Installation Guide





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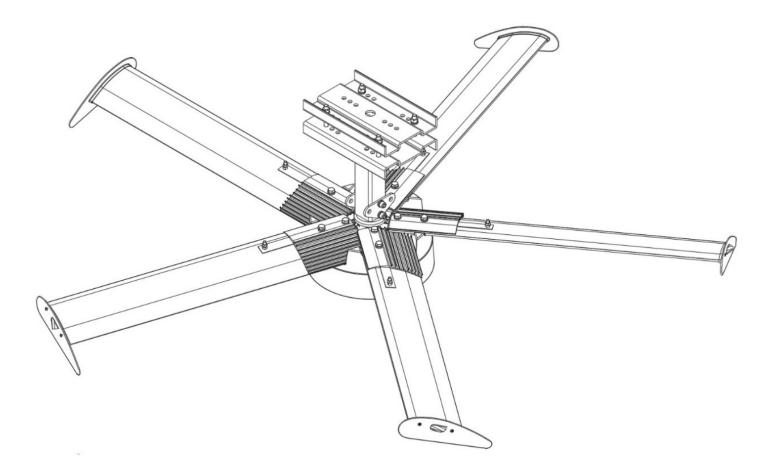
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Installation Guide

Type/Model to be installed: Model PA-M1



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Important Safety Instructions: Please Read And Save These Instructions

For reducing the risk of fire, electric shock or personal injury, please abide by the following points:

CAUTION: Installation and wire connection must be operated by qualified personnel in accordance with all proper regulations and standards.

- CAUTION: The fan must be mounted with a minimum of 10ft (3.05m) clearance from the trailing edge of the blades to the floor.
- CAUTION: When cutting or drilling ceiling, please do not damage wire and other hidden water piping and circuits of appliance.
- CAUTION: Only use this unit by the method instructed by manufacture. If there is any problem, please contact manufacture.
- WARNING: Before repairing and cleaning unit, please turn off the power of repair panel, and lock the repair cut-off device, in order to prevent accidental power-on. If the repair cut-off device cannot be locked, please fix obvious warning sign (such as label) on repair panel.
- CAUTION: Installation of brushless big fan must be in accordance with requirements specified by this Installation Guide and abide by requirements of National Electrical Code (NEC) and all local regulations. Finally, guaranteeing compliance is your responsibility. Not abiding by relevant regulations may cause personal injury or property loss.
- CAUTION: When fan is powered on, please be cautious to use common sense. Please do not connect fan to damaged or dangerous power supply. Please do not try to solve circuit problem or trouble by yourself. If you have any problem about installation of this fan, please contact Propel Air Fans.
- WARNING: For reducing risk of fire, electrical shock or personal injury, brushless big fan must be installed with controller (proper model is marked on package box) provided by PA-M1 simultaneously. Other components cannot be replaced.
- CAUTION: When overhauling or changing fan components, a safety equipment needs to be dismantled or cut, this safety equipment must be re-installed or returned to original position.
- WARNING: During cleaning and repairing of tester, there could be risk of fire, electrical shock or personal injury! Please turn off fan power before repairing.
- CAUTION: When installing, adjusting or repairing, please do not bend fan blades. Please do not insert any foreign substances when fan blades are rotating.
- WARNING: When installing fan, please stay alert and use common sense. When influence of fatigue or drug, alcohol or medicine does not subside, please do not install fan. Any carelessness during installing fan may cause serious personal injury.
- CAUTION: When installing this fan, some electrical tools require to be used. Please abide by safety regulations in operation manual of every tool. Do not use tools for other purpose without manufacture's instruction.
- CAUTION: Warranty of brushless big fan does not cover equipment damage or trouble caused by incorrect installation.
- WARNING: This circuit is not suitable for persons (including children) with reduced physical, sensory or mental capabilities or lack of relevant experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance in a safe way by those who are responsible for their safety. Children should be supervised, in order to ensure they cannot play with appliance.
- PLEASE BE CAUTION: If the fan is installed in the USA, installation must abide by the following guidance of National Fire Protection Association (NFPA):
 - Fan must be located in the center of four (4) adjacent fire sprinklers.
 - The vertical distance between fan and flow deflector of fire sprinkler should be no less than 3 ft (91.4 cm).
 - Fan must be interlocked, it can immediately be turned off when receiving water flow signal of alarm system.
- WARNING: If fan abnormally swings, please immediately stop using overhead fan and contact manufacture, maintenance agent or qualified personnel.

WARNING: Components of safety hanging system device should be replaced by manufacture, maintenance agent or qualified personnel. Installation of hanging system should be operated by authorized agent of brushless fan and corresponding qualified personnel.

DO NOT USE THIS FAN IN SALTY ATMOSPHERE ENVIRONMENT!

SAVE THESE INSTRUCTIONS!

Specifications Parameters

Model	PA-M1
Fan Diameter (M)	7.15
Min/Max Speed (RPM)	25/50
Load Current (A)	1A/6A
Single Phase Voltage (V)	220-240
Frequency(Hz)	60
Maximum energy consumption (W)	1180
Max Affected Area (m2)	1300
Wind Volume at Max Speed (m3/min)	14900
Noise Level (dB)	<40
Fan Blade	5
Weight of Fan (kg)	69

Pre-Installation Components Inspection (1)

Inspect Components:

CAUTION: Before hanging fan, please do not dismantle protection package of fan unit.

CAUTION: If you ordered multiple fans, please ensure that the all components of every fan are put together!

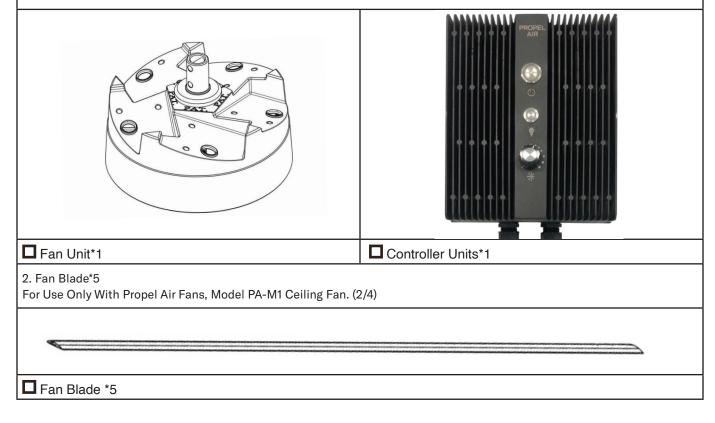
The following diagram is not zoomed in/out according to scale. All boxes should have stickers, in order to show the packed contents.

Fan is packed into four (4) boxes when sending, which are:

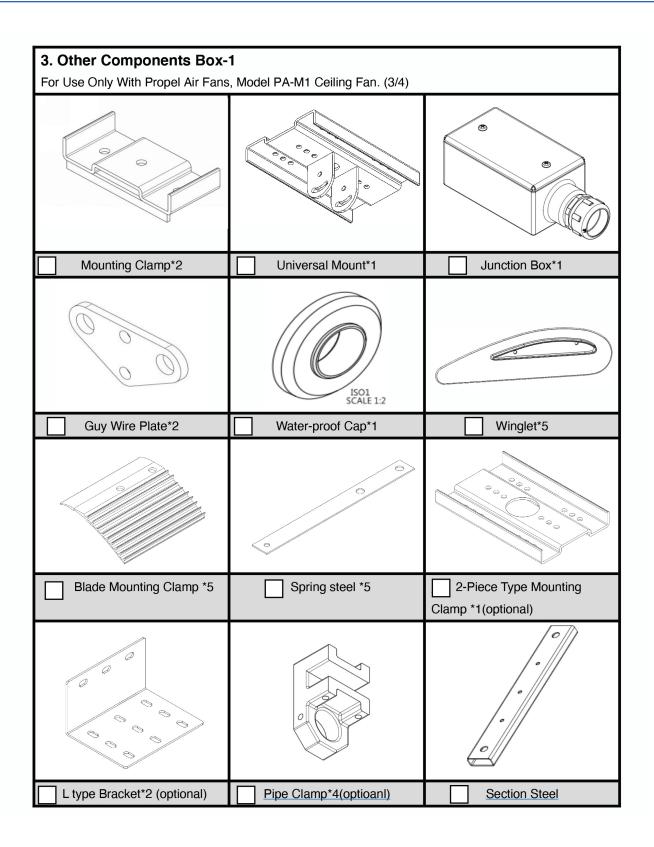
- 1. Main Box: Fan Unit*1,Controller Units*1 (PA-M1 motor and Controller Units)
- 2. Fan Blades Box: Fan Blade*5 (PA-M1 blades)
- 3. Other Components Box: Mounting Clamp 2, Universal Mount*1, Extension*1, Guy Wire Plate*2, Airfoil*5, Galvanized Hex Bolt M12*60 (4 pieces), Galvanized Hex Bolt M12*100 (2 pieces), Galvanized Hex Socket Head Bolt M12*100 (2 pieces), Galvanized Hex Socket Head Bolt M12*100 (2 pieces), Galvanized Hex Bolt M12*60 (10 pieces), Galvanized Spring Washer M12 (20 pieces), Galvanized Iron Washer M12 (30 pieces), Galvanized Nylon Hex Lock Nut M12 (10 pieces), Self-tapping Screw 4*20(10 pieces), Guy Wire Clamp (16 pieces), Turn Buckle (4 pieces) Blade Mounting Clamp *5–Spring steel *5–Junction Box*1 (PA-M1 components)
- 4. Extension Units Box (PA-M1 Extension Units)

1. Main Box*1

Propel Air Fans, Model PA-M1 Ceiling Fan. (1/4) To Complete This Ceiling Fan, Parts Are Shipped In Separate Cartons. Cartons Containing These Parts Are Marked To Indicate Suitability With This Model.



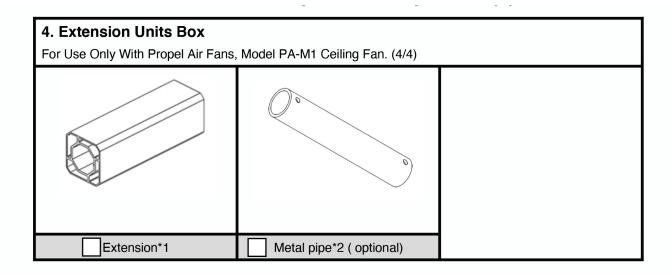
Pre-Installation Components Inspection (2)



Pre-Installation Components Inspection (3)

3.Other Components Box-2				
Hex Bolt: M12*60 (4 pieces);M12*100 (2 pieces)				
Hex Socket Head Bolt (M12): M12*100 (2 pieces)	Hex Socket Head Bolt (M12): M12*110 (2 pieces)	Hex Bolt (Nylok): M12*60 (10 pieces)	Self-tapping Screw (M4): M4*20 (10 pieces)	
Nylon Hex Lock Nut: M12 (10 pieces)	Turn Buckle: 3/8 (4 pieces)		Guy Wire Clamp: 3/16 (16 pieces)	

Pre-Installation Components Inspection (4)



Total Weight: 152 LBS

(Net Weight: Fan Unit + Blades + Components, not including extension and controller unit)

Required Tools	
Mechanical Installation	Appliance Installation
Standard and Metric Wrench Kit	Phillips Screwdriver and Flat- head Screwdriver
Standard and Metric Screw and Ratchet Kit	10- 14 AWG Wire Stripper
Standard and Metric General Wrench Kit	Medium Pliers
60 NM Torque Wrench	Multimeter
Phillips Screwdriver and Flathead Screwdriver	
Metric General Hex Socket Head Screw	
Driller	
Steel Saw	
Level * 2	
Tape Measure	

(1) Installation Structure: I-Beam (Standard)

Required Components:

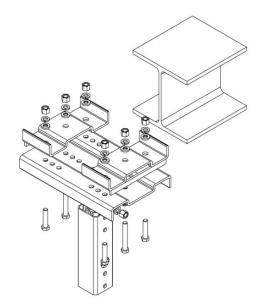
Mounting Clamp*2, Universal Mount*1, Extension*1, Hex Bolt (M12*60*4 pieces), Hex Bolt (M12*100*2 pieces), Nylon Hex Lock Nuts, Flat Washers, Spring Washers (Select according to site specification)

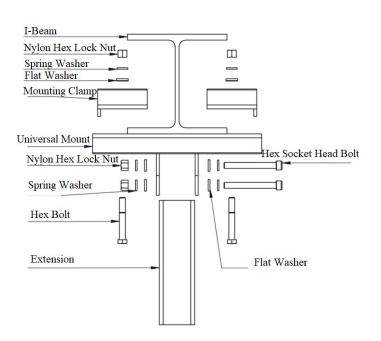
Installing Steps:

- 1. Attach the Extension to the bottom of the Universal Mount, then pre-tighten the Hex Bolts (M12*100*2 pieces).
- 2. After confirm installation position, position the Universal Mount under the I-Beam, assemble one Mounting Clamp with one side of the I-Beam and then pre-tighten them with Hex bolt, Flat Washer, Spring Washer and Nylon Hex Lock Nut. The above step will be repeated on the other side. Install other bolts and pre-tighten them. After finish, apply loctite to all bolts then tighten them all, torque to 60 NM. (Refer to Figure. 1) (overhead operation).

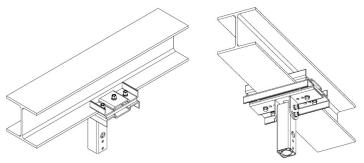
Caution: Before overhead operation, the safety helmet, safety clothing, safety rope and others should be worn, and equipment for climbing should be prepared, then all components to be installed need to be put in. When overhead operating, the safety rope must be confirmed to be fixed.

Breakdown Drawing: (Figure. 1)





Installation Diagram:



(1) Installation Structure: Square Steel Beam (Optional)

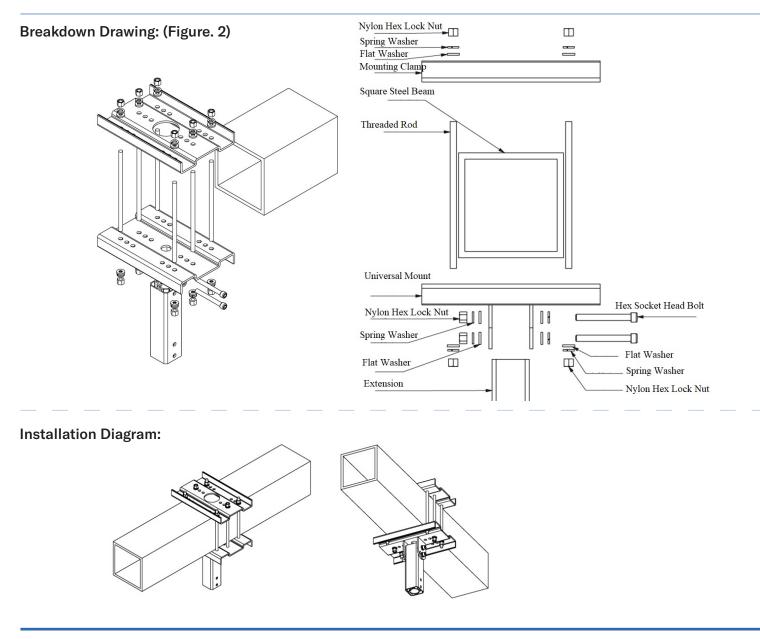
Required Components:

2-Piece Type Mounting Clamp*1, Universal Mount*1, Extension*1, Threaded Rods(M12), Flat Washers, Spring Washers, Nylon Hex Lock Nuts. (Select according to site specification)

Installing Steps:

- 1. Attach the Extension to the bottom of the Universal Mount, then pre-tighten the Hex Socket Head Bolts (M12*100*2 pieces).
- After confirm installation position, position the Universal Mount under the Square Steel Beam, assemble the Mounting Clamp with low edge of the Square Steel Beam and then pre-tighten them with Threaded Rod, Flat Washer, Spring Washer and Nylon Hex Lock Nut, and pre-tighten all Hex Nuts on the Threaded Rods. After finish, apply loctite to all bolts then tighten them all, torque to 60 NM. (Refer to Figure. 2)(overhead operation).

Caution: Before overhead operation, the safety helmet, safety clothing, safety rope and others should be worn, and equipment for climbing should be prepared, then all components to be installed need to be put in. When overhead operating, the safety rope must be confirmed to be fixed.



(1) Installation Structure: Cement Beam (Optional)

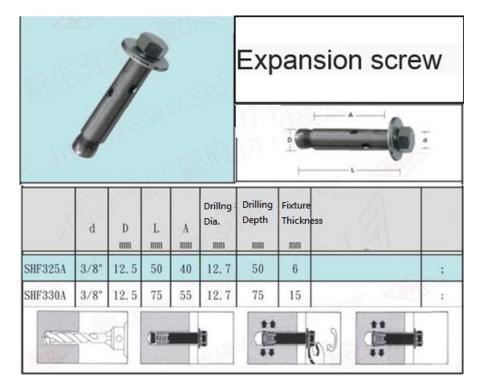
Required Components:

LType Bracket*2, Universal Mount*1, Extension*1, Expansion bolt/screw (PROPEL Suggests specifications and customers purchase by themselves), Flat Washers, Spring Washers, Nylon HexLock Nuts, Hex Bolts. (Select according to site specification)

Installing Steps:

- 1. Attach the Extension to the bottom of the Universal Mount, then pre-tighten the Hex Socket Head Bolts (M12*100*2 pieces).
- 2. After confirm the installation position of the LType Bracket, drill holes and install expansion screws 3/8" according to Figure.3

Suggestions of the Expansion bolt:

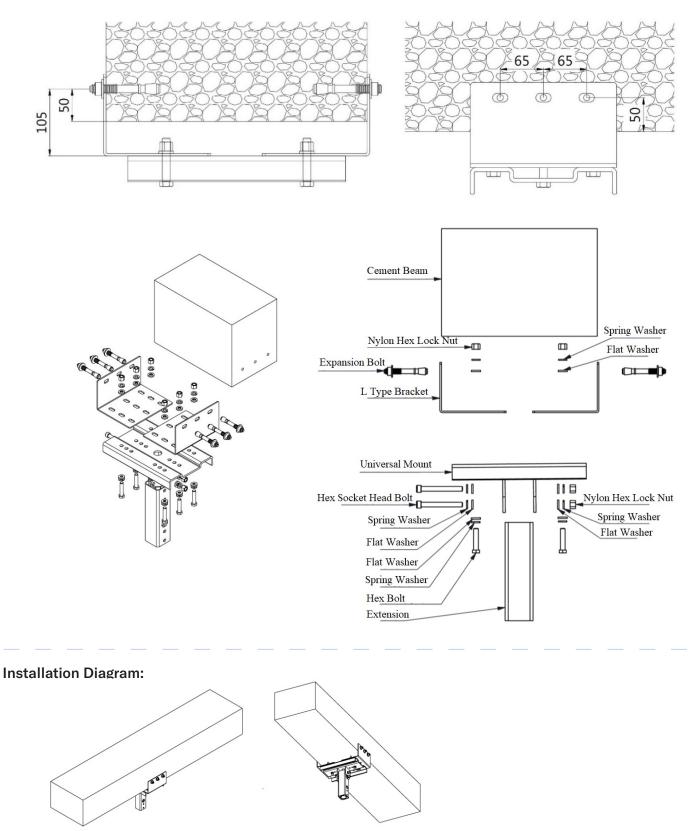


3. Attach the LType Bracket to one side of Cement Beam and fix the LType Bracket on the Cement Beam with the Expansion Bolts, the above step will be repeated on the other side of Cement Beam (bottoms of 2 LType Bracket should be leveling). Position the Universal Mount under 2 LType Brackets with Hex Bolts pre-tighten. After finish, apply loctite to all bolts then tighten them all, torque to 60 NM. (overhead operation).

Caution: Before overhead operation, the safety helmet, safety clothing, safety rope and others should be worn, and equipment for climbing should be prepared, then all components to be installed need to be put in. When overhead operating, the safety rope must be confirmed to be fixed.

Breakdown Drawing: (Figure.3)

LType Bracket drilling position (unit: mm)



(2) Installing Main Machine: Fan Unit

Required Components:

Extension*1, Guy Wire Plate*2, Fan Unit*1, Hex Socket Head Bolt (M12*80*4 pieces), (M8*16*4 pieces), Hex Nut, Washer, Spring Washer(M12*2), Turn Buckle(3/8*4 pieces), Guy Wire Clamp (3/16*18 pieces), Pipe Clamps*4 pieces(optional) Metal Pipes*2 pieces(optional) stainless-steel screws (M8*30*12 pieces, not supply) Carabiner*4 pieces (not supply) expansion eye nut screw *4 pieces (, not supply) guy wire (Dia.:5mm(dia.1.5mmX7)*4 pieces, not supply)

Installing Steps:

1. Before installation, check whether the Fan Unit is damaged or deformed.

This step requires two people to work. Insert the main axis of Fan Unit into the Extension, put the Guy Wire Plates on both sides, then attach washers to outside of Guy Wire Plates, insert Hex Socket Head Bolts, tighten Hex Nuts to finish it, torque to 42.14N/m. (Overhead operation) (Refer to Figure.4-1&4-2)

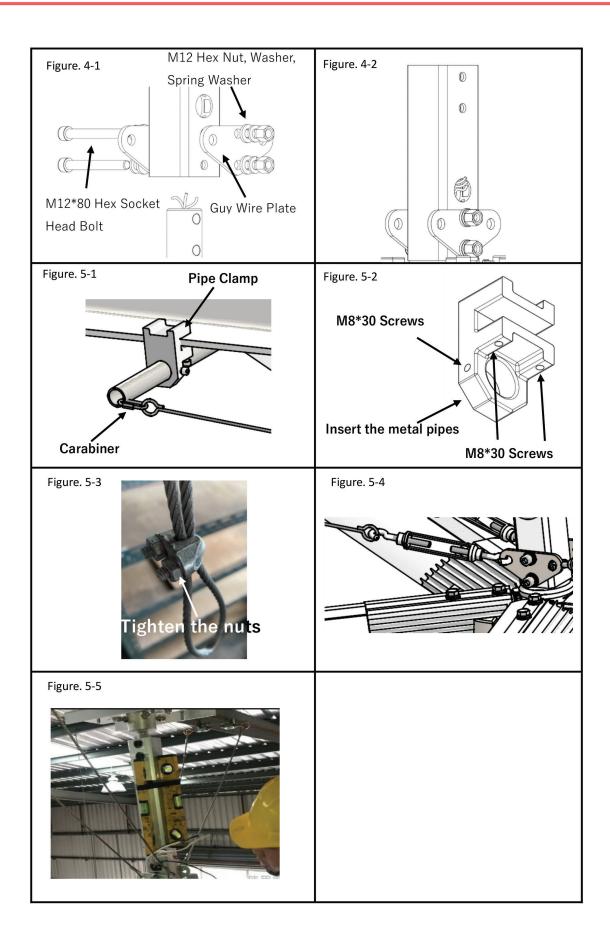
2. Install the wire:

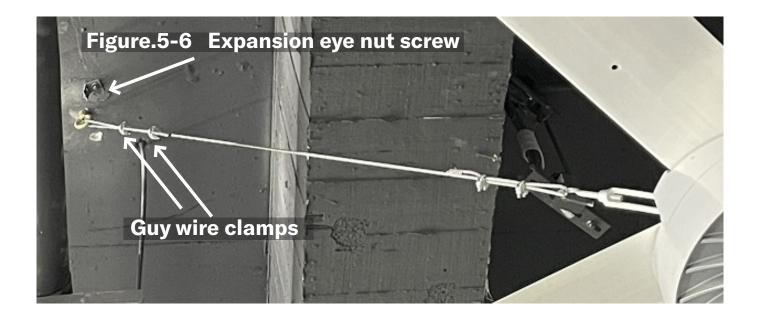
When the installation structure is an I beam, lock the Pipe Clamps on the I beam in a proper position (Figure 5-1), insert the metal pipes into the Pipe Clamps and tighten the screws (Figure 5-2). Make circles with two guy wire clamps on both ends of the guy wire in advance (Picture 5-3). Thread one end of the Turn Buckle through hole of the Guy Wire Plate, thread the other end through the guy wire (Figure 5-4). The carabiner hooks the guy wire to the pipe clamps (Figure 5-1). Use Level to measure and adjust the extension and guy wire, after confirming Guy Wire Plate to keep straight and parallel, tighten Hex Nuts to finish it, torque to 42.14N/m. (Overhead operation) Repeat the above actions to complete the installation of the other three cables. (Figure 5-5)

When the installation structure is a square steel beam make circles with two guy wire clamps on both ends of the Guy Wire in advance (Picture 5-3). Thread one end of the Turn Buckle through hole of the Guy Wire Plate, thread the other end through the Guy Wire (Figure 5-4). According to conditions, directly wind the guy wire around the beam and fix it with guy wire clamps; or lock the guy wire to the steel beam with the pipe clamps (Figure 5-2). Use Level to measure and adjust the extension and guy wire, after confirming Guy Wire Plate to keep straight and parallel, tighten Hex Nuts to finish it, torque to 42.14N/m. (Overhead operation) Repeat the above actions to complete the installation of the other three cables. (Figure 5-5)

When the installation structure is a cement beam make circles with two guy wire clamps on both ends of the Guy Wire in advance (Picture 5-3). Thread one end of the Turn Buckle through hole of the Guy Wire Plate, thread the other end through the Guy Wire (Figure 5-4). Lock the guy wire to the cement beam with expansion eye nut screws (Figure 5-6) Use Level to measure and adjust the extension and guy wire, after confirming Guy Wire Plate to keep straight and parallel, tighten Hex Nuts to finish it, torque to 42.14N/m. (Overhead operation) Repeat the above actions to complete the installation of the other three cables. (Figure 5-5)

3. Apply loctite to every bolts. (Overhead operation)





(3) Installing Fan Blades: Installation of Fan Blades

Required Components:

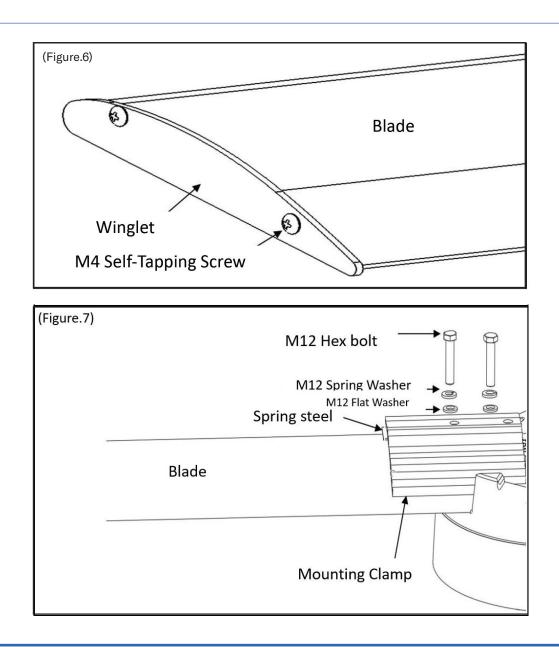
Fan Blade*5, winglet*5, Aluminum Mounting Clamp*5, Clamp Washer*5, Self-Tapping Screw (M4*20*10 pieces)

Installing Steps:

Before installation, check whether the blades are bent, deformed or warped. If there is any abnormality, please do not install it and contact the dealer. Tighten winglets to fan blades with screws, torque to 3.5 NM, (Figure.6). Assemble them with fan unit by overhead operation (Figure.7). Avoid scratching surfaces of fan blades when installing fan blades, apply loctite to all screws.

Caution: When installing one fan blade, the other person needs to support fan blade to prevent fan blade from sliding, the rest fan blades need to be installed by diagonal way.

Caution: The minimum distance from the edge of the fan blade to the obstacles which are above or below the blades should totally exceed 30 cm. The minimum distance from the trailing edge of the blades to a wall or other obstruction should be no less than 1 meter.)



(4) Installing Cables: Connect to Main Machine, Lay out Control System Circuit

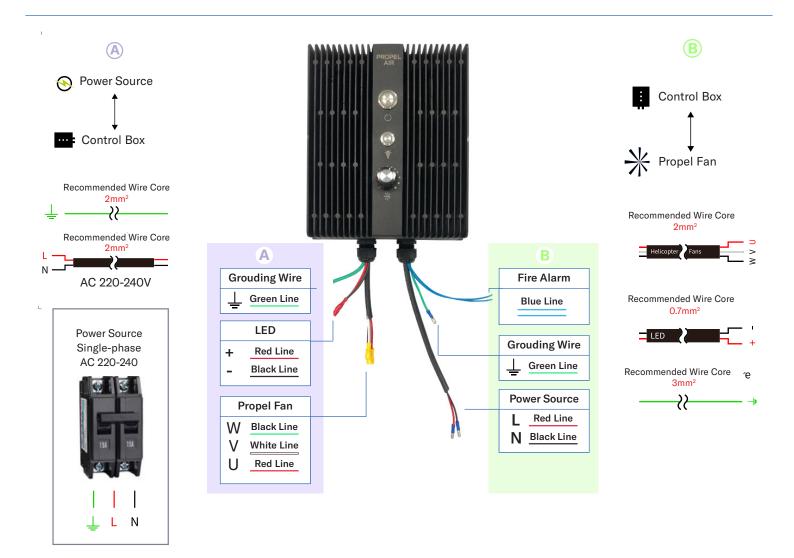
Required Components:

Cables, Cable Clamps, Electrical Tape, Wire Nuts, Liquid tight conduit fitting (3/4", not supply) Liquid Tight Flexible Metal Conduit (3/4", not supply), grounding wire(10AWG 105°C 600V 3.55Ω/KM, not supply), Interconnecting cord(Type SJT or above, 14AWG X3C, not supply)

Wiring Steps:

The single-phase AC 220-240 V power source is from a branch circuit, which comes from a circuit breaker in the panel board of the building. The fixed wiring cable is routed though the cable grand into the control box. The live wire (L/black wire) and the natural wire (N/ white wire) are connected to the L and N of the terminal block in the control box. The grounding wire (yellow-green) is connected to the grounding screw marked with a grounding symbol in the control box. The cable of U, V, W wires from the output terminal block and the ground wire on the grounding screw are connected to the motor junction box. (Figure 8) When stripping cable, do not cut the copper wire. Based on corresponding cable colors on the Main Machine connect the cables to the junction box, with the listed wire nuts. All wiring methods shall be made in accordance with the National Electrical Code (NEC) (the junction box refer to the Figure.9-1) Caution: When installing one fan blade, the other person needs to support fan blade to prevent fan blade from sliding, the rest fan blades need to be installed by diagonal way.

Caution: The length of the grounding wire, from the control box to the motor junction box, cannot exceed 20 Meters.



Caution: Method of threading cables into Extension is shown as follow (Figure.10-1, Figure.10-2), remember to prevent circuit from contacting screws.

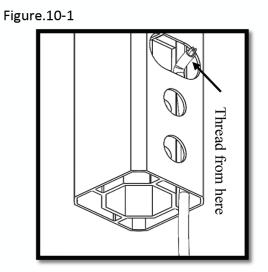
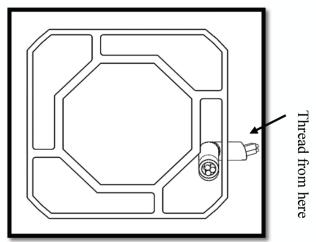


Figure.10-2



(5) Installing Control System: Preparation, Installation and Test

Required Components:

Controller Box, Level, Electrical Driller, Multimeter, cable(not supply) section steel M6X16 expansion screw 5/16" (not supply) or 5/16" screw (not supply)

Installing Steps:

- To fix the electric control box on the section steel with 3 pieces of M6X16 screws, and then to screw the section steel on the wall with 2 pieces of expansion screws 5/16" (or 5/16" screws, according to the material of the wall). Use level to measure levelness, mark the hole positions, use driller to make holes. (Figure.11)
- 2. Cables shall be stripped and connected to control system, and connect cables to control system according to corresponding circuit colors (Figure.12)
- 3. Use Multimeter to measure after finish, turn on circuit breaker and power it on, turn on fan for test, counterclockwise rotation direction is forward direction. Test fan for 15 minutes to observe whether the sound of product is normal, confirm whether current is within rated range, and confirm the distance between fan and obstruction when fan is running, in order to guarantee the safe distance when fan is running (The minimum distance from the edge of the fan blade to the obstacles which are above or below the blades should exceed 30 cm. The minimum distance from the trailing edge of the blades to a wall or other obstruction should be no less than 1 meter.). Apply loctite to every bolts. (Overhead operation)

Caution: Reference the Instruction for connection methods under different circumstances.

(6) Arranging the Site Environment: Clean Environment

Remove stuff from the site, place equipment in order, correctly check tools and clean

Required Tools

Environment	Conditions
Installation Site	Interior
Ambient Temperature	"0~40°C For increasing product re- liability, please use this product at the place where temperature cannot rapidly change
Humidity	Below 95%RH
Environment	The place without corrosive gas and flammable gas
Altitude	Below 1000m

Operating Instructions

Before operating equipment, please carefully read product manual, and remove obstruction in operation zone to ensure there is enough safe distance for fan running.

WARNING: Before maintaining and repairing any appliance and fan, please ensure to turn off power, and operate by professional personnel to avoid injury caused by electrical shock.



- I. Power button: Turns the unit ON/OFF
 - 1. Ensure that there are no obstacles or potential hazards in the operating space.
 - 2. Check mains electricity and unit specification are compatible.
 - 3. Ensure that the fan speed dial is set on slow (speed dial pointing towards bottom left)
 - 4. Press Power Button to start the unit.
 - 5. To turn OFF the unit when it is on, press Power Button.
 - 6. Do not disconnect power supply when unit is operating. Turn ON or turn OFF the unit by pressing power Button only.
 - 7. Do not turn ON unit until the fan blades have completely stopped.
- II. (2) LED Light button: Turns the light ON/OFF
 - 1. Press LED Light button to turn ON light.
 - 2. To turn OFF light when it is on, press LED Light button.
 - 3. Light can be turned ON simply by pressing LED Light button (i.e., The Power button does not need to be turned ON).
- III. (3) Speed control: Fan speed dial
 - Fan speed is adjustable only AFTER the unit has been turned ON for at least TWO minutes,
 - 2. otherwise it may come to an emergency stop.
 - 3. 2. After TWO minutes of operation, user can adjust fan speed.

New Product Warranty

Propel Air Fans promises to replace any defective Products within 7 working days from arrival date, according to arrival notice provided by freight agent, detailed regulations are shown

as follow:

1.1 Package of Returned Products:

Products shall be returned with original package, and shall include all components of Products. Otherwise, Propel Air Fans could collect "Repackage Fee", when returned Products are received.

1.2 Dead On Arrival (DOA):

1.2.1 Products shall be only confirmed as DOA, when there are defects on arrival and trouble which is not caused by abnormal use of Products, damage during freight or unauthorized repair.

1.2.2 Propel Air Fans has full authority to determine whether damage is caused by natural disasters, misuse, unauthorized modification or repair, or external forces (including but not limited to power interference, main machine failure, not turning off equipment power during installing, and incorrect wire connection) at discretion. These cases will be determined as standard Products maintenance service cases, and should abide by procedure Products maintenance service/RMA.

1.3 Freight Fee:

1.3.1 Propel Air Fans will arrange freight of Products confirmed as DOA by Propel Air Fans , and will pay two-way freight fee.

1.3.2 If Propel Air Fans does not confirm Products as DOA, this case will be determined as standard Products maintenance service case, client needs to pay two-way freight fee.

1.4 Maintenance Fee:

If there is maintenance fee, Propel Air Fans shall send a piece of invoice which lists all fee items, and repair by client's approval.

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