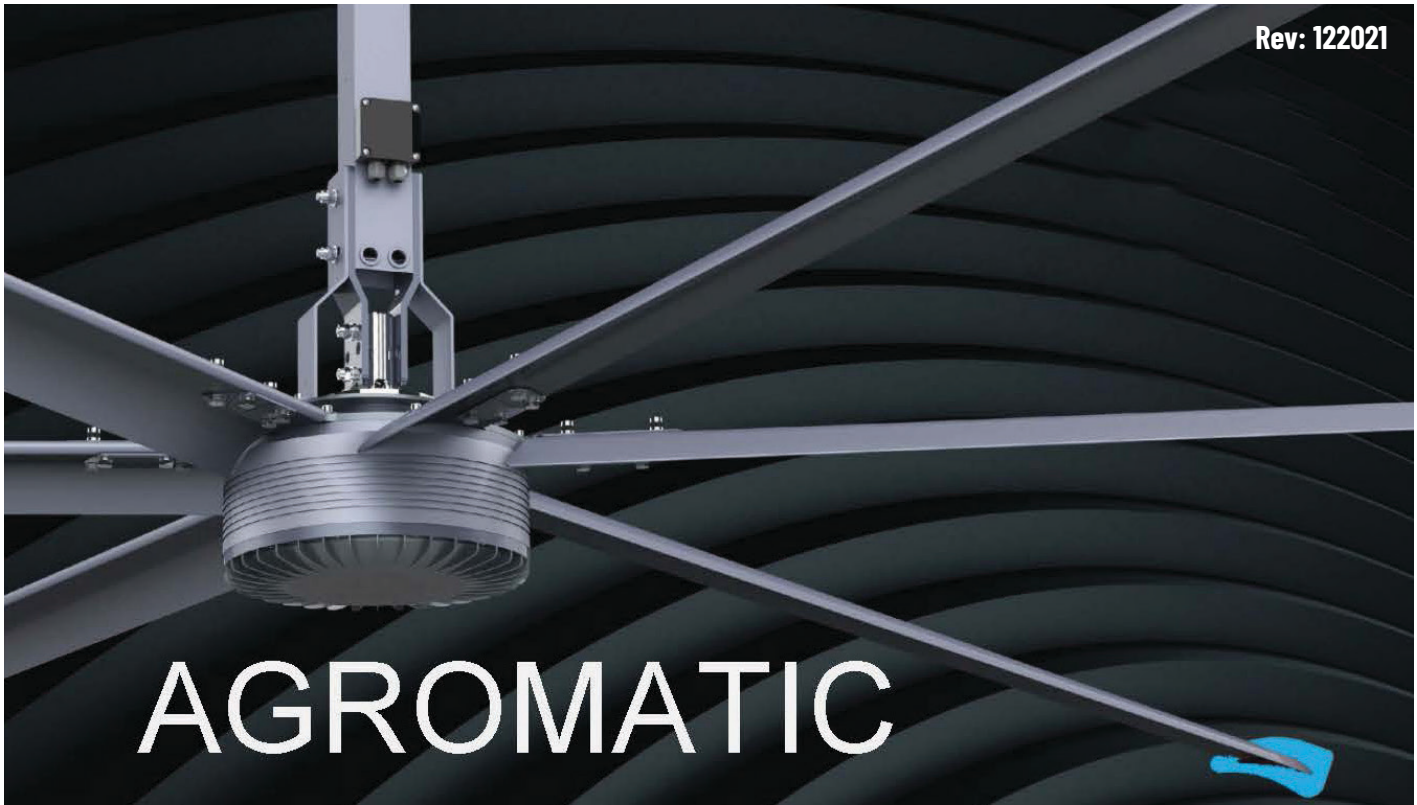
Rev: 122021



AGROMATIC

PERMANENT MAGNET DIRECT DRIVE HVLS CEILING FAN

Variable speed | Natural wind | Intelligent control | Energy saving comfort

AGRO AIR DYNAMICS
A Division of Agromatic INC.

1、SAFETY ISSUES

GENERAL NOTES

In order to explain the process of product installation, some figures in the installation flow chart are in the state of breakdown diagram; Please operate the product according to the instructions.

▲ Danger

Please read the manual carefully before installation.

▲ To prevent electric shock

Non professionals are not allowed to repair, inspect or replace parts.

Do not conduct wiring operation within 1 minute after the power is turned on or off, otherwise there will be electric shock danger (the capacitor will also participate in the power supply within a short time after the power is turned off); When changing or moving the power supply, turn off the power supply first and wait for all the indicator lights to go out for 1 minute before starting the operation.

▲ Warning

The controller of this product is matched according to the model. It is strictly forbidden to use the controller without matching, which may cause damage to the motor or controller.

Before running the product, please confirm whether the power supply is connected according to the label, and whether there are obstacles within the operation range of the product that affect the operation of the product. After running, check whether the rotation direction of the product is correct (clockwise rotation seen from below).

The product shall not be operated in the bad environment of freezing, corrosion, explosion and dust exceeding the standard seriously.

▲ Ceiling fan installation

The installation and maintenance of products must be carried out by professional training or experienced electrician with electrician certificate.

2、PRODUCT INTRODUCTION

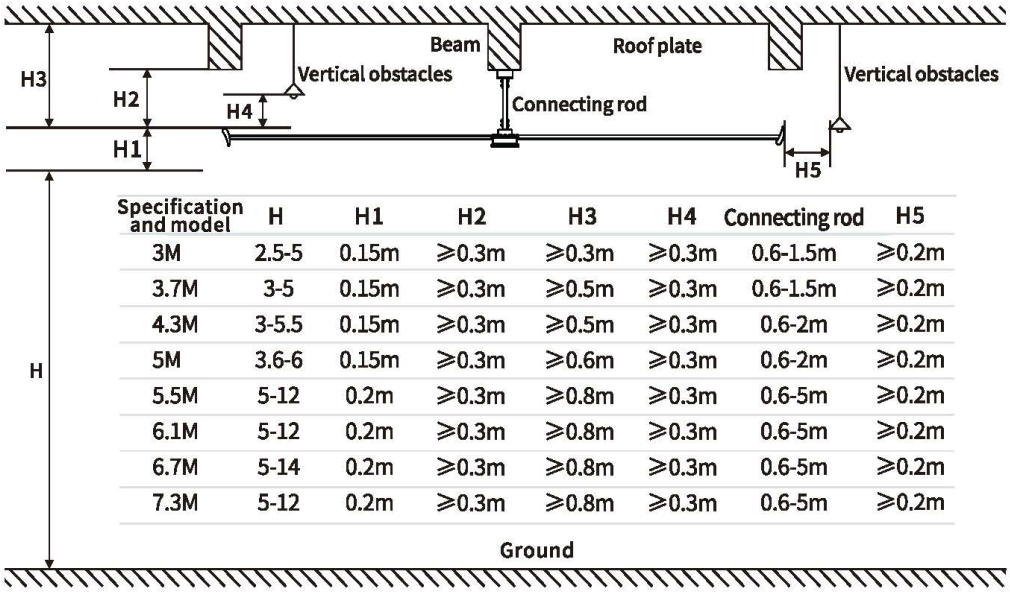
HVLS series permanent magnet variable frequency ceiling fan is specially developed for energy saving and improving the comfort of working environment. It is driven by a self-designed permanent magnet motor. With: small size, light weight, high efficiency and energy saving, low noise, frequency control, compact structure, beautiful appearance and other characteristics. Widely used in industrial plants, logistics storage, waiting rooms, exhibition halls, gymnasiums, supermarkets and other large space places, as a new type of ceiling fan for space ventilation and personnel cooling. It can push a large amount of airflow to the ground, forming a certain height of airflow layer movement on the ground, thus contributing to the overall air circulation, which is similar to the nature's breeze system, enjoying the intimate experience of natural wind.

3、TECHNICAL PARAMETERS

Type	3M	3.7M	4.3M	5M	6.1S	6.7S	7.3S	6.7M	7.3M
Diameter (m)	3	3.7	4.3	5	6.1	6.7	7.3	6.7	7.3
Inch (ft)	10	12	14	16	20	22	24	22	24
Power (kW)	0.37	0.37	0.75	0.75	1.1	1.1	1.1	1.5	1.5
Horsepower (HP)	0.5	0.5	1	1	1.5	1.5	1.5	2	2
Voltage (V)	220-240/380-460								
Frequency (Hz)	50/60								
Air volume (m^3/min)	4000	5000	7000	10000	11500	12000	13000	14000	15500
Speed (rpm)	20~120	20~100	20~90	20~80	15~65	15~60	15~55	15~65	15~55
Number of Blade (Pcs)	5				6				
Noise (dB)	38								
Motor weight (kg)	18	18	25	25	48	48	48	58	58
Ceiling fan weight (kg)	35	38	46	49	103	107	111	118	122
Effective area (m^2)	150	230	256	300	600	650	700	750	850
Coverage area (m^2)	250	380	450	500	1000	1300	1500	1600	1700

Other specifications and models can be customized according to the needs of users

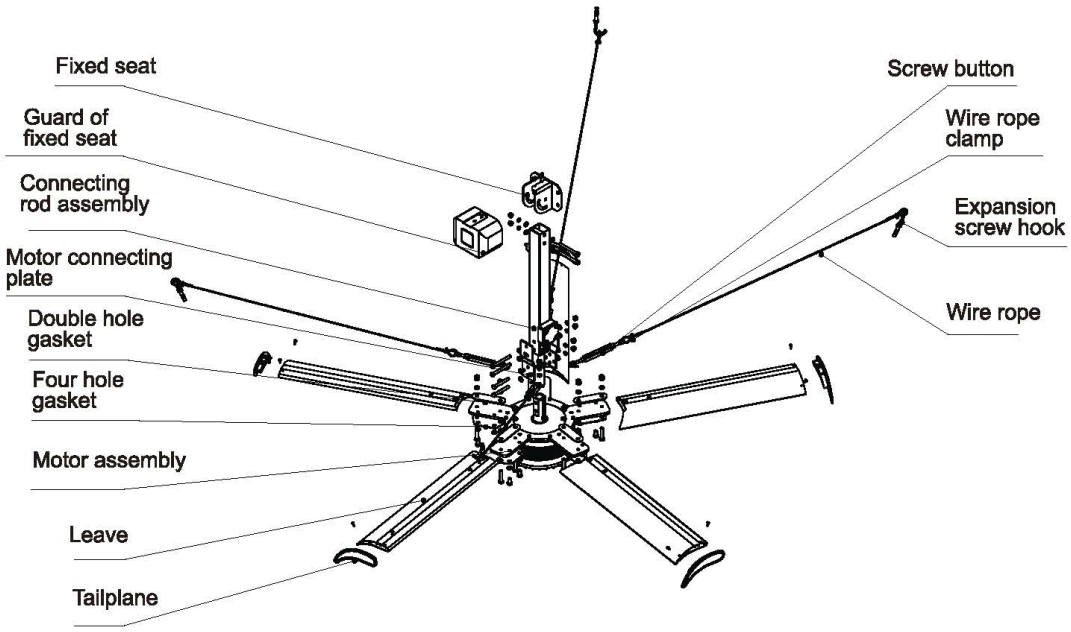
4、INSTALLATION DATA



Specification and model	H	H1	H2	H3	H4	Connecting rod	H5
3M	2.5-5	0.15m	⩾0.3m	⩾0.3m	⩾0.3m	0.6-1.5m	⩾0.2m
3.7M	3-5	0.15m	⩾0.3m	⩾0.5m	⩾0.3m	0.6-1.5m	⩾0.2m
4.3M	3-5.5	0.15m	⩾0.3m	⩾0.5m	⩾0.3m	0.6-2m	⩾0.2m
5M	3.6-6	0.15m	⩾0.3m	⩾0.6m	⩾0.3m	0.6-2m	⩾0.2m
5.5M	5-12	0.2m	⩾0.3m	⩾0.8m	⩾0.3m	0.6-5m	⩾0.2m
6.1M	5-12	0.2m	⩾0.3m	⩾0.8m	⩾0.3m	0.6-5m	⩾0.2m
6.7M	5-14	0.2m	⩾0.3m	⩾0.8m	⩾0.3m	0.6-5m	⩾0.2m
7.3M	5-12	0.2m	⩾0.3m	⩾0.8m	⩾0.3m	0.6-5m	⩾0.2m

5、STRUCTURE AND INSTALLATION PROCESS OF 3-5M CEILING FAN

5.1 installation steps of 3-5M ceiling fan concrete structure



5.1.1 open the ceiling fan package to check whether the parts are complete.

Parts：

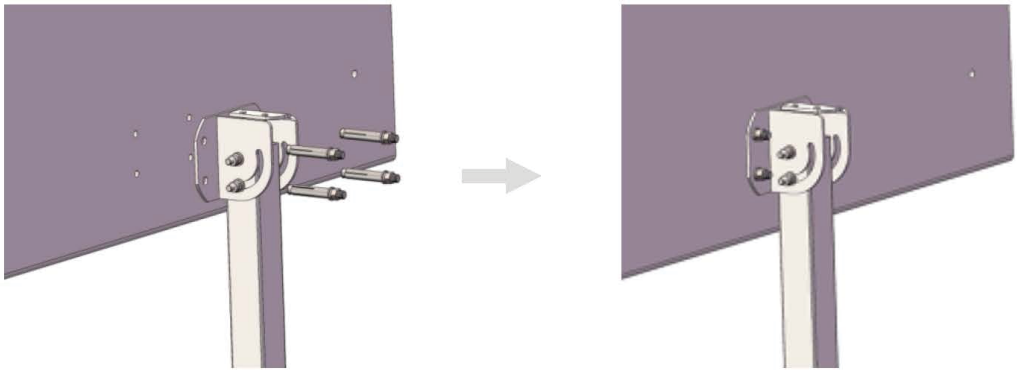
Ceiling fan general accessories				Concrete structure	
Name	Quantity	Name	Quantity	Name	Quantity
Motor assembly	1	M10×100 Hexagon headed bolt	4	Expansion screws M10×80	4
Hexagon head bolt full thread M12×55	10	M10×80 Hexagon headed bolt	2	Expansion screw hook M10×80	4
Hexagon head bolt full thread M12×16	10	Large washerϕ10	12		
M12 Hexagon nylon nut	10	Standard spring washerϕ10	6	I-steel structure	
Standard spring washerϕ12	10	M10 Hexagon nylon nut	6	Name	Quantity
Double hole gasket	5	Wire rope clamp M6	8	I-steel pressing plate	2
Four hole gasket	5	Wire rope 30 meter	1	Hexagon head bolt full thread M10×60	4
Leave	5	KCOD8-M	4	Large washerϕ108	8
Tailplane	5	Permanent magnet motor controller	1	Spring washerϕ10	4
ST4.8×10 Self tapping screw	10	Rubber sheathed cable	1	M10 Hexagon nylon nut	4
Connecting rod assembly	1	Fixed seat	1		
Motor connecting plate	2	Guard of fixed seat	1		

Square steel structure		Installation tools	
Name	Quantity	Name	Quantity
Ceiling bracket	1	Open end wrench 13-16	2
Hexagon head bolt full thread M10×150	4	Open end wrench 14-17	2
Large washerϕ10	8	Cross screwdriver	1
Spring washerϕ10	4	Slotted screwdriver	1
M10 Hexagon nylon nut	4	Inner hexagon spanner 5mm	1

Determine the installation position of the ceiling fan, mark it with the fixed seat, drill the installation hole with a 12mm drill bit (the hole depth is greater than 60mm), and tap in the M10*80 expansion screw to lock the fixed seat.

Parts：

Fixed seat	1pcs
Expansion screws	4pcs

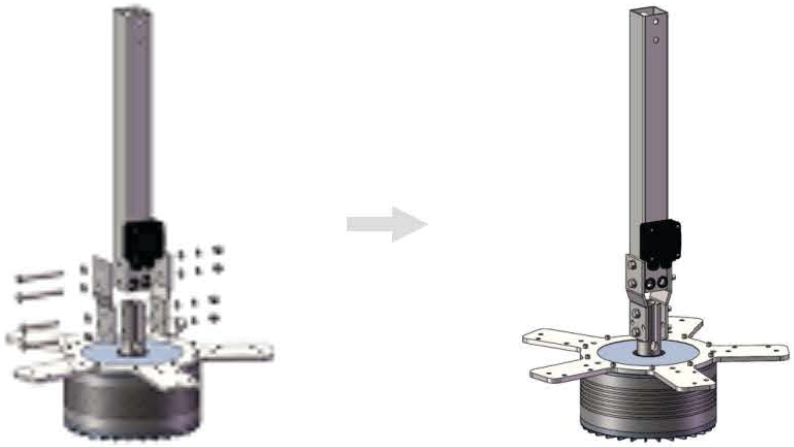


Matters needing attention：Pay attention to safety in construction and install expansion screw firmly.

5.1.3 Install the connecting rod on the motor without locking.

Parts：

Motor assembly	1pcs	M10×80 Hexagon headed bolt	2pcs
Connecting rod assembly	1pcs	M10 Hexagon nylon nut	4pcs
Motor connecting plate	2pcs	Φ10 Large washer	8pcs
M10×100 Hexagon headed bolt	2pcs	Φ10 Spring washer	4pcs

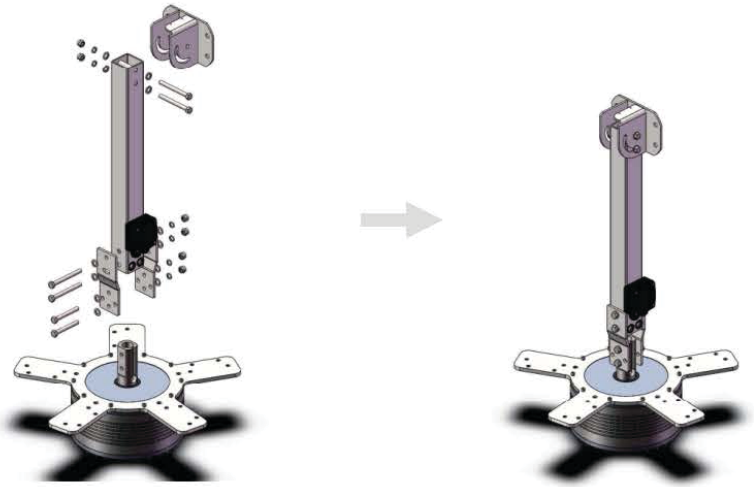


Attention: check whether the blade support on the motor assembly is installed in the wrong direction (as shown in the figure above).

5.1.4 Install the installed connecting rod motor assembly on the fixed seat, screw on and do not lock.

Parts：

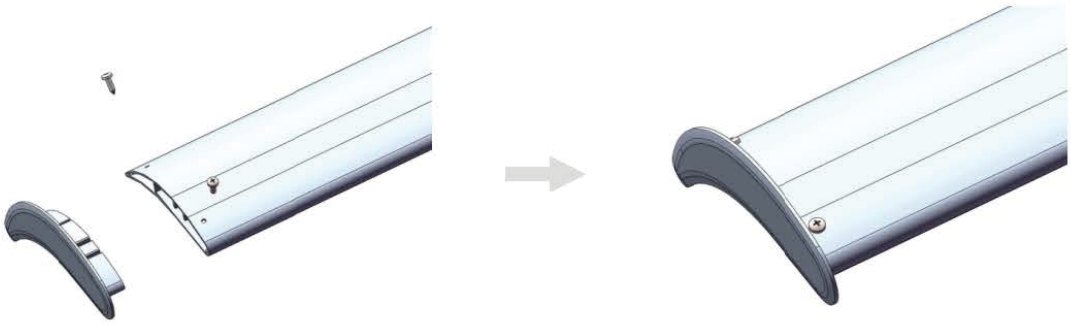
M10×100 Hexagon headed bolt	2pcs
M10 Hexagon nylon nutΦ10	2pcs
Φ10 Large washer	4pcs
Φ10 Spring washer	2pcs



5.1.5 Install the blade tail on the blade and lock it.

Part:

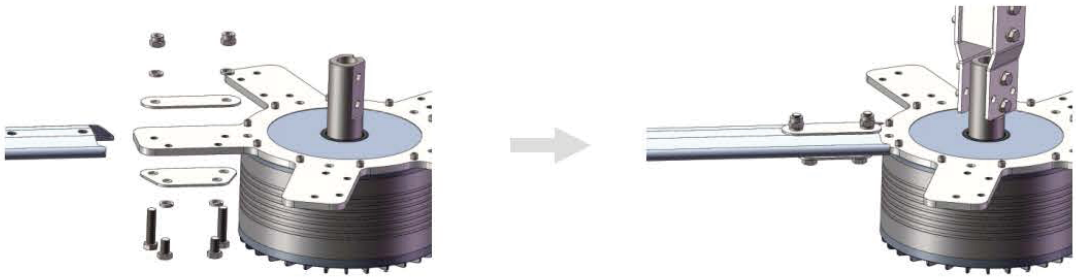
Blade	5pcs
Tailplane	5pcs
ST4.8X10 Self tapping screw	10pcs



5.1.6 Install the tail blade assembly on the motor, tighten the screws and take the blade as the center of the motor, adjust the levelness of the motor and the perpendicularity of the connecting rod, lock the connecting rod and blade screws, install the cover of the fixed seat, and tighten the screws.

Part:

Blade assembly	5pcs
Double hole gasket	5pcs
Four hole gasket	5pcs
M12×55 Hexagon head bolt full thread	10pcs
M12×16 Hexagon head bolt full thread	10pcs
M12 Hexagon nylon nut	10pcs
Φ12 Spring washer	20pcs

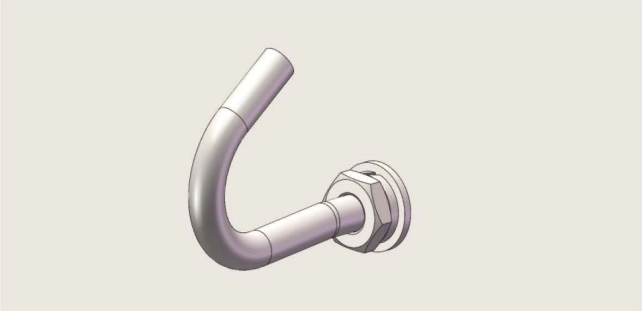


Attention: before locking the fan blade screw, tighten the blade outward with the motor as the center; Pay attention to adjust the levelness of the motor and the verticality of the connecting rod before locking, and check whether all the screws are locked.

5.1.7 Determine the position of the expansion screw hook, use a 12mm drill bit to drill the installation hole (the hole depth is greater than 60mm), and tap in the m10m2×80 expansion screw hook, the opening of expansion screw hook is upward, and the expansion screw hook is locked.

Part:

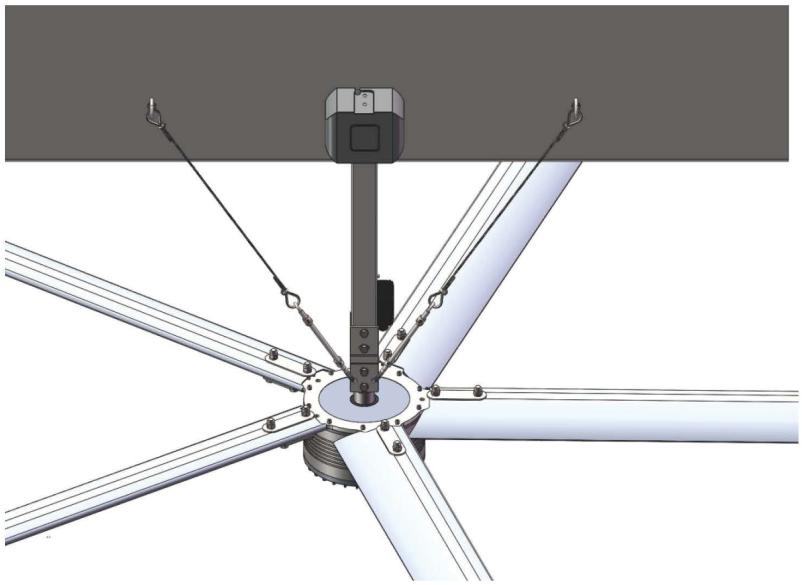
Expansion screw hook	2



5.1.8 Fix the wire rope on the o-end of the screw buckle with the wire rope clamp, install the hook end of the screw buckle on the connecting plate of the ceiling fan motor, fix one end of the wire rope on the expansion screw hook with the wire rope clamp, and adjust the tightness of the wire rope with the screw buckle (the wire rope is just straight).

Part:

Wire rope clamp M6	4	Screw button KCOD8-M	2
Wire rope 6X10S+FC-6 30 rice	1		



Attention: the angle between wire rope and connecting rod is greater than 30° Less than 45°. The wire rope clamp should be installed firmly, and the screw buckle should not be used to adjust the wire rope tightly.

5.1.9 Install the controller at the right position, connect the cables from the motor to the junction box and from the junction box to the controller according to the requirements, connect the mains power to the controller according to the requirements, check whether there are obstacles around the ceiling fan that affect the operation of the ceiling fan, and operate the ceiling fan according to the instructions.

Attention: the motor connected to the controller phase sequence must not be wrong, otherwise the motor reverse, affect the product effect.

Part:

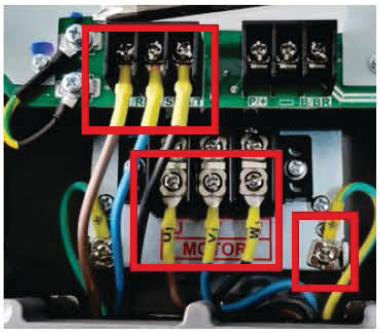
Permanent magnet motor controller	1
Rubber sheathed cable	1

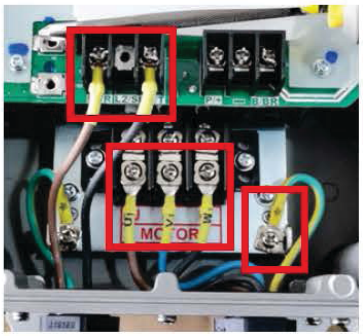
Terminal box connection：

As shown in the figure, the controller lead-out line and motor lead-out line identification are fixed on the terminal post, and no short circuit is allowed; The ground wire is fixed on the fixing screw of the terminal box base and the cover of the junction box shall be locked.

Controller wiring

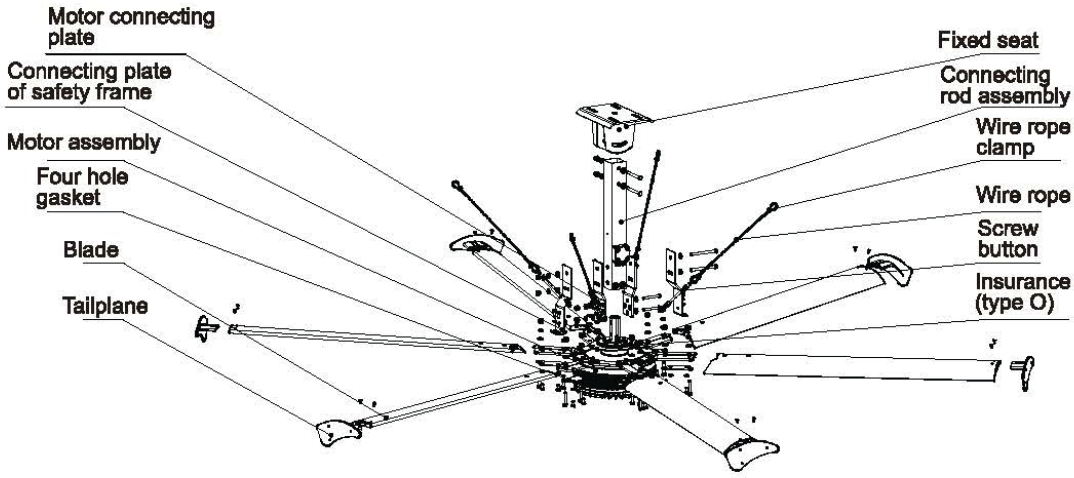
As shown in the figure, the top red frame is connected with the commercial power (three-phase in the left figure and single-phase in the right figure), the middle red frame is connected with the motor (connected with the junction box), and the right red frame is connected with the ground wire (connected with the junction box).





Warning: it is forbidden to connect the commercial power directly to the ceiling fan, and confirm whether the power supply voltage matches the controller voltage.

5.2 Concrete installation steps of 6.1-7.3 meter ceiling fan



5.2.1 Open the ceiling fan package to see if the parts are complete.
Part:

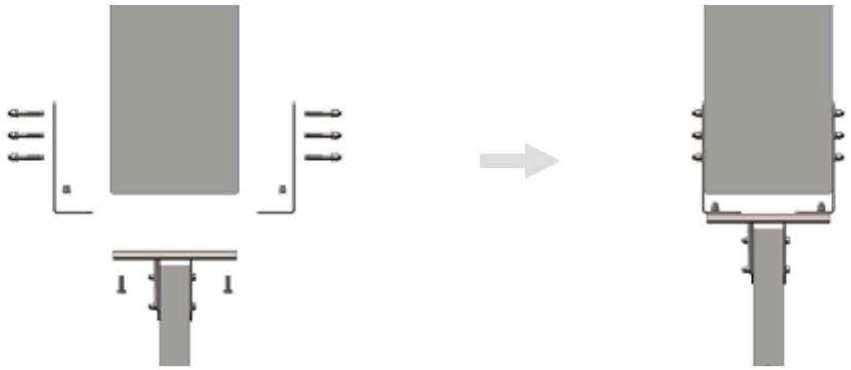
Ceiling fan general accessories				Concrete structure	
Name	Quantity	Name	Quantity	Name	Quantity
Motor assembly	1	Spring washer Φ8	4	L board	2
Hexagon head bolt full thread M12×60	12	M12×150 Hexagon headed bolt	2	Hexagon head bolt full thread M12×45	4
Hexagon head bolt full threadM12×16	12	M12×130 Hexagon headed bolt	2	Large washer Φ12	8
M12 Hexagon nylon nut	12	M12×100 Hexagon headed bolt	2	Spring washer Φ12	4
Standard spring washerφ12	24	Large washer Φ12	12	M12 Hexagon nylon nut	4
Φ12 Flat washer	12	Standard spring washerφ12	6	Expansion screws M12×100	4
Four hole gasket	6	M12 Hexagon nylon nut	6	Expansion screw hook M12×100	4
Blade	6	Wire rope clamp M6	8	I-steel structure	
Tailplane	6	Wire rope 30 meter	1	Name	Quantity
ST4.8×16 Self tapping screw	12	Screw button KCOD10-M	4	I-steel pressing plate	2
Connecting rod assembly	1	Permanent magnet motor controller	1	Hexagon bolt full thread M12×60	4
Motor connecting plate	2	Rubber sheathed cable	1	Large washer Φ10	8
Connecting plate of safety frame	2	Fixed seat	1	Spring washer Φ10	4
Hexagon socket screw M8×20	4			M12 Hexagon nylon nut	4

Square steel structure		Installation tools	
Name	Quantity	Name	Quantity
Ceiling bracket	1	Open end wrench 16-18	2
Hexagon bolt full thread M12×160	4	Open end wrench 17-19	2
Large washer Φ12	8	Cross screwdriver	1
Spring washer Φ12	4	Slotted screwdriver	1
M10 Hexagon nylon nut	4	Inner hexagon spanner 6mm	1

5.2.2 Determine the installation position of the ceiling fan, mark it with the L plate of the fixed seat, drill the installation hole with a 14mm drill (the hole depth is greater than 80mm), and tap in the M12×Install the L board on the expansion screw, adjust the level of the L board, lock the expansion screw, and then install the fixing seat under the L board and lock it.

Part:

Fixed seat	1	Spring washer Φ12	4
L board	2	M12 Hexagon nylon nut	4
Hexagon bolt full thread M12×45	4	Expansion screws M12×100	4
Large washer Φ12	8	Expansion screw hook M12×100	4

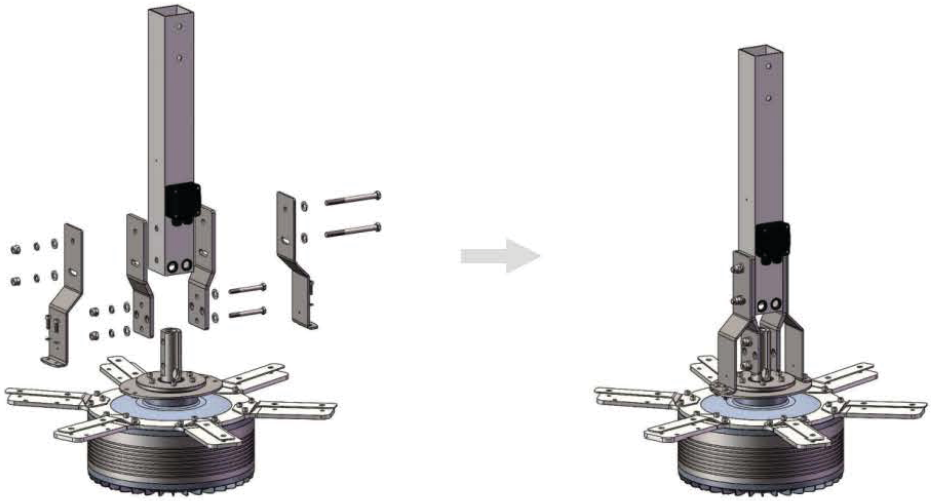


Attention: the L plate should be installed horizontally and symmetrically at both ends; The fixed seat should be installed horizontally and the two ends should be symmetrical.

5.2.3 Install the connecting rod on the motor, install the connecting rod screw and safety hanging plate screw without locking.

Part:

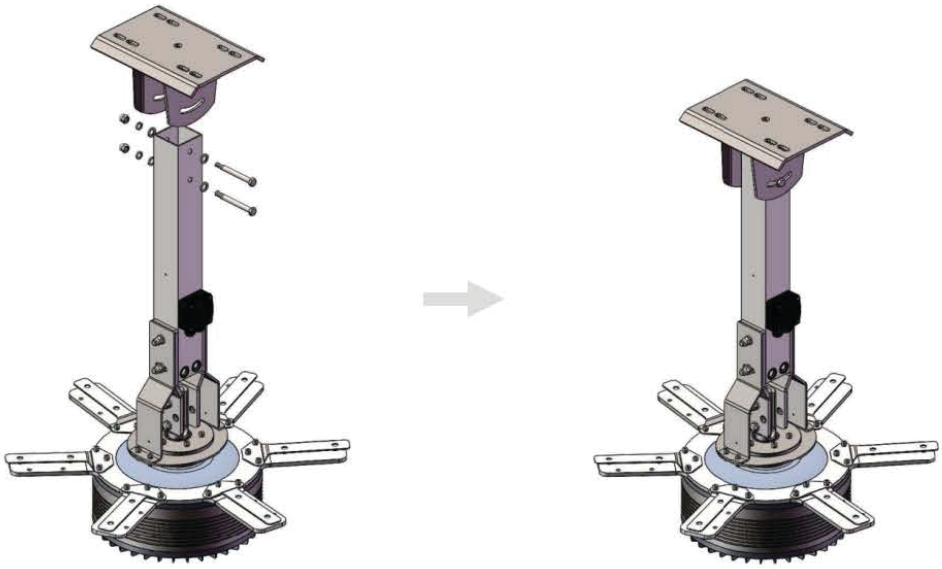
Motor assembly	1	M12×150 Hexagon headed bolt	2
Connecting rod assembly	1	M12×100 Hexagon headed bolt	2
Motor connecting plate	2	Large washer Φ12	8
Connecting plate of safety frame	2	Standard spring washer Φ12	4
Hexagon socket screw M8×20	4	M12 Hexagon nylon nut	4



5.2.4 Install the installed connecting rod motor assembly on the fixed seat, screw on and do not lock.

Part:

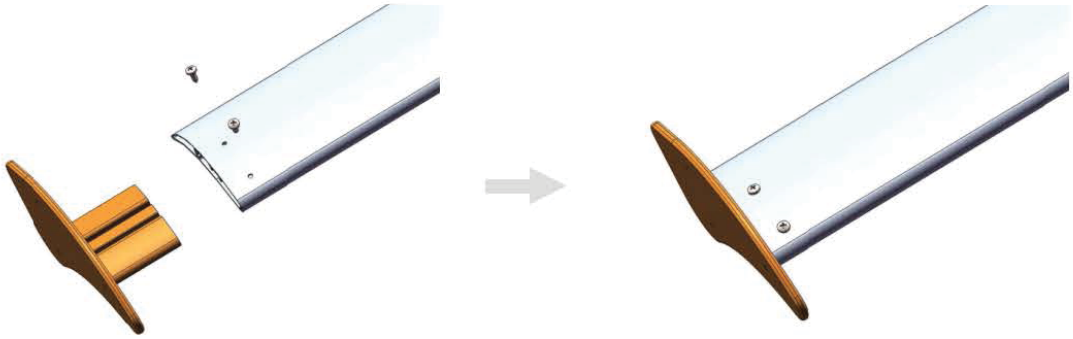
Motor connecting rod assembly	1
M12×130 Hexagon headed bolt	2
Large washer Φ12	4
Standard spring washer Φ12	2
M12 Hexagon nylon nut	2



5.2.5 Install the blade tail on the blade and lock it.

Part:

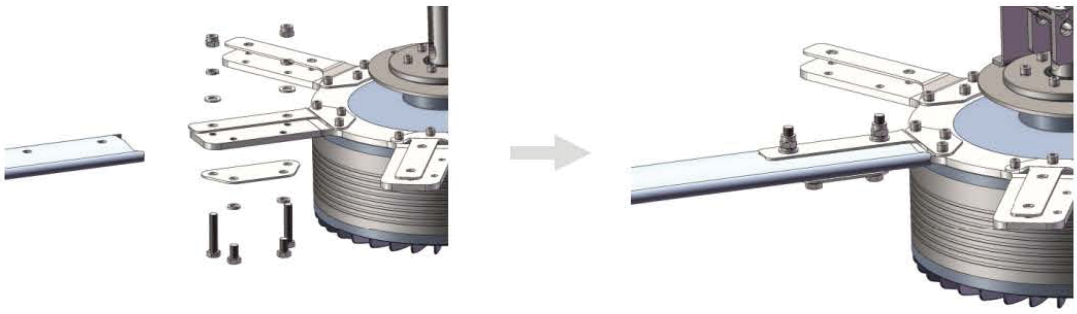
Blade	6
Tailplane	6
ST4.8×16 Self tapping screw	12



5.2.6 Install the tail blade assembly on the motor, tighten the screws and take the blade as the center of the motor, adjust the levelness of the motor and the verticality of the connecting rod, and lock the connecting rod and blade screws.

Part:

Blade tail assembly	6	M12 Hexagon nylon nut	12
M12×60 Hexagon head bolt full bolt	12	Φ12 Spring washer	24
M12×16 Hexagon head bolt full bolt	12	Φ12 Flat washer	12



Attention: before locking the fan blade screw, tighten the blade outward with the motor as the center; Pay attention to adjust the levelness of the motor and the verticality of the connecting rod before locking, and check whether all the screws are locked.

5.2.7 Determine the position of the expansion screw hook, use a 14mm drill to drill the installation hole (the hole depth is greater than 80mm), and tap in the M12x100 expansion screw hook, the opening of expansion screw hook is upward, and the expansion screw hook is locked.

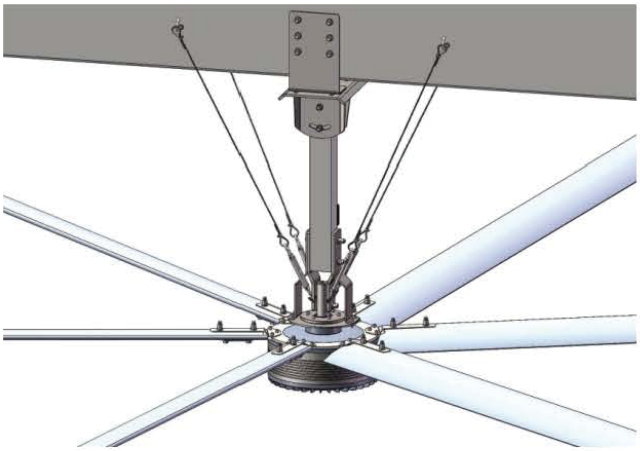
Part:

Expansion screw hook	4pcs

5.2.8 Fix the wire rope on the o-end of the screw buckle with the wire rope clamp, install the hook end of the screw buckle on the connecting plate of the ceiling fan motor, fix one end of the wire rope on the expansion screw hook with the wire rope clamp, and adjust the tightness of the wire rope with the screw buckle (the wire rope is just straight)

Part:

Wire rope clamp M6	8
Wire rope 6×10S+FC-6 30 Meter	1
Screw button KCOD10-M	4



Attention: the angle between wire rope and connecting rod is greater than 30° Less than 45°. The wire rope clamp should be installed firmly, and the screw buckle should not be used to adjust the wire rope tightly.

5.2.9 Install the controller at the right position, connect the cables from the motor to the junction box and from the junction box to the controller according to the requirements, connect the mains power to the controller according to the requirements, check whether there are obstacles around the ceiling fan that affect the operation of the ceiling fan, and operate the ceiling fan according to the instructions.

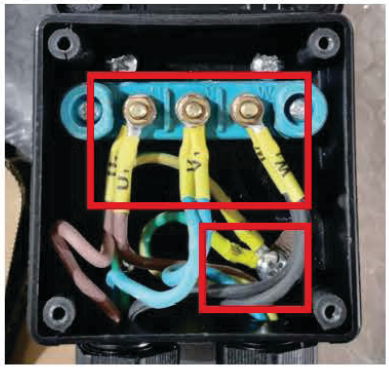
Attention: the motor connected to the controller phase sequence must not be wrong, otherwise the motor reverse, affect the product effect.

Part:

Permanent magnet motor controller	1
Rubber sheathed cable	1

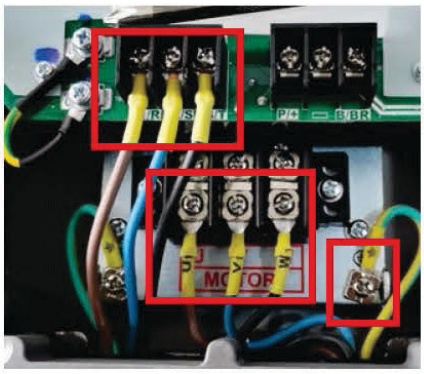
Terminal box connection:

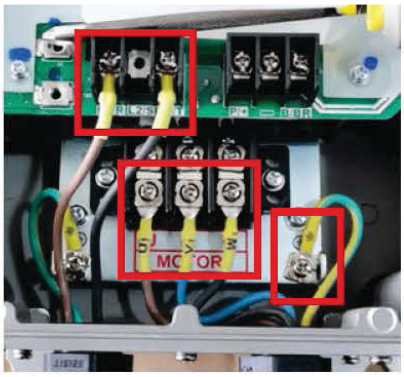
As shown in the figure, the outgoing line of the controller and the outgoing line of the motor shall be fixed on the terminal correspondingly without short circuit; The grounding wire is fixed on the fixing screw of the junction box base, and the junction box cover is locked.



Controller wiring

As shown in the figure, the top red frame is connected with the commercial power (three-phase in the left figure and single-phase in the right figure), the middle red frame is connected with the motor (connected with the junction box), and the right red frame is connected with the ground wire (connected with the junction box).

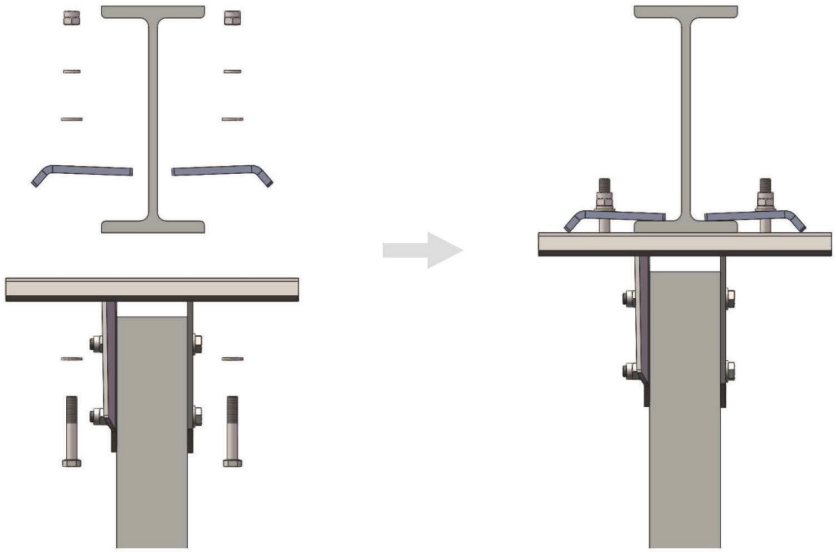




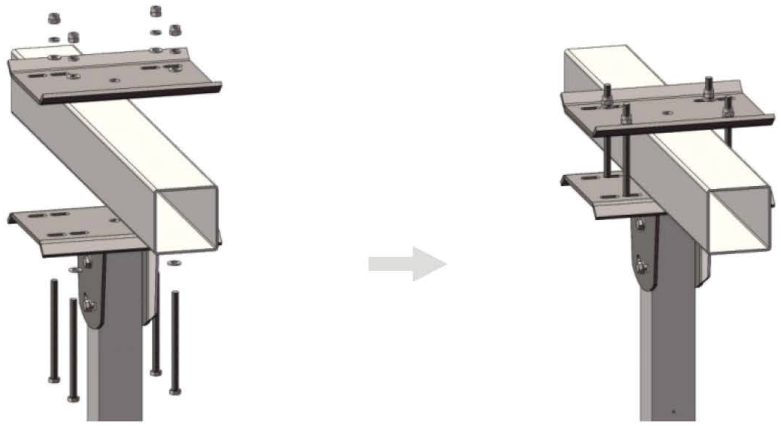
Warning: it is forbidden to connect the commercial power directly to the ceiling fan, and confirm whether the power supply voltage matches the controller voltage.

5.3 Installation diagram of I-section steel structure of ceiling fan (the rest are the same as 5.2)

There is no expansion screw hook, and the wire rope end can be tied to the side I-beam with wire rope clamp.

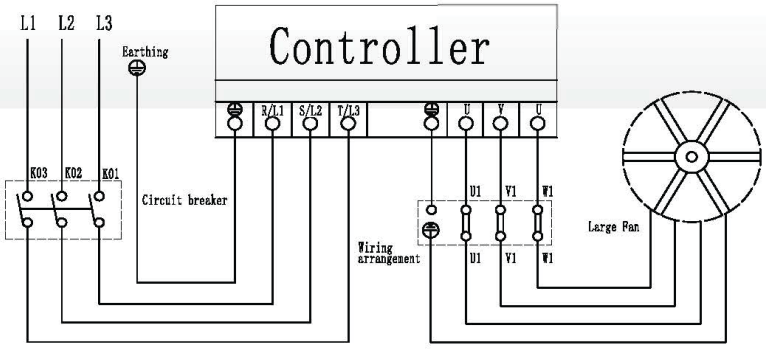


5.4 Installation of square steel structure of ceiling fan (the rest are the same as 5.2). There is no expansion screw hook, and the wire rope end can be tied to the side square steel beam with wire rope clamp.

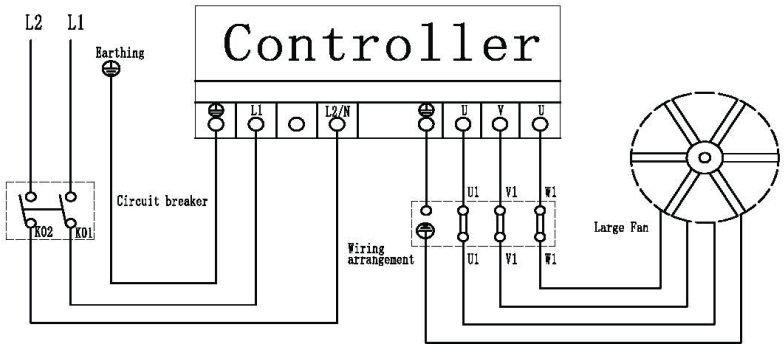


6、WIRING DIAGRAM

6.1 Wiring diagram



Three-phase input wiring diagram



Single-phase input wiring diagram

7、OPERATION AND TROUBLESHOOTING

7.1 The controller interface is shown in the figure

Power on – operation

Power off – stop / reset

Speed up——▲ Press speed + 5

Slow down——▼ Press speed – 5

7.2 Common troubleshooting:

Fault code	Explaination	Causes	Processing method
OC	Over current protection	*Output short circuit test *Motor locked or overloaded	*Is the motor cable damaged *Check whether the motor is stuck
OE	DC overvoltage protection	*Power supply too high *Too much deceleration inertia	*Check whether the rated voltage is input *Increase deceleration time
PF1	Input open phase protection	*Phase loss of input power supply	*Check whether the power input is normal
OL	Inverter overload protection	*Overload	*Reduce the load *Increase the capacity of frequency converter
LU	Under voltage protection	*Low input voltage	*Check whether the power supply voltage is normal
OH	Overheat protection of frequency converter	*The heat sink is too dirty *The fan is broken *The ambient temperature is too high	*Clean the inlet and radiator *Replace the fan *Improve ventilation
Err2	Parameter measurement error	*Motor not connected during parameter measurement	*Please connect the motor correctly
Err3(4)	Current fault before operation	*There is current alarm signal before operation	*Check whether the cable connection is reliable *Request manufacturer's service
PFO	Output phase loss	*The motor line is disconnected *The motor is broken *Inverter fault	*Check the motor connection wire carefully *Replace the motor *Seek support from manufacturers
GP	Grounding protection	*The motor cable is damaged and short circuited to the ground *Motor insulation damage, short circuit to ground *Inverter fault	*Replace the cable *Repair the motor *Seek support from manufacturers
PCE	PMSM Maladjustment fault	*The acceleration time is too short *Overload *Motor Locked Rotor	*Extend acceleration time *Check whether the motor is overloaded

Fault code	Explaination	Causes	Processing method
ALM lights	Out-of-order	*Report failure	* STOP/RESET
Key failure	The instruction is invalid	*Loose cable *Inverter fault	*Secure the cable *Turn off the power and turn it on again *Contact the manufacturer

7.3 Steps for Setting F747 before Running the motor

1. Unlocking inverter keyboard: press the"《" key, "SET " key and "FUN" key continuously in sequence, and the interval should not be too long.
2. Press "FUN" for calling function code, and select F747. "<<", "▲ " and "▼ " keys can be used to select function codes.
3. Press "SET" key for original parameters (F747=1) .
4. Press "▼ " key to change parameter from 1 to 0 (F747=0) .
5. Press "SET" key again to confirm updated parameter.
6. Lock inverter keyboard: press the mode key "FUN" to display therotating speed, and then press the acceleration or deceleration key "▲ "or " ▼ ".

Attention:

1、In order to prevent electric shock, the installation and wiring must be carried out by professional personnel according to the product manual.

2、Before using this product, check whether the surrounding space of the ceiling fan meets the requirements. For the first use, confirm whether the power supply meets the requirements, whether the wiring is correct and firm, and turn on the power supply only after confirming the safety.

3、The system is equipped with overvoltage, undervoltage, voltage loss regulation, phase loss, overload, collision, overheating, lightning protection, etc.

4、When the ceiling fan is out of use for a long time, in order to extend the service life of the product, please run it for 10 minutes every other month.

5. Make sure F747=0 before running the motor. (VERY IMPORTANT)

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