



AERO

HVLS

COMMERCIAL FAN

2.6M TO 4.7M



ROBUST

High Efficiency PMSM Motor
& Aircraft Grade ALU Blades



SAFE

Anti-Drop Patented Hub
& Swing Guard Design



EFFICIENT

5°-8° (C) Temperature Drop
in Humid Conditions

AERO

HVLS INDUSTRIAL FAN

2.6M TO 4.7M



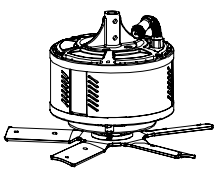
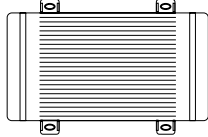
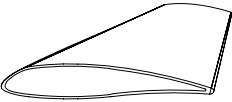
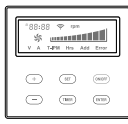
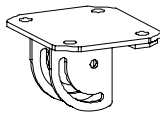
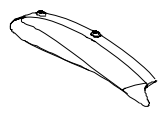
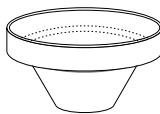

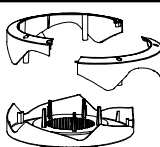
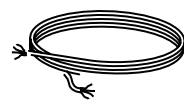
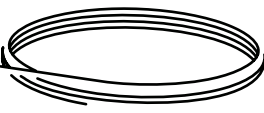
Description

The AERO is designed for smaller commercial spaces where height and clearance may be limited. Utilising a direct drive motor the installation height is significantly reduced. Available in a customizable span between 2.6 - 4.7 meters and with a discreet wall control, the Aero brings industrial fan tech into reach of office and domestic users while still maintaining the benefits of a High Volume Low Speed (HVLS) system.

General		Details	
Fan diameter		Ø2.6 to 4.7M	
Weight		30 to 42kg	
Construction/materials		Extruded 6061 Aluminium, Q345b Steel motor	
Operating Temperature		-20 °C to 60 °C	
Power		Details	
Input Voltage		Single-phase: 240V	
Current (A) 240V		2A	
Operating Frequency		50Hz	
Total Power Consumed		500W	
Motor Power (KW)		0.3 to 0.5KW	
Operation		Details	
Air flow (m³/min)		5580 to 8200m³/min	
RPM		30-100RPM	
Noise (dBa)		39dBa	
Application Area		200 to 500mSQM	
Protection		Details	
Compliance		CE	
Warranty		5 Years	

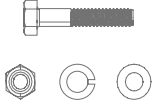


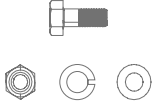
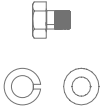
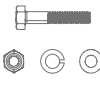
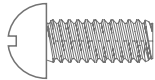

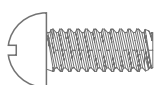
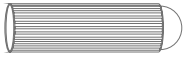


Verify product contents

Check the status and quantity to ensure you have the user manual, and all these parts:

	Drive (1 set)		Controller (1 set)
	Fan blade (5 pcs)		Operation panel (1 set)
	Wall fixing plate (1 pc)		Empennage (5pc)
	Fixing plate cover (1pc)		Extension rod (1pc)
	Hub cover (1 set)		Power cable (15m)
	Safety cable *15m		

Verify contents - Installation fasteners

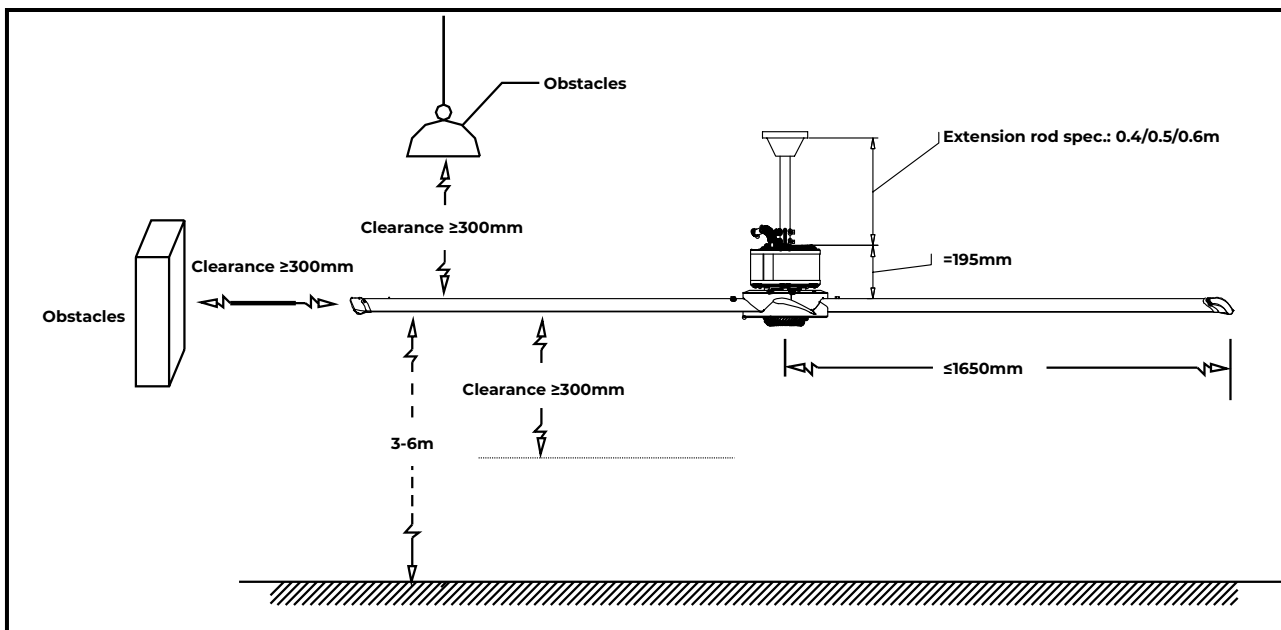
Check the status and quantity to ensure you have the user manual, and the parts listed below:

Fixing plate screw		M8x60mm Hex head cap screw (2pcs) M8 Nylock Nut (2pcs) Ø8 Spring Washer (2pcs) M8x16mm Flat Washer (4pcs)
		M10x80mm Expansion Screw (4pcs)
		M5x20mm Tapping screw (pcs)
Fan blade screw		M8x35mm Hex head cap screw (5pcs) M8 Nylock Nut (5pcs) Ø8 Spring Washer (5pcs) M8x20mm Flat Washer (10pcs)
		M8x12mm Hex head cap screw (5pcs) Ø8 Spring Washer (5pcs) M8x20mm Flat Washer (5pcs)
Extension rod screw		M8x55mm Hex head cap screw (2pcs) M8 Nylock Nut (2pcs) Ø8 Spring Washer (2pcs) M8x16mm Flat Washer (4pcs)
Empennage screw		Flat head screw 5x16mm (10pcs)
Hub over screw		Tapping screw 4x15mm (7pcs)
Bottom shell screw		Cup head screw 5x10mm(2pcs)
Controller screw		Screw protection sleeve (5pcs)
		Black tapping screw (5pcs)
		Bobbin crimping terminal (3pcs)

Installation Precautions:

The maximum weight of the fan is about 30kg and the maximum torque is about 30Nm. The clearance from the fan to the roof (no matter what the roof structure) is the distance between the location of the lowest part of the fan (nearest to the ground) and the installation of the upper connecting frame of the fan. For an inclined roof, the required distance should be moved to the tip of the blade, otherwise, it may cause the blade tip to collide with the roof or affect the smooth flow of airflow because the distance between the roof and the blade is too short. Overall, it is necessary to maintain reasonable fan blade and roof space to ensure proper air flow.

With the increase of fan speed, the fan blade will move upward along the diameter, increasing the fan coverage area. Therefore, all obstacles that may be encountered within the radius of the fan and between the horizontal height of the fan's static position and the ceiling should be measured before installation, ensuring that the fan has appropriate clearance in all directions when running (see below diagram). Ensure that the fan and the existing facilities of the building (horizontal and vertically) have a clearance of at least 300mm.



Installation Tools:

Please ensure you at least have the following tools:

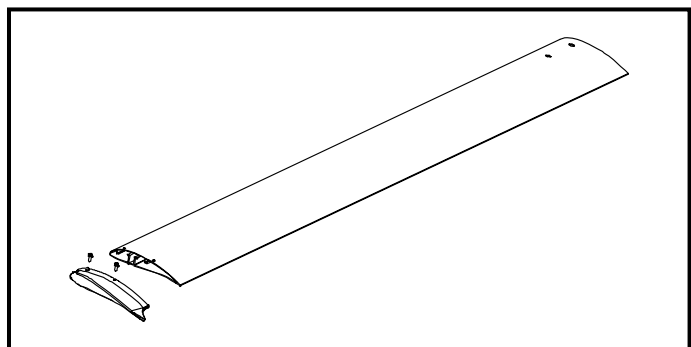
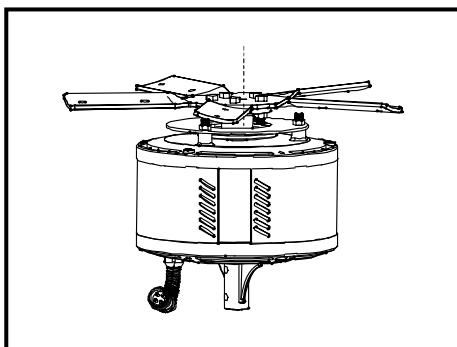
- Leveling instrument
- Cutting pliers
- Wire stripper
- Lifting device(Scissor lift or scaffold)
- Pliers
- 4 sets of tighteners(or turnbuckle screws)
- Phillips head screwdriver
- Flat head screwdriver
- Tapeline
- Marking pen
- Hand electric drill with M4 bit.
- Hexagonal wrench: 8mm/10mm/14mm

Note: A hand electric drill with 12mm drill bit will also be required if connecting to a concrete beam.

Installation Guide

Step 1 - checking the drive device

Before the motor is packaged and shipped, the hub has been connected, and the shaft sleeves and bolts with the anti-falling device are fixed on the hub in advance to form the Drive Device; Please check whether the screws are tightened to ensure that the hub , the shaft sleeves and the bolts are fixed in place. See diagram below:



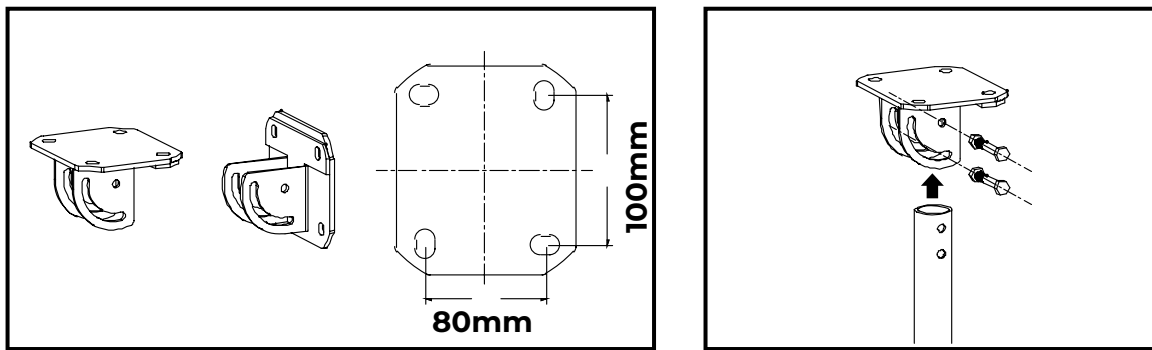
Step 2 - Installing the fan blade empennage

Use the two M5x16mm cup head self tapping screws to fix the empennages at the end of each blade in sequence (see diagram above).

Installation Guide

Step 3 - Installing the fixing plate

Use the four M10x80mm expansion screws to install the fixing plate on the beam through direct mount or side mount.



Step 4 - Installing the extension rod

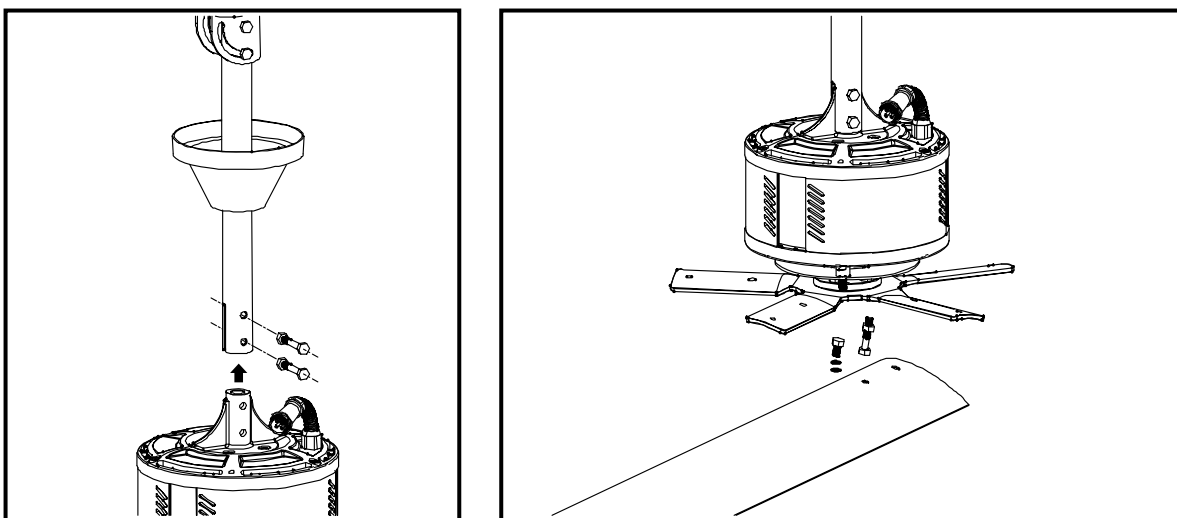
Use two M8x55mm screws and nylock nuts to connect the extension rod to the wall fixing plate. Do not lock until the level adjustment and fixing is completed.

Step 5 - Installing the drive device

Connect the drive device to the extension rod with two M8x55mm screws and nylock nuts to secure it. Attention: Insert the cover for fixing plate first if directly mounting onto installation beam.

Step 6 - Installing the fan blade

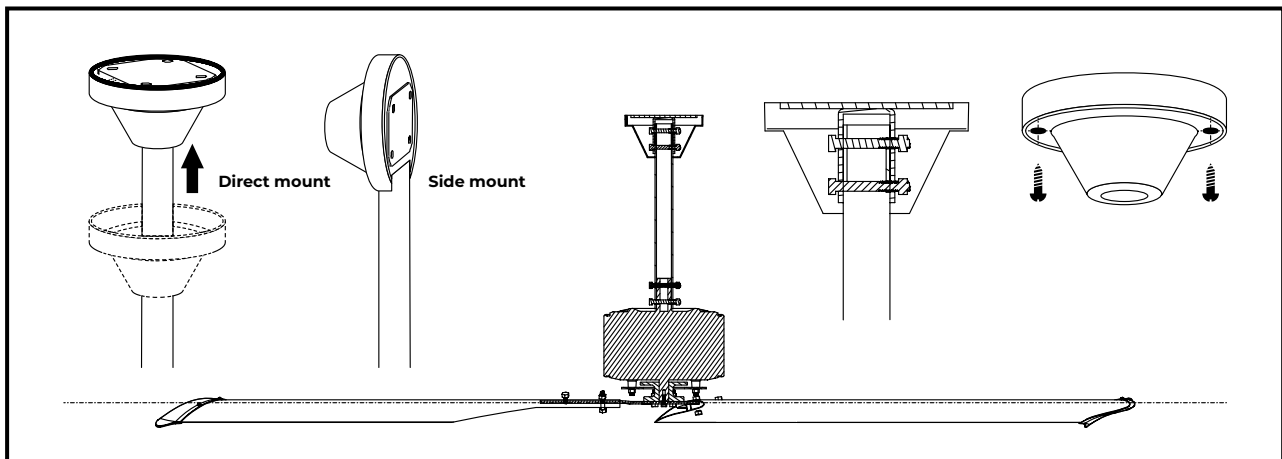
Install the fan blades onto the brackets that are connected to the hub. The screw hole near the inner side will be the M8x40mm screws with nylock nuts, and the M8x12mm screws are used for the outer screw holes, fit the screw and flat washer from above.



Installation Guide

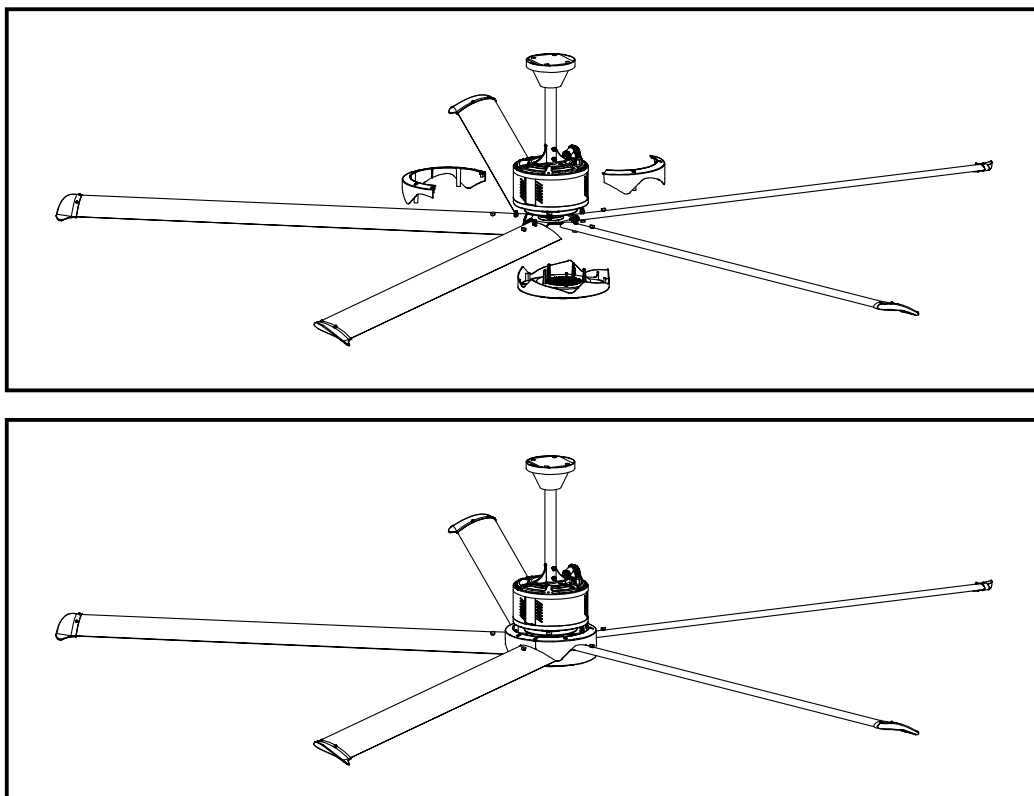
Step 7 - Level adjustment and fixing

Adjust the level of the fan, then lock the screws above the extension rod, and then use two M5x20mm tapping screw to install the cover of the fixing plate on the fixing plate.



Step 8 - Installing the hub cover

Use seven M4x15mm tapping screws to fix the hub cover to the drive device.



Installation Guide

Step 9 - Installation of security cables

Each fan has four steel wire ropes. Please ensure that the angle between each steel wire and the drive device is approximately 45 degrees, any variation in the angle will affect the strength of the steel wires. Please adhere to the below guidelines:

Method 1: Installing with turnbuckle

1. Use four safety cables per fan, with three clamps per rope. (One clamp for the site structure, two clamps for turnbuckle).
2. Use the closed-end of turnbuckle to fix the steel wire to the building structure, and use the open end of the turnbuckle to fix the steel wire to the safety rings of the fan.

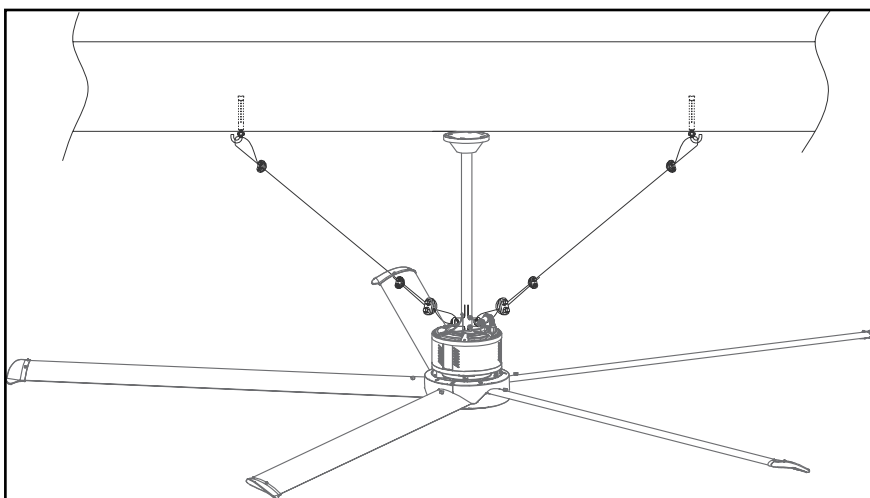
CAUTION: It is important to avoid wrapping the steel wire around any sharp corner. Although the external force used to fix and balance the fan is very small, the continuous running of the fan may cause fatigue damage to the steel wire rope over an abrasive surface.

3. Attach the steel wire to the building first, install one clamp per wire and tighten.
4. Attach the steel wire to the closed-end turnbuckle, and use the open-end of the turnbuckle to fix onto the safety ring of the fan. Install two clamps per wire.
5. Using the turnbuckle, tighten each steel wire rope gradually and use a leveling instrument to make sure the drive device of the fan is at a vertically level position.

Method 2: Installing with tightener

1. Attach the steel wire to the site structure first, install one clamp per wire and tighten.
2. Attach the steel wire to the safety ring of the motor frame, install two clamps per wire, do not tighten the screws immediately.
3. Use the tightener to tighten each steel wire rope gradually, while using a leveling instrument to ensure that the drive device of the fan is at a vertically level position. Lock the clamp screw near the motor of each steel wire, loosen the tightener and lock the end clamp screw.

CAUTION: Ensure each wire rope has the same tightness after installation.



Installation Guide

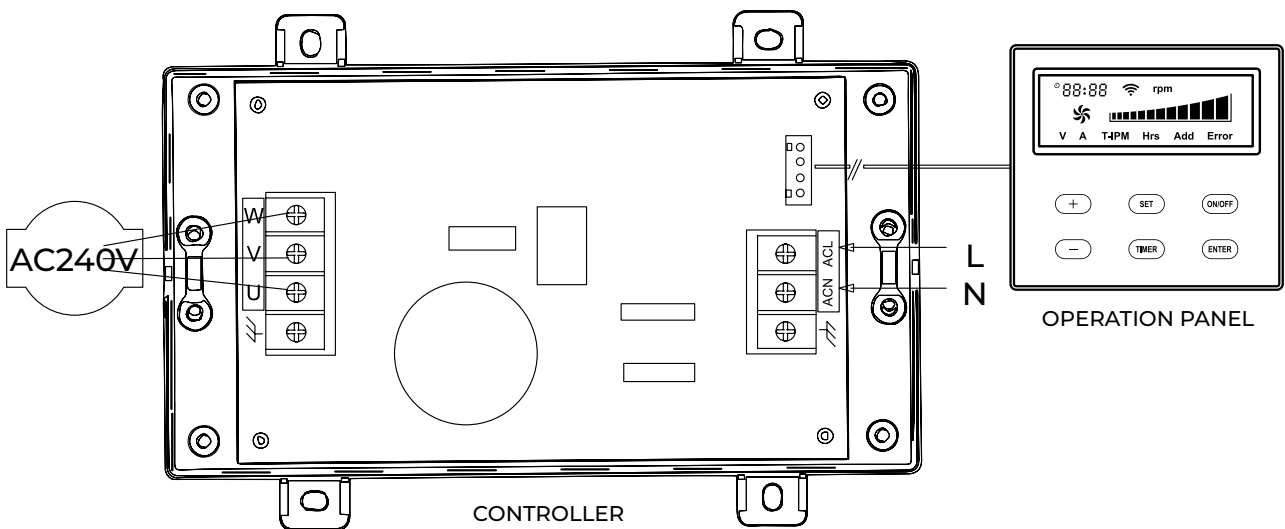
Step 10 - Connecting the power supply and wiring

The wire conduit layout should be done in accordance to site parameters.

Before wiring, please make sure the power is off, then connect to the power supply. Power supply is single phase 240V.

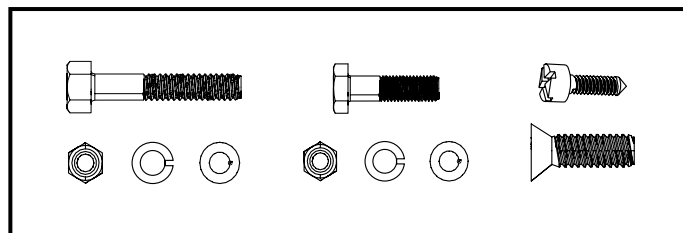


Do not connect the power supply to the motor directly.



Step 11 - Check and adjust

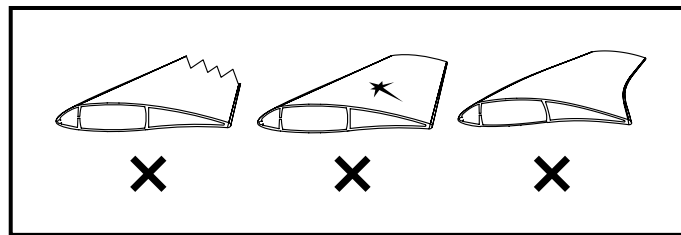
Check connection bolts: Upon completion of the above installation steps, double check and ensure that all fastening bolts are provided by Zephyr and are properly installed and fastened.



Installation Guide

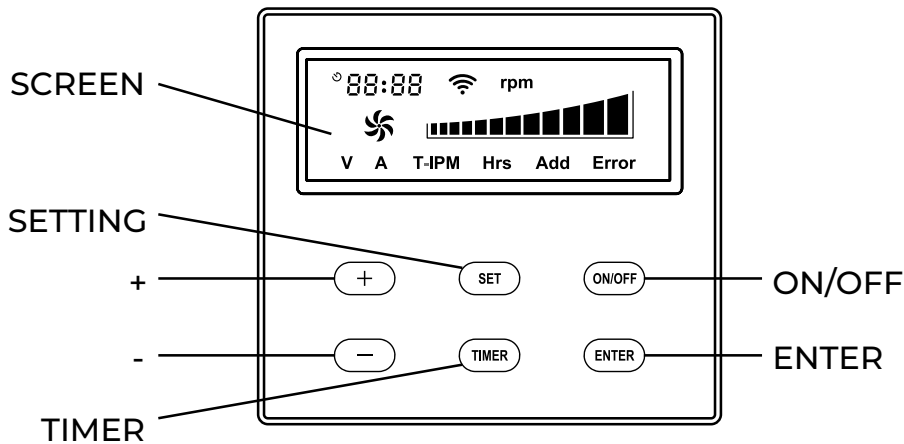
Step 12 - Fan blade condition check

The fan blade is made of an extruded aluminium alloy material with a special fluorocarbon paint treatment. Please handle with care during installation to avoid scratches, dents or deformation. Any damage on a fan blade might cause noise during operation. In case any damage occurs, contact Zephyr or the local distributor/dealer to replace the fan blade.



Installation Guide

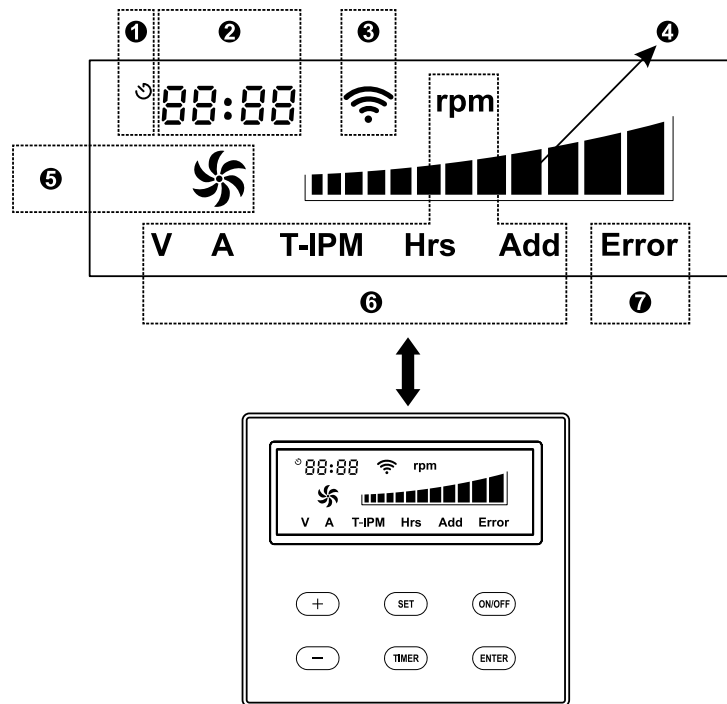
Control panel and functions



Special Control System For Aero Series Commercial Pmsm Fan

- ON/OFF** - Start or Stop the machine
- ENTER** - Confirm and save the parameters setting
- SET** - Parameters setting
- TIMER** - Clock and Timing settings
- +** For increase speed and parameters setting
- For reduce speed and parameters setting

Display icon description



1. **Timing icon:** the icon is always displayed during the timer setting and countdown.
2. **Clock and timing display area:** display real-time clock, the initial clock is set at 12:00, and uses the 24-hour clock. When the timer switch function is set, this area displays the countdown time.
3. **Wifi icon:** when the connection is normal, the icon is displayed; when the connection is dropped, the icon is not displayed; when it is not set, the icon flashes.
4. **The speed amplitude icon:** divides the lowest speed to the highest speed into 12 equal parts, and displays the amplitude according to the actual speed setting value, which is fixed during operation.
5. **Working status icon:** dynamic display while running
6. **Parameter display icon**
7. **Error icon:** in case of system failure, the icon is displayed, and the failure code is displayed in the clock and timing display area.

Electrical faults and solutions

ERROR CODE	ERROR NAME	TROUBLESHOOTING	HANDLING METHOD
E00	Maintenance tips	Operated for more than 15000 hours	Maintain the equipment
E1	Overcurrent protection	Short circuit or leakage in the motor	Replace the motor
		Frequency converter parameter setting error	Adjust frequency converter parameters
		Sudden change of motor parameters	Replace the motor
		Internal fault of frequency converter	Depot repair
E2	Overvoltage protection	input voltage too high by +15% of rated value	Adjust input voltage to the rated value
E3	Undervoltage protection	Input voltage too low by -15% of rated value	Adjust input voltage to the rated value
		Phase loss of input circuit	Check the line
E4	Phase failure protection	Poor contact of motor UVW wire	Adjust wiring
		internal open circuit of motor	Replace the motor
E7	Overload protection	Excessive load or locked rotor	Check type of accessories and structure
		Unsuitable motor	Replace the appropriate motor
E8	Overheat protection	Too high temperature for operating	Reduce ambient temperature
		Air duct blockage	Clean the air duct
		The cooling fan is damaged	Replace the motor cooling fan
F6	Communication failure	Connection exception of panel and board	Reseat or replace
		Circuit failure	Depot repair

Maintenance and Service

SN	Maintenance and service checklist
1	Visual fan running state inspection
2	Working state of control and operation panel
3	Check the condition of the fan blades
4	Check whether the flange bolt of motor is tight
5	Clean the fan blades (be careful not to damage it)
6	Check the fastening bolts of the connecting frame
7	Check whether the flange screw of motor is tight
8	Check anti - release lock catch
9	Check fan suspension
10	Check motor supports and fastening bolts

Trouble shooting

The fan is running in wrong direction

→ The power phase sequence is not correct, change the wiring.

Popping noise comes from the fan

→ The fan blade popping noise may come from the blades are not tightened to the Specified torque, cut off power at VFD controller and tighten the fan blade fastener To the specified torque. If popping noise still occurs, please check the connection Between fan blade and Hub. If the connection is correct, please slow down and switch off the fan, then contact Zephyr or your local authorized distributor.

Fan is not working

- Ensure that all the wires are securely connected
- Ensure that the switch is in the run position
- Verify that the power supply is adequate and functional

The motor makes a noise when increasing the speed of the fan

→ Audible high frequency noise is normal during fan operation, if it exceeds your acceptable range , or you feel that the noise maybe a result of mechanical failure, Please contact Zephyr or your local authorized distributor.

For any issues regarding the VFD controller, please check the trouble shooting approach in the instruction manual according to the alarm message on the VFD. If the error code can not be solved, please contact Zephyr or your local authorized distributor

Internal fault of Controller or Controller converter

→ Please refer to the fault code solution in the Electrical faults and solutions table for inquiries and processing. If it cannot be solved, please contact Zephyr or your local authorized dealer.

The troubleshooting of motor

→ Please follow the problem solving instruction of motor. If the motor cannot be repaired, please contact Zephyr or your local authorized dealer.