



PULSE

HVLS

INDUSTRIAL FAN

3M TO 5M



ROBUST

NORD German Motor, Gears
& Aircraft Grade ALU Blades



SAFE

Anti-Drop Patented Hub
& Swing Guard Design



EFFICIENT

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

PULSE HVLS INDUSTRIAL FAN

3M TO 5M



The PULSE is the ideal size High Volume Low Speed (HVLS) fan in our range for mid-sized industrial and commercial facilities. Available in single-phase input with a customizable blade size range of 3 meters to 5 meters. German NORD-designed motors and gearboxes for long life, quiet operation, and serviceability. HVLS fans produce a much greater cooling effect than smaller higher speed options while consuming less power, generating less noise, and requiring fewer overall fans.

1 PHASE

ZP-PU-1P-KIT-CB Concrete Beam Mount
ZP-PU-1P-KIT-HB H Beam Mount
ZP-PU-1P-KIT-RB Rigid Beam Mount


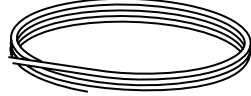
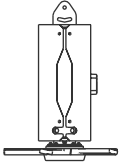

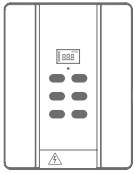



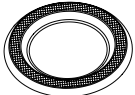
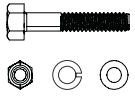
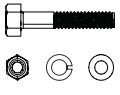

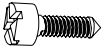

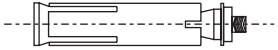
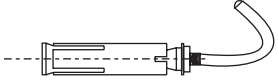
3 PHASE - Order In Only

ZP-PU-3P-KIT-CB Concrete Beam Mount
ZP-PU-3P-KIT-HB H Beam Mount
ZP-PU-3P-KIT-RB Rigid Beam Mount

General		
Fan Diameter	Ø3 to 5M	
Weight	45 to 55kg	
Construction/Materials	Extruded 6061 Aluminium, Q345b Steel motor	
Operating Temperature	-20°C to +60°C	
Power		
Input Voltage	Single-phase: 220V - 240V	Three-phase: 380V - 415V
Current	2.7A - 3.1A at 240V	1.02A @ 380V - 415V
Operating Frequency	50Hz	
Total Power Consumed	550W	
Motor Power	0.55KW/HP	
Operation		
Air Flow	6500 to 9000m ³ /min	
RPM	40-102RPM	
Noise	40dBa	
Application Area	350 to 550m ² SQM	
Protection		
Compliance	Motor: CE, UL, CSA; Controller: UL, CE; Whole fitting: CE, CB	
Warranty	5 Years	

In The Box

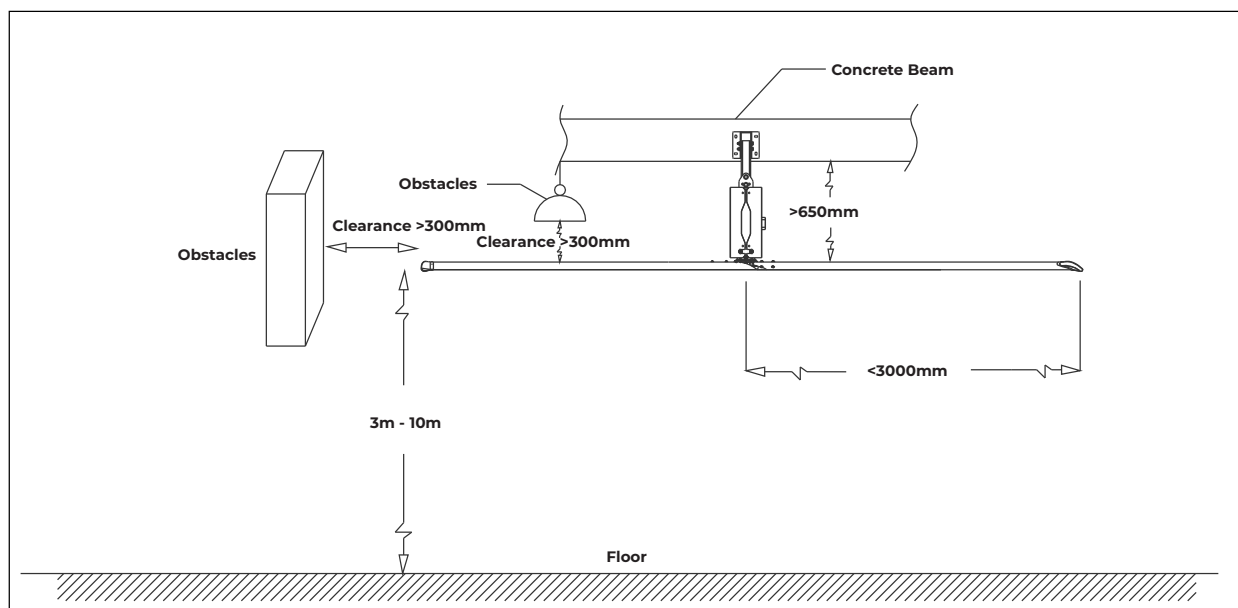
Check the status and quantity to ensure you have the user manual, and the following parts:

	Mounting bracket (1 set)		Safety cable (15m)
	Drive (1pc)		Extension rod (1pc)
	VFD controller (1pc)		Fan blade (5 pcs)
	Power cable (33m)		Empenage (5 pcs)
	Hub cover (1 pc)		
	M12 x 90mm *4pcs Hex Head Cap Screw M12 Nylock Nut *4pcs M12 Spring Cushion *4pcs M12 Flat Washer *8pcs		
	M8 x 40mm *10pcs Hex Head Cap Screw M8 Nylock Nut *10pcs M8 Spring Cushion *10pcs M8 Flat Washer *20pcs		
	M6*14pcs Steel wire clamp		
	Tapping screw 5*16mm *10pcs		
	Flat head tapping Screw 3.5*35mm*4pcs Plastic wall plug*4pcs		
Different mounting fixtures are used for either: H Beams, concrete beams, rigid frame beam, refer below:			
H Beam	M12 x 50mm *4pcs Hex Head Cap Screw M12 Nylock Nut *4pcs M12 Spring Cushion *4pcs M12 Flat Washer *8pcs		
	M10 x 80mm *10pcs Expansion Screw (For Concrete Beam)		
	M8 x 100mm *4pcs Expansion Screw (For Concrete Beam)		
Rigid frame beam	M12 Nylock Nut *8pcs M12 Spring Cushion *4pcs M12 Flat Washer *8pcs M12 Threaded Rod 1Meter		

Installation Precautions:

The maximum weight of the fan is about 55kg and the maximum torque is about 50Nm. 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 wide air flow.

With the increase of fan speed, the fan blade will move upward along the diameter of a certain angle, 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 an 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.



Mounting Installation Methods:

Each type of building structure requires a specific mounting bracket, the Zephyr Pulse fan can only be installed with the included mounting equipment onto H-Beam, Rigid frame beam or Concrete beam structures. For buildings with a different installation structure, an additional set of brackets can be customized from factory, please consult Zephyr.



- Verify with the contractor, building owner or structural engineer to ensure that the building structure is sound and adequate to support Zephyr products before installation.
- Ensure to take accurate height measurement of both the structure beam and blade level.
- Ensure to check if the power supply is correct on site.

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 M4.2 bit.
- Open hexagonal wrench: 8mm / 10mm / 13mm / 14mm / 16mm / 17mm / 18mm / 19mm

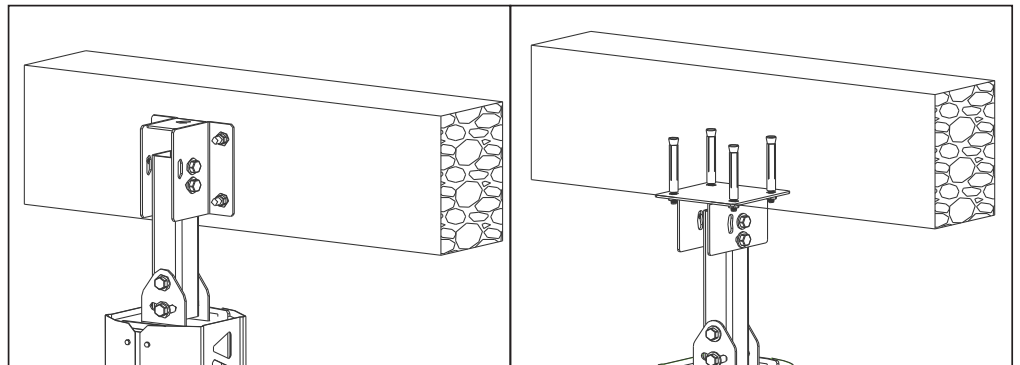
Note: A hammer drill with a 10mm and 12mm drill bit will also be required when connecting to the Concrete beam.

Installation Guide

Step 1 - Installing onto the building

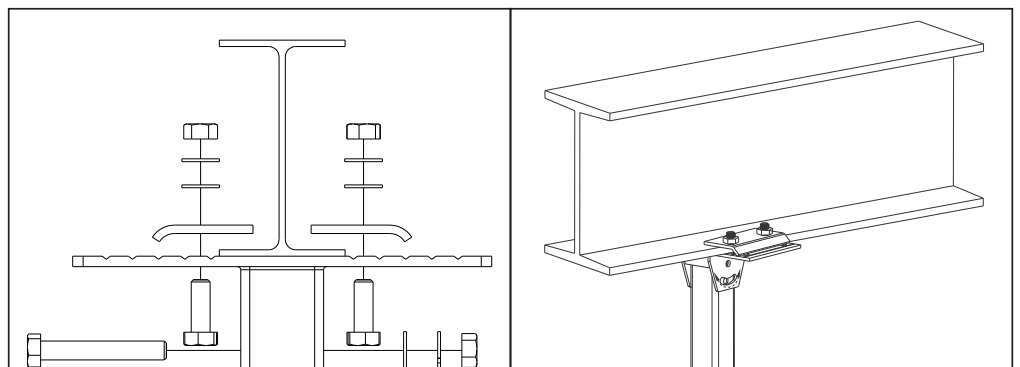
Concrete Beam

Connect the mounting device by fixing expansion bolts onto the concrete beam, the mounting device can be adjusted to the width of the beam.



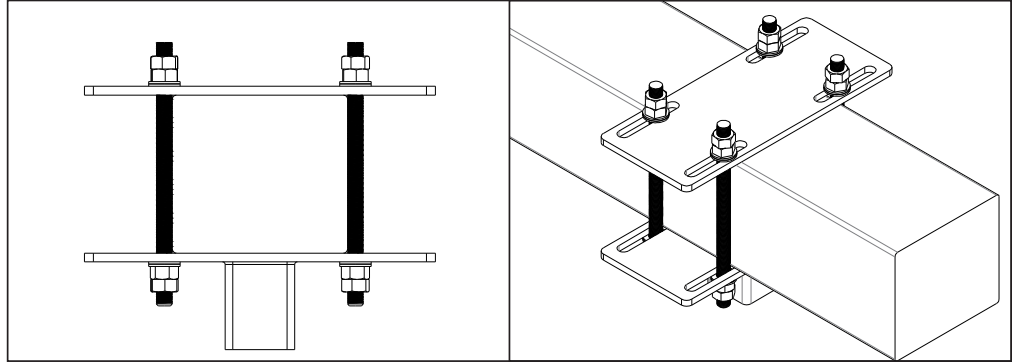
H-Beam

Connect with Steel H-Beam with the adjustable mounting bracket set, (the fan can be easily clipped onto on any steel H-beam, without changing the steel structure). The device can be adjusted according the width of the beam (80mm-220mm).



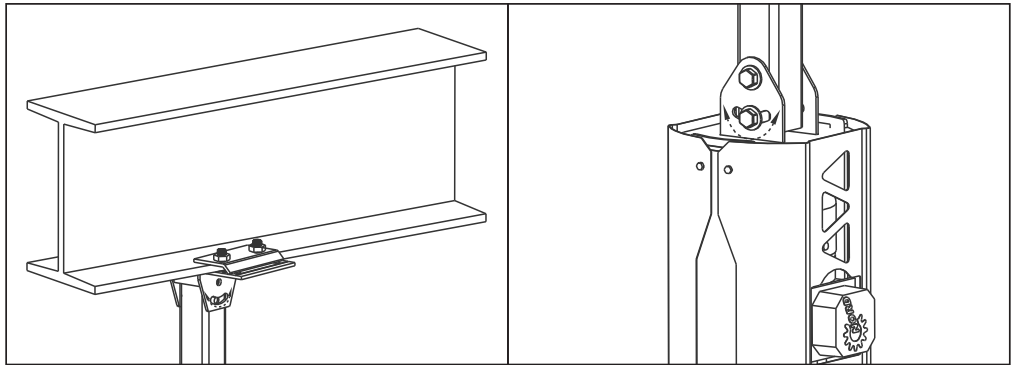
Rigid Frame Beam

Connect the mounting device is fixed by threaded rod onto the rigid frame beam. Cut the threaded rod into 4pcs based on the height of the rigid frame beam. The device can be adjusted according to the width of the beam (80-240mm).



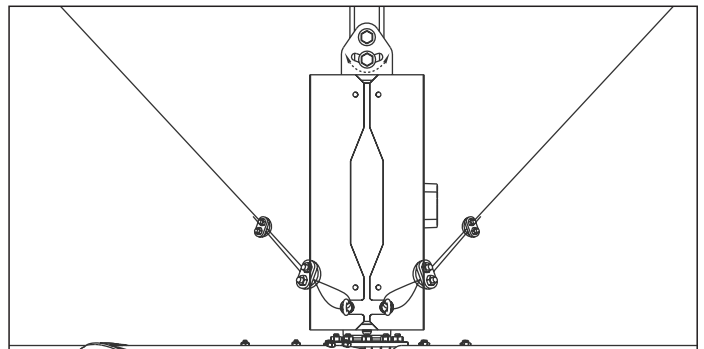
Step 2 - Installing the extension rod

Connect the ends of extension rod with the Cardan joint and drive device by bolts (please note that the length of the extension rod is customized according to site parameters, please consult Zephyr for the required length of the extension rod).

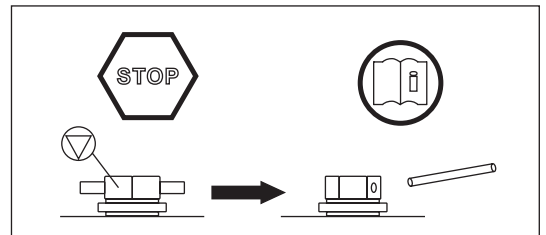


Step 3 - Installing the drive device

Fix the extension rod onto the drive device with the bolts and use the adjustable arc-shaped groove to ensure that the drive device is at a vertically level position (please note that the drive device is preassembled as a singular unit, the drive device is heavy and will require 2-3 people to lift and install).



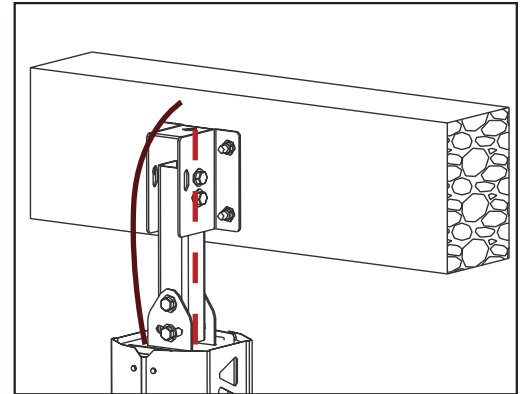
Do not remove the oil plug until the fan is properly mounted. If the oil plug is removed before the fan is mounted, oil in the gear box reducer may spill out.



Step 4 - Connecting to power supply and wiring

The wire conduit layout should be done in accordance to site parameters and respective state, industry Australian standards and legislation.

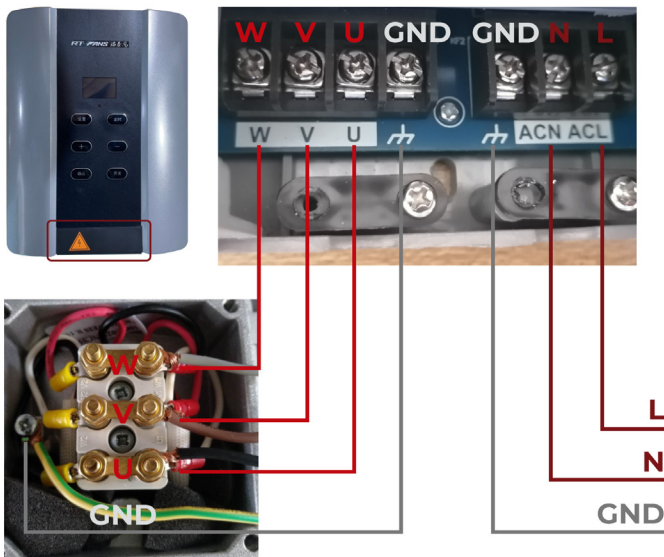
Before wiring, please make sure the power is off . Then connect to the power supply. If the site power supply is single phase - 240VAC, the motor is wired according to delta type. Connect motor wire first then connect the electric wires to the control box. Cable can run inside or outside the bracket. See diagram on right.



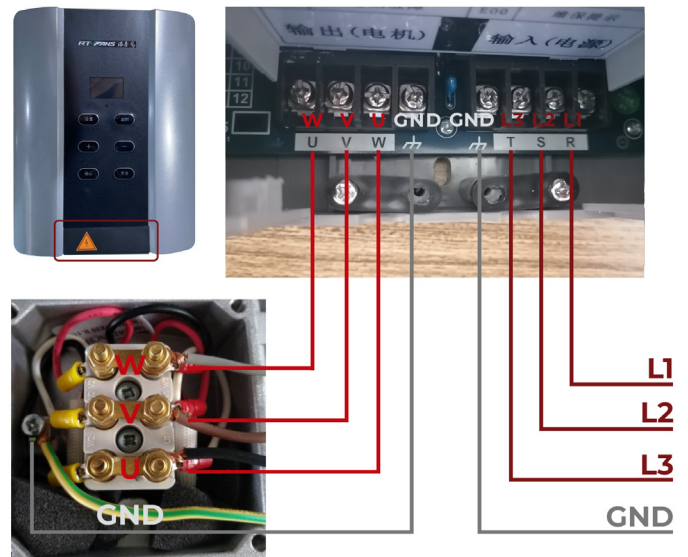
Do not connect the power supply to the motor directly.

Wiring diagram

Single Phase / 220 - 240V



3 Phase / 380V



Installation Guide

Step 5 - Installation of securing 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.

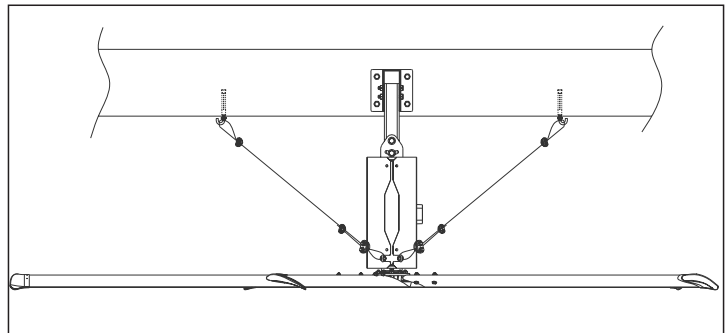
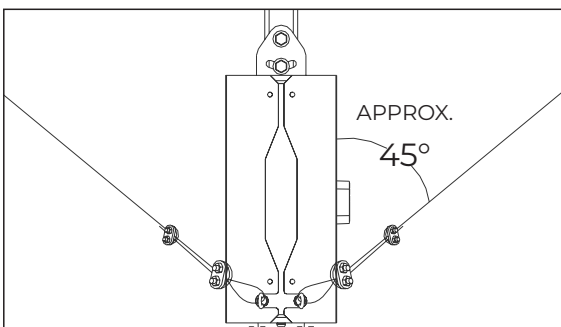
CAUTION: It is important to avoid wrapping the steel wire around any sharp corner. Although the external force used to fix and balance the fan is very small, the continuous running of the fan may cause fatigue damage to the steel wire rope over and abrasive surface.

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

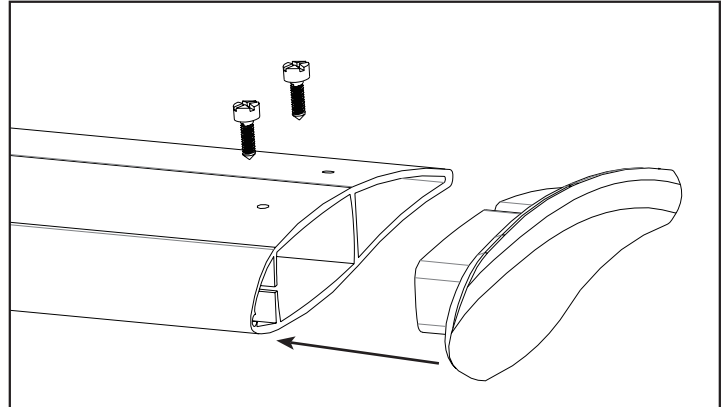
1. Attach the steel wire to the site structure first, install one clamp per wire and tighten.
2. Attach the steel wire to the safety ring of the motor frame, install two clamps per wire, do not tighten the screws immediately.
3. Use the tightener to tighten each steel wire rope gradually, while using 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.



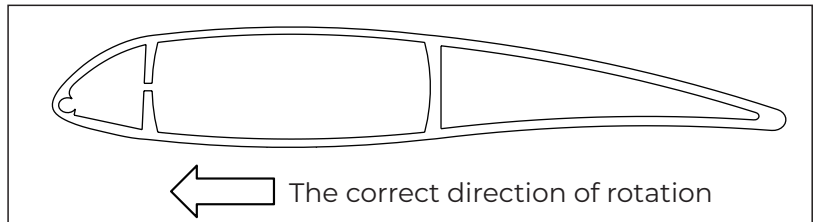
Step 6 - Empennage installation to fan blade

Insert the empennage to each airfoil blade and fix it by using the two tapping screws.



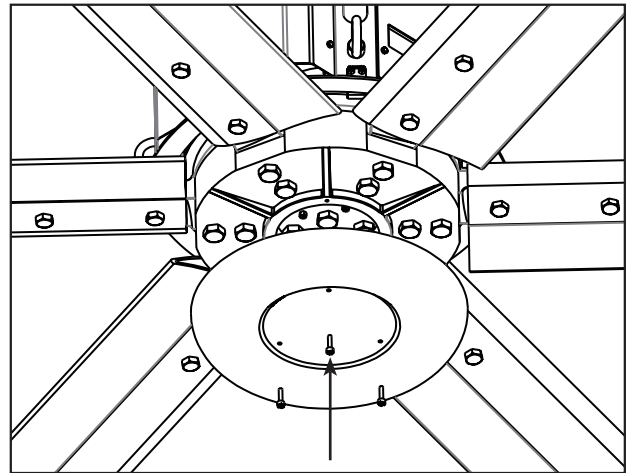
Step 7 - Fan blade installation

The fan blade is pre-installed onto the fan wheel hub, simply insert the fan blade onto the blade pins and fix with two bolts per blade. The correct direction of the blade installation should be the blade upwind surface (thick round part of the blade) the highest, blade leeward surface downward as per the diagram.



Step 8 - Hub cover installation

Place the bottom cover close to the hub and tighten it with the included bolts.



Step 10 - 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.

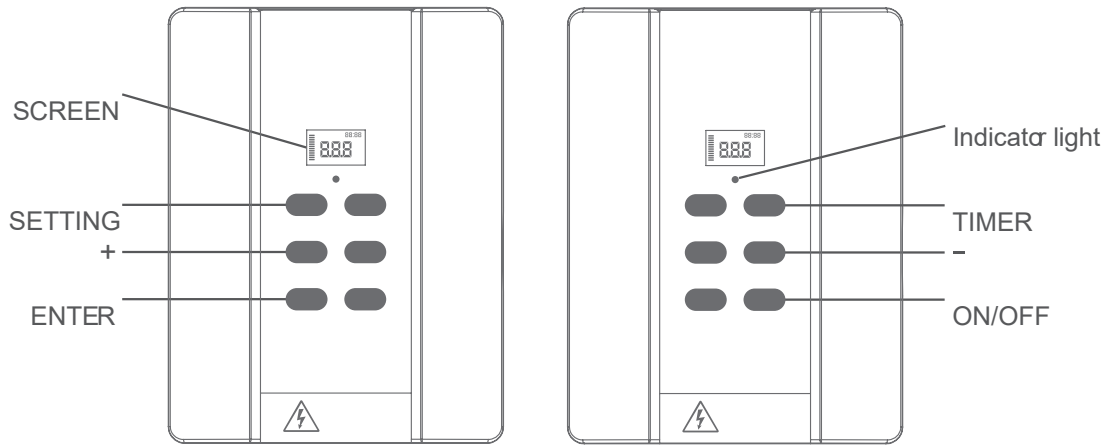
Inspection on tension of Steel wire

Check if the wire rope around the beam is installed correctly, make sure the rope head is locked; and double check tensioning degree of the four fastening wire ropes to ensure the perpendicularity of the motor support and the balance of the chassis.

Fan blade condition check

The fan blade is made of aluminium alloy material with a special fluorocarbon paint treatment. Please handle with care during installation to avoid scratches, crash 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.

Control panel and functions



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

Starting up the Pulse fan

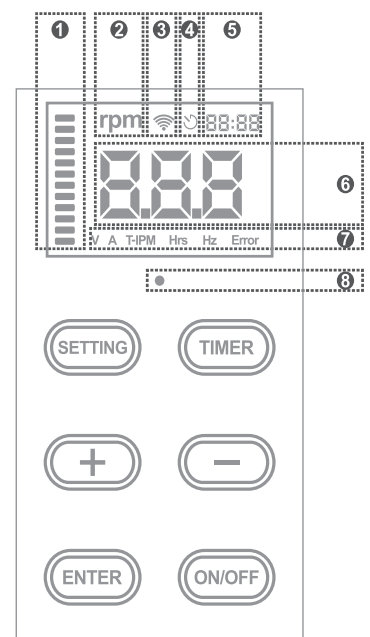
1. Switch on the air switch in the box to connect with the power supply.
2. Press the ON/OFF key and start the machine.
3. **Remain the fan speed in low speed for 30 seconds** and then Press the + or - key to the required speed.

CAUTION

- Read the Instruction Manual carefully before installation and operation and make sure that the fan is not obstructed in all directions.
- Before performing maintenance on the large fan, please ensure that the power supply is disconnected.

Display icon description

1. 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.
2. Speed icon, when the data display area is speed data, this icon is displayed.
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. Timing icon, the icon is always displayed during the set timing and countdown.
5. 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.
6. Data display area, displaying running data and setting data.
7. Parameter display icon.
8. Two-color indicator light, red when standby, green when running, and red flashing (1Hz) when fault occurs.



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

Trouble Shooting

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 of VFD. If the error code cannot be solved, please contact Zephyr or the local authorized distributor

The fan is running in wrong direction

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

Maintenance and Service

SN	Maintenance and service checklist
1	Visual fan running state inspection
2	Control box working state
3	Check the condition of the fan blade
4	Check the tension of suspension wire rope
5	Check fin and fan blade firmness
6	Check whether the flange bolt of motor is tight
7	Clean the fan blades (be careful not to damage it)
8	Check the fastening bolts of the connecting frame
9	Check whether the flange screw of motor is tight
10	Check anti - release lock catch
11	Check fan suspension
12	Check the safety rope on the beam
13	Check welding position
14	Check motor supports and fastening bolts