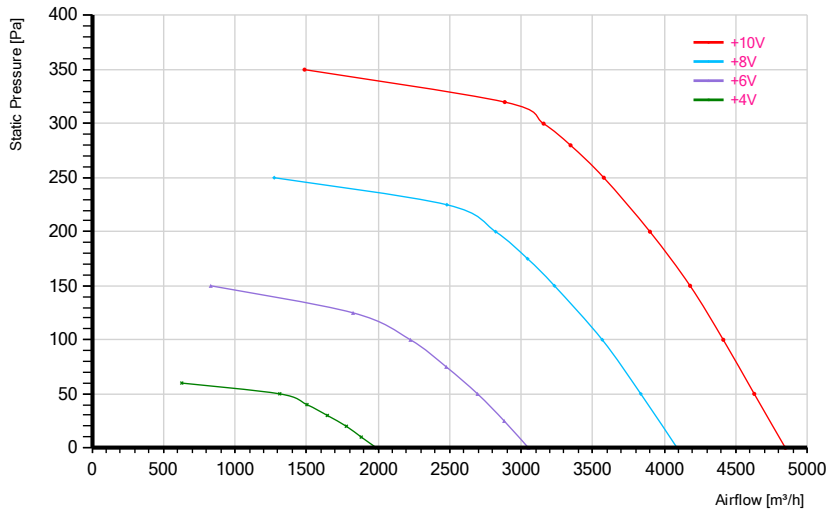
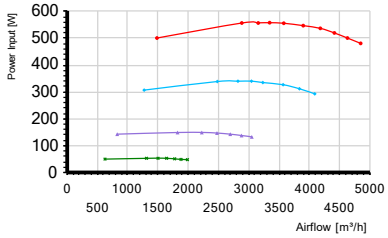
Performance curve

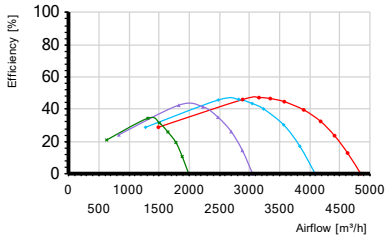
Airflow curve



Power input curve



Efficiency on total pressure



Performance test with reference to GB/T 1236-2017, equivalent to ISO 5801

TestID	2025091502	Control voltage	10 VDC

Test environment					
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density
0mm	0.1256㎡	32.3℃	31.7%	100.6kPa	1.2kg/m³

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m³/h	Pa	Pa	Pa	Pa	mm
230.2	50	2297	501	2.2	1486	350	6	356	336	127*1+76*1
230.1	50	2297	557	2.447	2885	320	24	344	369	152*1+76*3
230.1	50	2298	557	2.431	3157	300	29	329	442	152*1+76*3
230.1	50	2296	558	2.432	3345	280	33	313	315	152*1+127*1+76*2
230.1	50	2299	556	2.432	3578	250	37	287	291	152*1+127*1+76*3
230.1	50	2297	547	2.4	3900	200	44	244	346	152*1+127*1+76*3
230.2	50	2299	537	2.334	4181	150	51	201	190	254*1+76*3
230.2	50	2297	520	2.268	4413	100	57	157	212	254*1+76*3
230.2	50	2298	501	2.188	4629	50	63	113	163	254*1+127*1+76*3
230.3	50	2298	481	2.109	4847	0	69	69	179	254*1+127*1+76*3

TestID	2025091503	Control voltage	8 VDC

Test environment					
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density
0mm	0.1256㎡	31.6℃	29.7%	100.9kPa	1.2kg/m³

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Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m³/h	Pa	Pa	Pa	Pa	mm
230.1	50	1943	307	1.363	1274	250	5	255	249	127*1+76*1
230	50	1944	339	1.507	2481	225	18	243	275	152*1+76*3
230	50	1943	340	1.496	2822	200	23	223	226	152*1+127*1+76*2
230	50	1944	340	1.503	3045	175	27	202	212	152*1+127*1+76*3
230	50	1944	335	1.483	3233	150	30	180	239	152*1+127*1+76*3
229.9	50	1941	327	1.451	3567	100	37	137	291	152*1+127*1+76*3
230	50	1939	312	1.389	3836	50	43	93	336	152*1+127*1+76*3
229.9	50	1938	293	1.307	4090	0	49	49	383	152*1+127*1+76*3

TestID	2025091504	Control voltage	6 VDC

Test environment					
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density
0mm	0.1256㎡	31.5℃	29%	101kPa	1.2kg/m³

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m³/h	Pa	Pa	Pa	Pa	mm
230.1	50	1450	143	0.68	830	150	2	152	170	76*3
230.1	50	1451	149	0.702	1825	125	10	135	150	152*1+76*3
230.1	50	1451	149	0.706	2226	100	14	114	222	152*1+76*3
230.1	50	1451	147	0.698	2476	75	18	93	275	152*1+76*3
230.1	50	1453	143	0.681	2695	50	21	71	167	152*1+127*1+76*3
230.1	50	1451	138	0.66	2881	25	24	49	191	152*1+127*1+76*3
230.1	50	1451	133	0.636	3051	0	27	27	214	152*1+127*1+76*3

TestID	2025091505	Control voltage	4 VDC

Test environment					
Outlet size	Outlet area	Temperature	Humidity	Baropressure	Density
0mm	0.1256㎡	31.7℃	27.6%	101.1kPa	1.2kg/m³

Test data										
Voltage	Frequency	Speed	Power input	Current	Airflow	Static pressure	Dynamic pressure	Total pressure	Pressure Differenc	Nozzle Size
V	Hz	r/min	W	A	m³/h	Pa	Pa	Pa	Pa	mm
230	50	958	50	0.341	628	60	1	61	220	76*2
230	50	960	53	0.352	1313	50	5	55	167	127*1+76*2
230	50	958	53	0.35	1503	40	7	47	219	127*1+76*2
230	50	960	53	0.35	1645	30	8	38	262	127*1+76*2
230	50	958	51	0.345	1778	20	9	29	305	127*1+76*2
230	50	958	49	0.34	1882	10	10	20	342	127*1+76*2
229.9	50	958	48	0.335	1989	0	12	12	262	127*1+76*3

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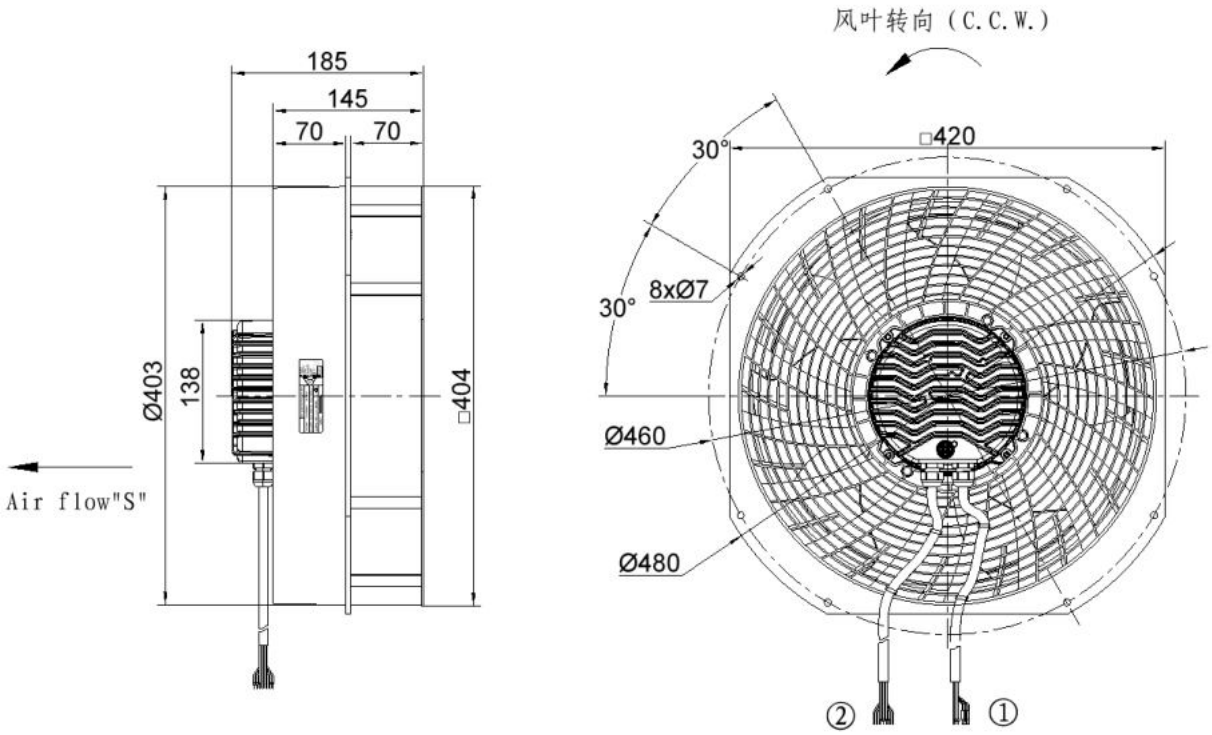
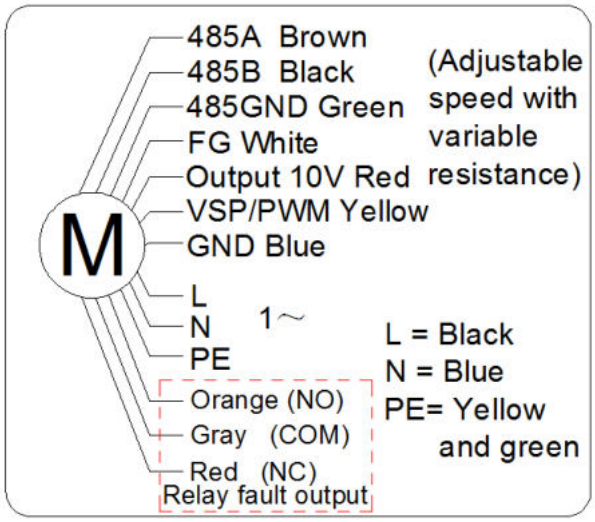
Dimensions(in mm)



①Cable specification:Φ8.3*6*0.75mm^2

②Control cable specification:7*7*0.3mm^2

Wiring diagram



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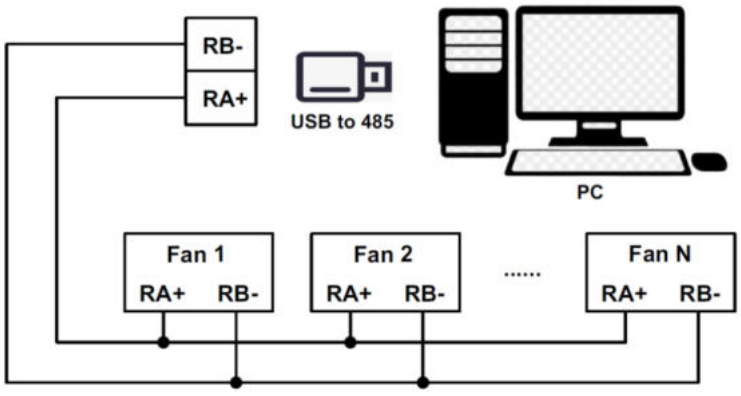
Electrical connections

Connection	Assignment/function
L、N	Single-phase supply connection, voltage range 200-277VAC, frequency 50/60Hz
PE	Protective earth
485A	RS485 interface for MODBUS-RTU
485B	RS485 interface for MODBUS-RTU
485GND	Reference ground for control interface
NC	Status relay, mode2--close on normal, open on fault
COM	Common connection of status relay, contact rating 250VAC/3A
NO	Status relay, mode2--open on normal, close on fault
FG	Speed feedback pulse output, 2 pulses per revolution, can be customized. External pull-up voltage and pull-up resistor are required: Pull-up voltage optional range:Vfg=(3.3-30)VDC Recommended configuration pull-up resistor Rfg≥1000*(Vfg)Ω
+10V	10VDC output,maximum output current 10mA
VSP/PWM	Speed control signal input connection, 0-10V voltage or PWM signal (amplitude 10-12V, frequency 1k-10kHz)
GND	Signal ground for control interface

Multi-fan communication connection description

This fan controller supports one master and multiple slaves communication mode, a master can connect up to 20 slaves for communication at the same time, the slaves be connected in parallel with each other (see illust), and the maximum communication distance is up to 200 meters by using twisted shielded communication cable.

Note: All fans connected in parallel must have different device address, which can be set via the MODBUS protocol.



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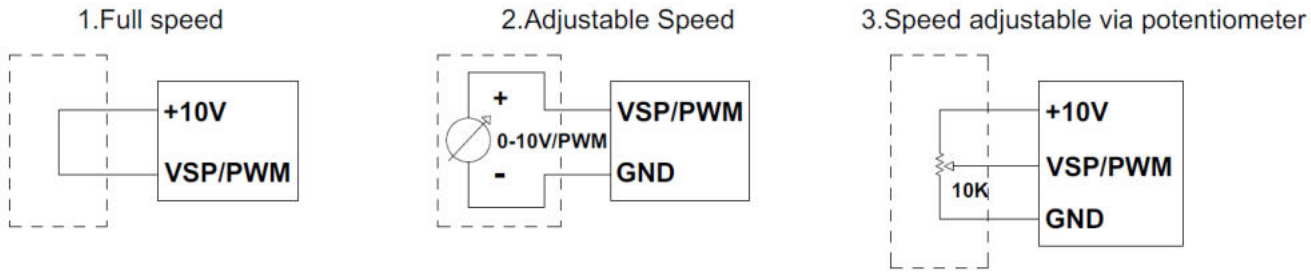
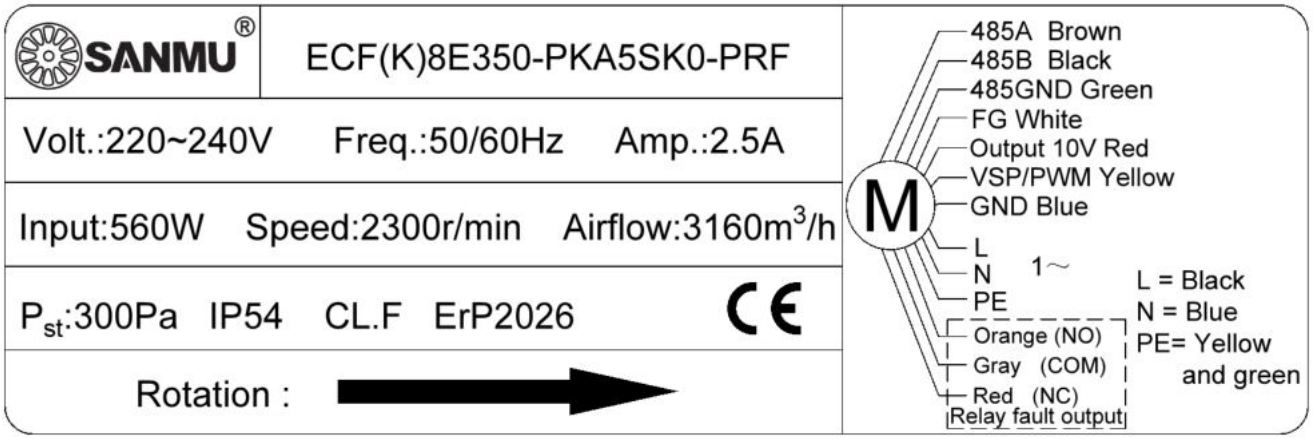
Schematic for connections



NamePlate



Attentions

★Please check the appearance and the accessories if there is no damage before use, check the model is consistent with requirements;

★Keep reliable grounding according to the wiring diagram. to avoid motor burning and personal accident, please check wiring is loose or fall off;

★Before connect the power supply, check whether the motor is reliable, otherwise it will cause motor damage and personal injury;

★It is forbidden to pull the power cable, if the power cable is damaged, to be repaired before use, to avoid the accident of electric shock;

★Drop or impact motor is forbidden;

★Washing motor with water is prohibited, it will reduce the motor insulation level, even lead to electric leakage even endanger personal safety;

★Special customized product is designed for specified requirements, please consult with our engineers before change useage;

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★The temperature of the motor shell may be higher in a short time after the fan stopped, Please avoid direct contact with the motor surface. If necessary, please take protective measures to prevent scald;

★Do not contact the impeller when the fan running, you need to wait for all the parts stopped before operate it;

★When the fan is installed, check and ensure thers is no debris in the shell and other shell body, keep the fan clean;

★After the fan installation complete, before connected to supply, please confirm that there is no collision or interference or stuck.

Service life, maintenance, warranty and Disclaimer

●The design life of this product is 40,000 hours. This data is derived from the expected life of L10 for general ball bearings at 40℃ is 40,000 hours. The actual service life of the product is affected by the use environment (temperature, humidity, installation, bearing load, etc.).

●According to the use of the environment, please make a clean maintenance every 3~6 months.

●From the date of purchase (order delivery date), The warranty period is one year (If there is another contractual agreement, the period of time shall be as agreed in the contract). During this period, for failure due to the quality of the product itself, we provide free replacement or repairing. If the damage caused by improper disassembly, transportation, artificial damage or natural disasters, etc., is not in the scope of this warranty;