ANEMOI®

AIRSLIM [M]

Installation Manual

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ANIM10FI Rev. F

UPDATES		
DATE	**UPDATE**	**DESCRIPTION**
29 / 01 / 2019	A	First Edition
02 / 05 / 2019	B	Incorporation Model 250M
13 / 05 / 2019	C	Update Technical Characteristics
17 / 06 / 2019	D	Update Technical Characteristics
02 / 09 / 2019	E	Wiring installation recommendations
29 / 01 / 2020	F	Update Technical Characteristics

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SAFETY

Before the installation, read the following warning and caution instructions:

WARNING!

Do NOT install, repair or clean the fan while it is in operation or connected to the power supply. Failure to do so may result in serious injury or death.

Do NOT install, handle, repair or clean the fan with wet hands. Failure to do so may result in serious injury or death.

Do NOT use wires with worn or damaged insulation. Doing so may result in serious or fatal electrical shock, fire or other accidents.

Ensure that the wires are held securely and protected from abrasion, chaffing, overload or other damage. Risk of serious or fatal electrical shock, fire or other accidents.

Turn Off power to the fan if you detect any damage. Risk of serious or fatal electrical shock, fire or other accidents.

Do NOT connect a damaged fan to the power supply. Risk of serious or fatal electrical shock, fire or other accidents.

CAUTION!

Use proper lifting equipment to handle the motor and blade boxes. Otherwise, the fan could be damaged and there is risk of accident.

Follow the instructions and recommendations contained in this manual carefully. Failure to do so may result in incorrect installation.

1 INTRODUCTION

The Anemoi AIRSLIM [M] fans have been designed to generate a huge volume of air from the ceiling in industrial and commercial installations with roofs around 7m high.

This low consumption fan is used to increase comfort in summer by generating a smooth breeze and also in winter using the heat located in the top coats of the building.

The main features are:

- Aluminium blades with matte black end caps.
- Integrated drive fixed to the down rod extension.
- Modbus RS485 connection for controller.
- Fire alarm stop as a NC relay.
- 24VDC generated by the drive.

In addition, in combination with the traditional air conditioning systems, the use of fans allows generating important energy savings of up 45% in winter and 25% in summer.

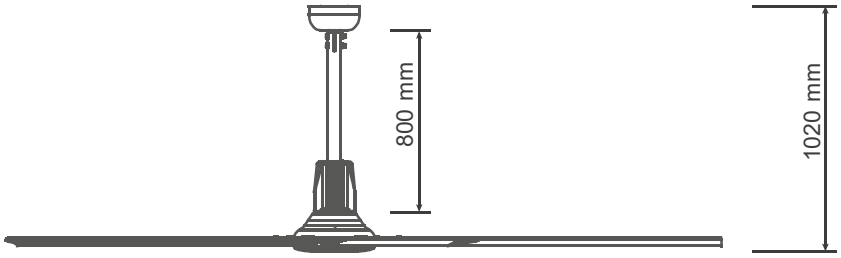
2 TECHNICAL CHARACTERISTICS

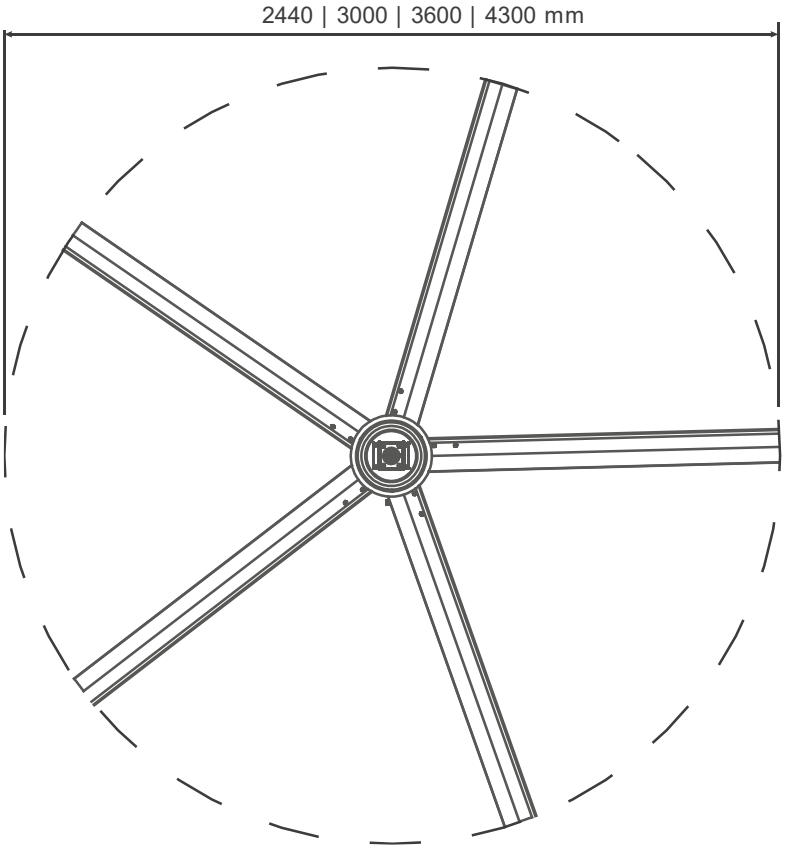
	AIRSLIM 300M	AIRSLIM 350M	AIRSLIM 400M
GENERAL CHARACTERISTICS			
Diameter	3m	3.6m	4.3m
Blades number	5 aluminium blades		
Standard colour	Black matte colour and aluminium blades		
MOTOR CHARACTERISTICS			
Motor power	240W	240W	240W
Supply voltage	110VAC – 240VAC single phase, 50/60 Hz		
Maximum consumption	155W	240W	190W
Maximum consumption (A)	0.74 A	0.93 A	0.83 A
Maximum speed	112rpm	98rpm	74rpm
Protection degree	IP20	IP20	IP20
Sound level	< 40dBA	< 40dBA	< 40dBA
Total weight	29kg	32kg	35kg
Operating temperature	-10ºC / +60ºC without derating		
Motor type	Permanent magnet motor connected by Modbus RS485		
FAN PERFORMANCE			
Airflow*	109,320m3/h	163,145m3/h	192,288m3/h
Recommended coverage**	364 m²	544 m²	641 m²
Maximum coverage***	510 m²	762 m²	897 m²
CONTROL			
Controllers	Magnocontrol		
OPTIONS			
Extensions	Optional rod extensions of 500, 800, 1000, 1500 & 2000 mm		
Colour	Optional paint or hydroprinting		
Controller	Slimcontrol or Magnocontrol 10-25		
REGULATION			
Certifications	CE, CB for local IEC certification		
Directives	2006/42/CE 2014/35/EU		
Design and construction	IEC 60335-2-80 EN 60335-1 EN 62233		

* Following AMCA 230-99 * Air Speed > 0.5 m/s ** Air Speed > 0.2 m/s

3 DIMENSIONS

The Anemoi AIRSLIM [M] comes in four different diameters. The height of the fan can also be adjusted by modifying the length of the extension bar. The following figure shows the dimensions of the fan with a standard extension of 800 mm:





4 DELIVERY

The Anemoi AIRSLIM [M] fan is delivered in two wood boxes, one including the motor parts and the other the blades. Handle the fan boxes carefully and with proper lifting equipment to avoid any damage.

CAUTION!

Use proper lifting equipment to handle the motor and blade boxes. Otherwise, the fan could be damaged and there is risk of accident.

4.1 Package Dimensions & Weights

The dimensions and weights of these boxes are listed in the following table:

Model	Box	Width (mm)	Depth (mm)	Height (mm)	Weight (kg)
AIRSLIM 300M	Motor	600	600	300	25
	Blades	2100	420	190	16
AIRSLIM 350M	Motor	600	600	300	25
	Blades	2100	420	190	19
AIRSLIM 400M	Motor	600	600	300	25
	Blades	2100	420	190	22

4.2 Packing List

The following tables include the different pieces sent inside the boxes. Please check the status and quantity of the fan equipment and the supporting parts immediately after you have opened the box to make sure that the goods received are in accordance with your order. If parts are missing or damaged, please inform our company's responsible person immediately for revision.

Motor Box:

No.	Component name	Cantidad
1	Motor	1 pc
2	Ceiling bracket	1 pc
3	Ceiling trim	1 pc
4	Control board	1 pc
5	Lower engine cover	1 pc
5	Steel safety cable	1 pc
6	Installation manual	1 pc
7	Screws	Check below

The motor box also includes the following screws:

Screw standard	Qty
Screw M10x70	4
Nut M10x70	4
Ring clamb for for the safety cable	2
“U-shaped” clamps for the control plate	2
Screw M6 for the “U” form clamp	4
Screw M6x25	10
Nut M6	10
Washer M6	20

Blades Box:

No.	Component name	Qty
1	Fan Blade	5 pcs
2	Extension rod	1 pc

5 MECHANICAL INSTALLATION

CAUTION!

Follow the instructions and recommendations contained in this section carefully. Failure to do so may result in incorrect installation.

The Anemoi AIRSLIM [M] fan is designed for ceiling installation. Ensure that the ceiling area chosen can hold the weight of the fan and that there are no obstacles in its operating range. The maximum weight of the fan is about 30 kg.

Before installing the fan, it is necessary to sign and protect the working area to prevent anyone from going under the fan. It is recommended to fence at least four meters around the lifting equipment.

Follow any national or local regulation regarding installations in height.

SAFETY!

Ensure that the ceiling area chosen can hold the weight and torque of the fan, and that there are no obstacles in its operating range. Failure to do so may result in equipment damage or accident.

Ensure sign and protect the working area. Failure to do so may result in serious injury or death.

Ensure following any national or local regulation. Failure to do so may result in serious injury or death.

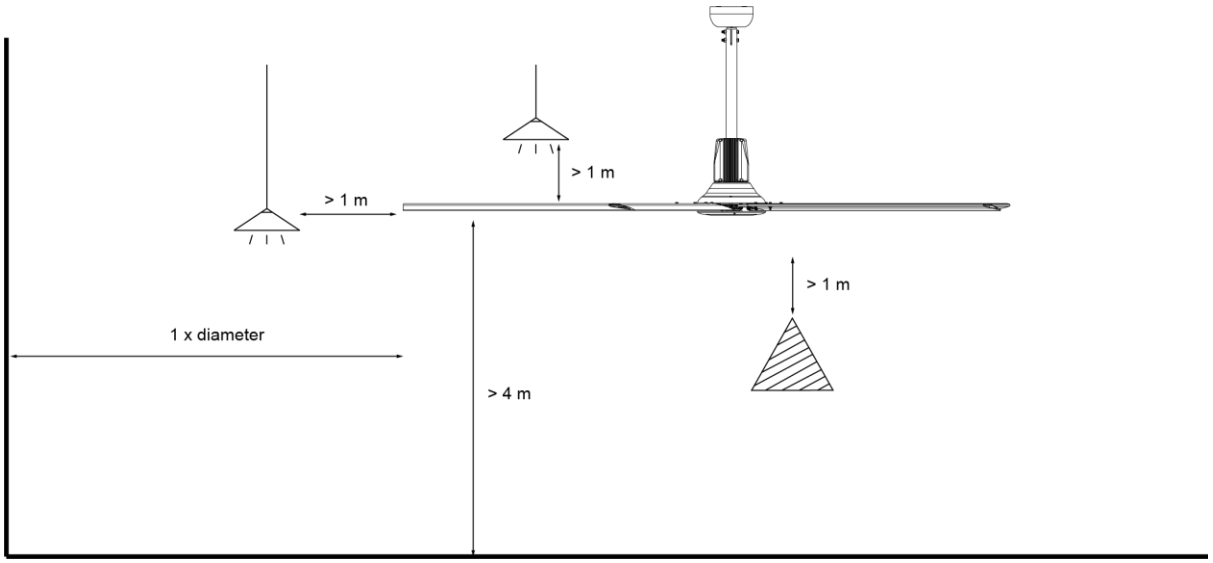
Do NOT install the fan while it is in operation or connected to the power supply. Doing so may result in serious or fatal electrical shock.

5.1 Clearances

In order to ensure the maximum coverage of the Anemoi AIRSLIM [M], 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 considered before installation, ensuring that the fan has an appropriate clearance in all directions when running.

If there are lamps above the fan blades, change their position if necessary, to avoid the strobe effect. Ensure that the fan is installed at a height greater than four meters.

The next figure shows all clearances:



If the fan is installed in an inclined roof, ensure that these minimum distances are achieved and add a higher extension rod if necessary, to allow the fan take enough air and provide the maximum performance.

CAUTION!

Ensure that the minimum distances are achieved. Otherwise, the fan could be damaged.

It is recommended to protect the fan if there is the possibility to receive impacts.

CAUTION!

Protect the fan if there is the possibility to receive impacts. Otherwise, the fan could be damaged.

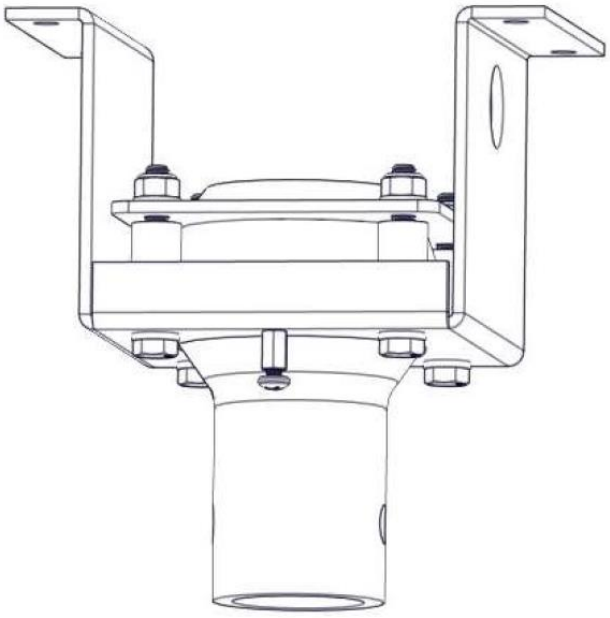
5.2 Installation Tools

To install the fan, ensure having the following required tools:

No.	Name	Quantity
1	14mm fixed wrench	2
2	10mm fixed wrench	2
3	Phillips screwdriver	1
4	Level ruler 300mm	1
5	Cutting pliers	1
8	Small Screwdriver	1
9	Wire stripper	1
10	Insulating tape	1

5.3 Ceiling Fixation

The Anemoi AIRSLIM [M] comes with mounting brackets to anchor the fan to the ceiling. The fan is prepared to be installed in inclined roofs.



5.4 Extension Rod Assembly

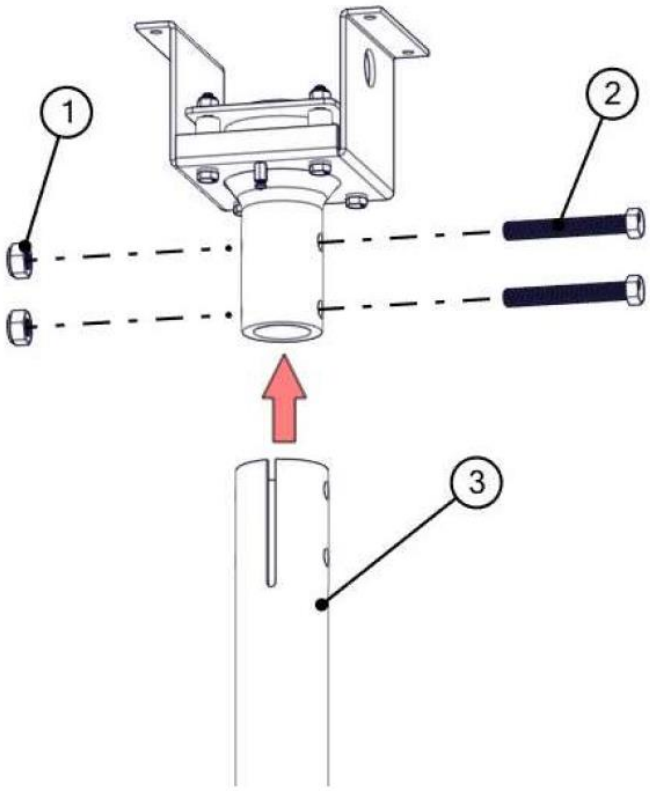
CAUTION!

Ensure that power cables, control cables and safety cable pass through the ceiling bracket and through the extension rod. Otherwise, the fan will be installed incorrectly.

Ensure to place the rectangular hole of the extension bar on the bottom. Otherwise, the fan will be installed incorrectly.

The extension rod is assembled to the ceiling fixation by the Screws M10 x70mm provided by applying a tightening torque of 37Nm. The extension rod has a rectangular hole in the side. This hole should be in the lower part closest to the motor.

The following figure shows how to attach the extension rod to the roof anchor.

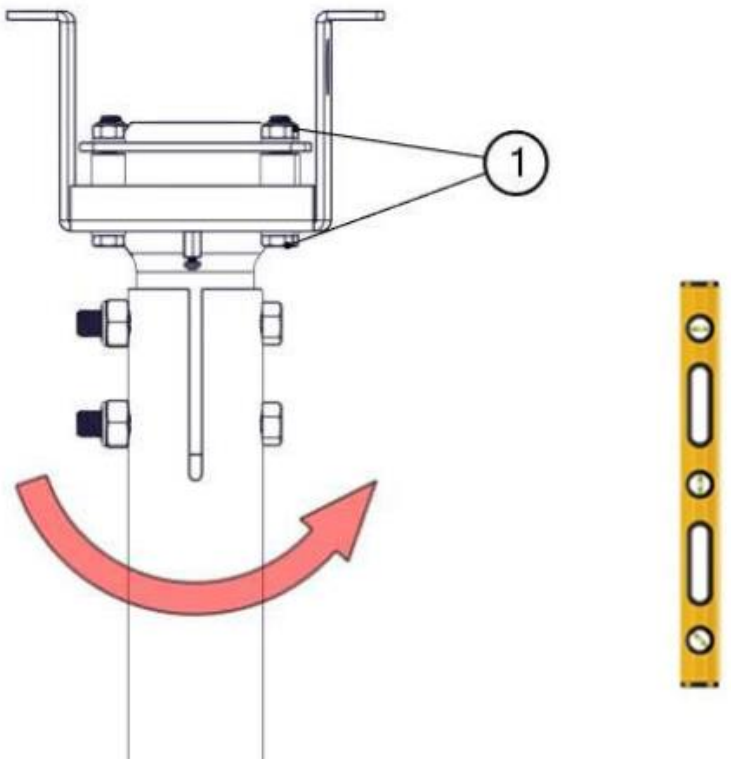


No.	Description
1	Lock nut M10
2	Screw M10x70mm
3	Extension Rod

CAUTION!

Ensure that the M10 motor/extension bolts are correctly fastened. Failure to do so may result in equipment damag.

Once the extension rod has been fixed to the roof fixing, the screws must be tightened to avoid the swinging of the extension. To do this, it is necessary to use 10mm wrench. Use a level ruler to make sure the extension rod is fully vertical.



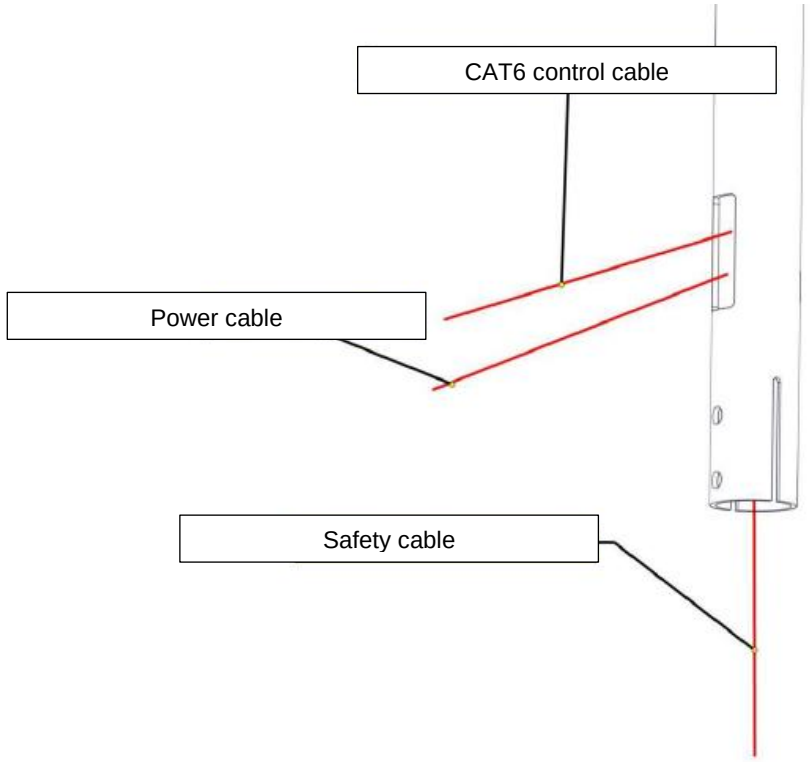
CAUTION!

Ensure that the extension rod is in vertical position and completely fixed. Failure to do so may result in equipment damage.

The length of the extension rod can be customized according to the installation requirements between 500, 800, 1000, 1500 y 2000 mm. The variation of the extension rod length allows adjusting installation height of fan.

If the extension rod exceeds one meter, winds must be installed to avoid oscillations. The variation of the extension rod allows adjusting the height at which the fan is installed.

The power cables, control cables and safety cable must pass through the ceiling bracket and through the extension bar. The power and control cables will exit through the side hole while the safety cable through the bottom. The following image shows the position of the cables:

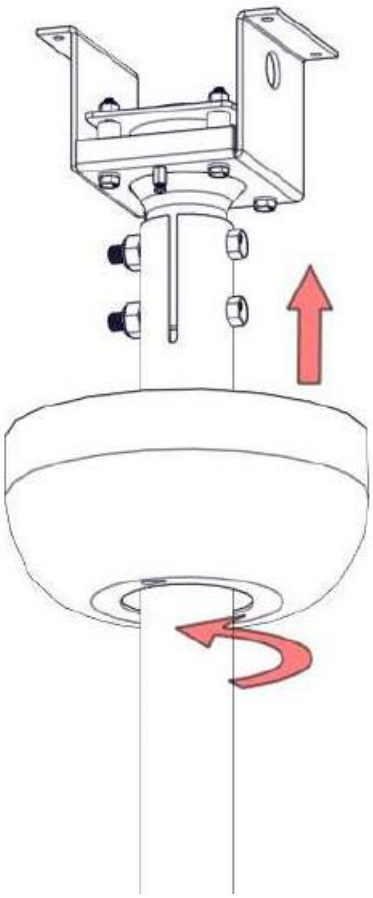


¡PRECAUCIÓN!

Ensure that the cables pass correctly through the specific holes and that their length will allow them to be connected on the control board. Failure to do so may result in equipment damage.

5.5 The cover

The mounting bracket of the ceiling of the fan Anemoi AIRSLIM [M] should be covered with a cover. To fix the cover, turn counterclockwise and tighten the two fixing screws as shown in the following figure:



5.6 Motor Assemby

CAUTION!

Ensure that the cables which pass through the top of the motor are on the same side as the rectangular window of the extension rod. Failure to do so may result in equipment damage.

Do not lift the motor weight alone. Failure to do so may result in serious injury or equipment damage.

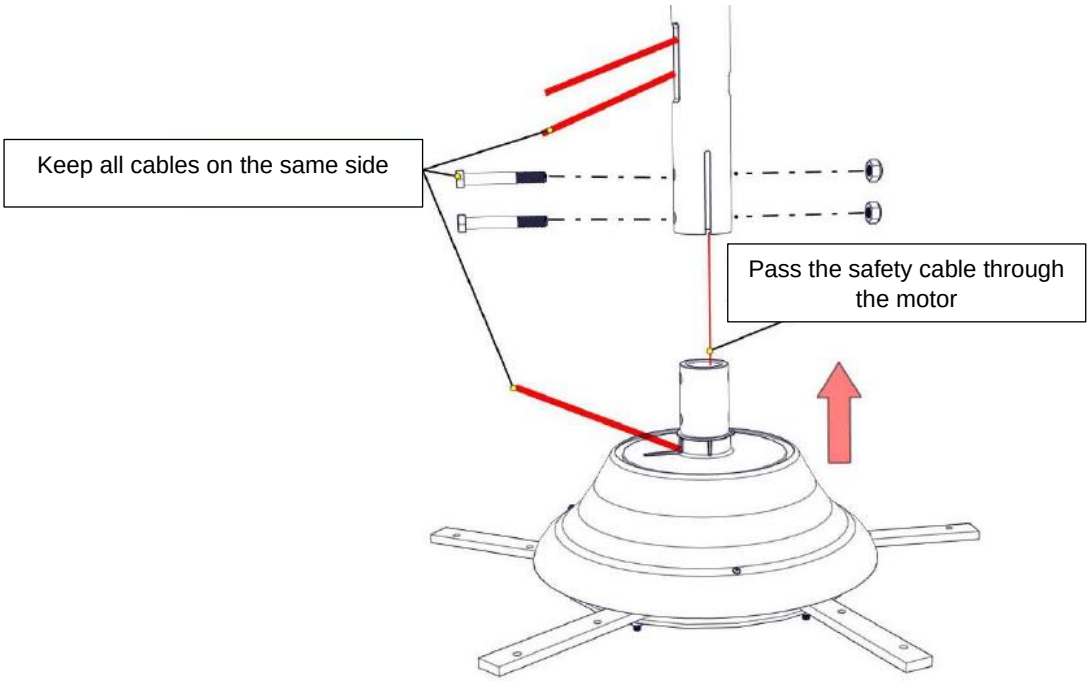
The motor is fixed to the extension rod by the Screws M10 x70mm provided by applying a tightening torque of 37Nm.

The cables coming out of the motor must be on the same side as the rectangular window of the extension rod.

The safety cable must pass through the motor through the center.

Due to the weight of the motor, it is recommended that it be raised by two people to avoid personal injury and damage to the fan.

The following figure shows the motor installation:



CAUTION!

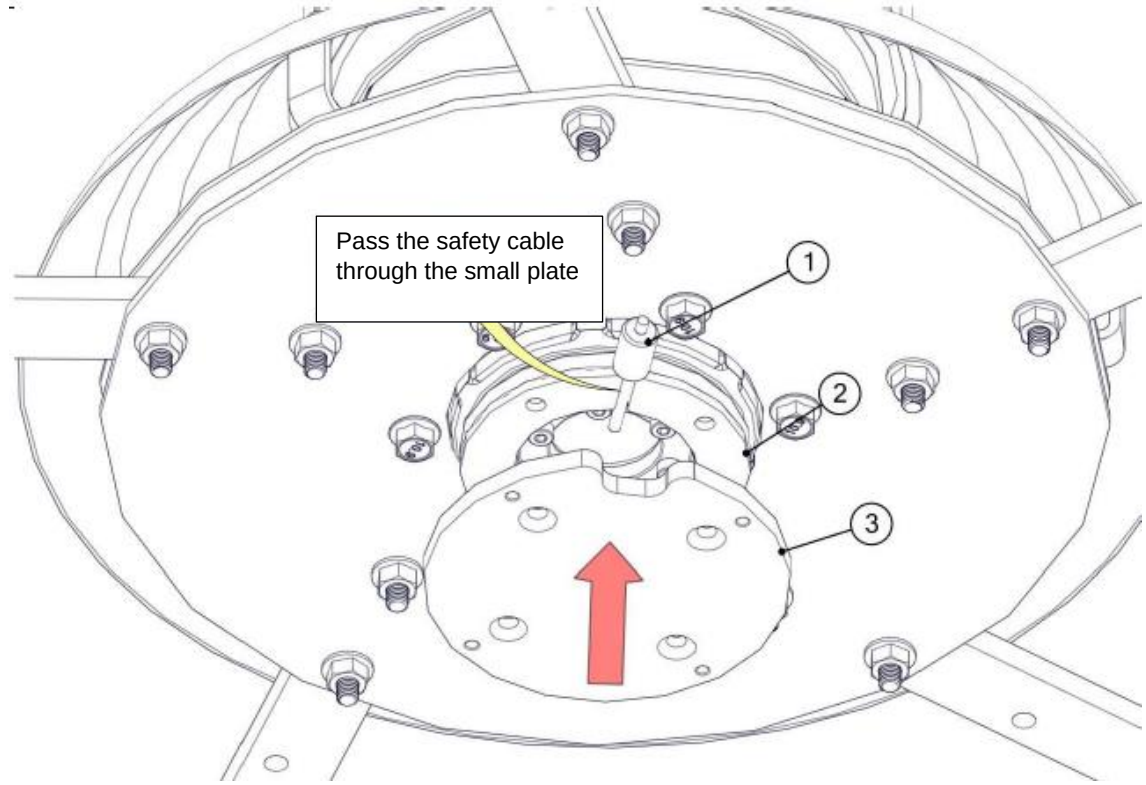
Ensure that the M10 motor/extension screws are correctly fastened. Failure to do so may result in equipment damage.

5.7 Safety Cable Installation

The motor box contains a steel safety cable that must be installed to protect the motor from falling once it is installed. Place the safety cable in a fixed element of the ceiling.

- If the fan is installed in a concrete ceiling, drill the ceiling and insert a ring that supports the weight of the fan at 20 to 30 cm from the fan's ceiling frame.
- If the fan is installed in a steel or concrete beam, put the steel safety cable around the beam forming a closed loop.

In the motor, the safety cable must be clamped with the two plates on the bottom. The cable will pass through the part that remains open of the plate with the smaller diameter and will be fixed by the larger diameter plate in the part of the hole. All this will be finally screwed with the M5x16mm screws provided as shown in the following image:



No.	Description
1	Cafety cable
2	Small plate with opening
3	Large plate with lateral notch

The safety cable must be fixed with the two cable clamps. The ring clamps are included in the motor box.

CAUTION!

Ensure that the safety cable is correctly installed to prevent the fan from falling. Failure to do so may result in serious personal injury or death and equipment damage.

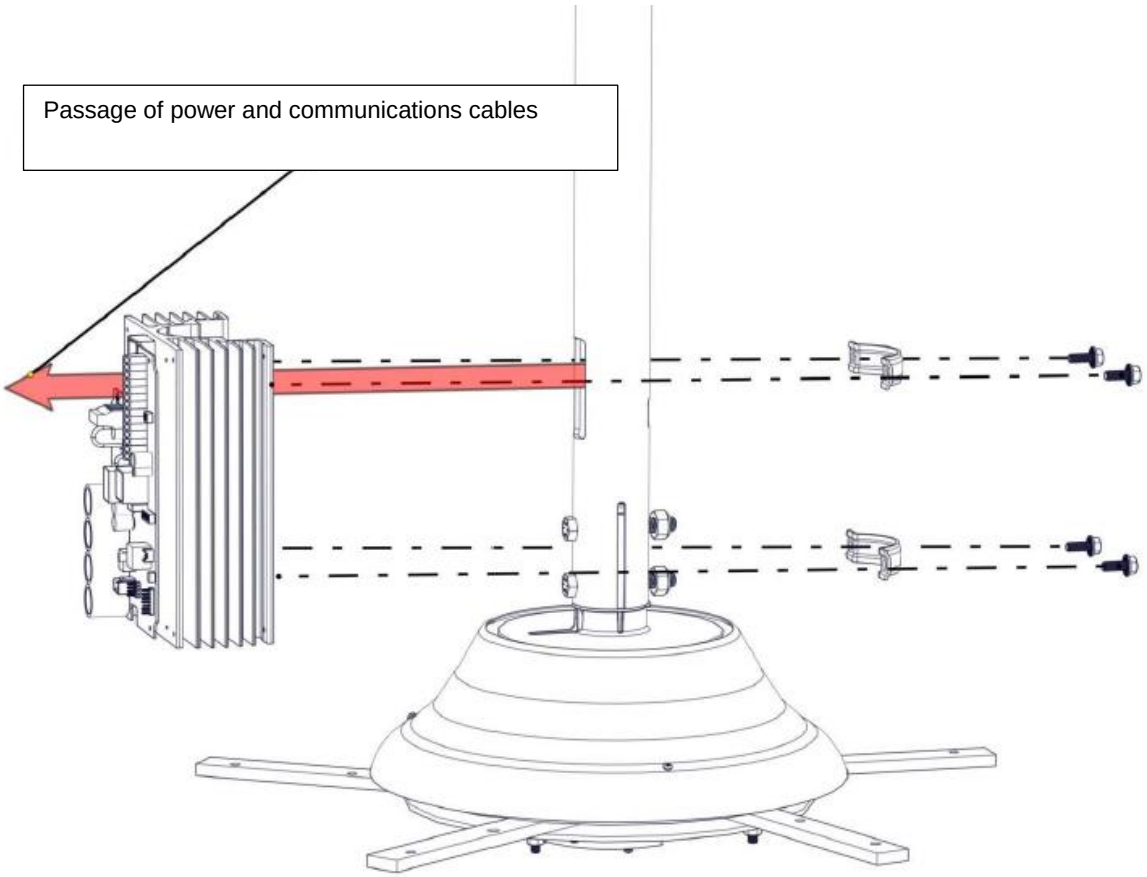
5.8 Controller Installation

The fan motor is connected to a control board that is installed on the extension rod, just above the motor.

The control board carries a hole to pass the power and communications cables that come out through the hole of the extension tube. The cables must be passed through this hole before proceeding to screw the plate to the extension.

Use U-shaped clamps and four M6 screws provided by applying a tightening torque of 5Nm.

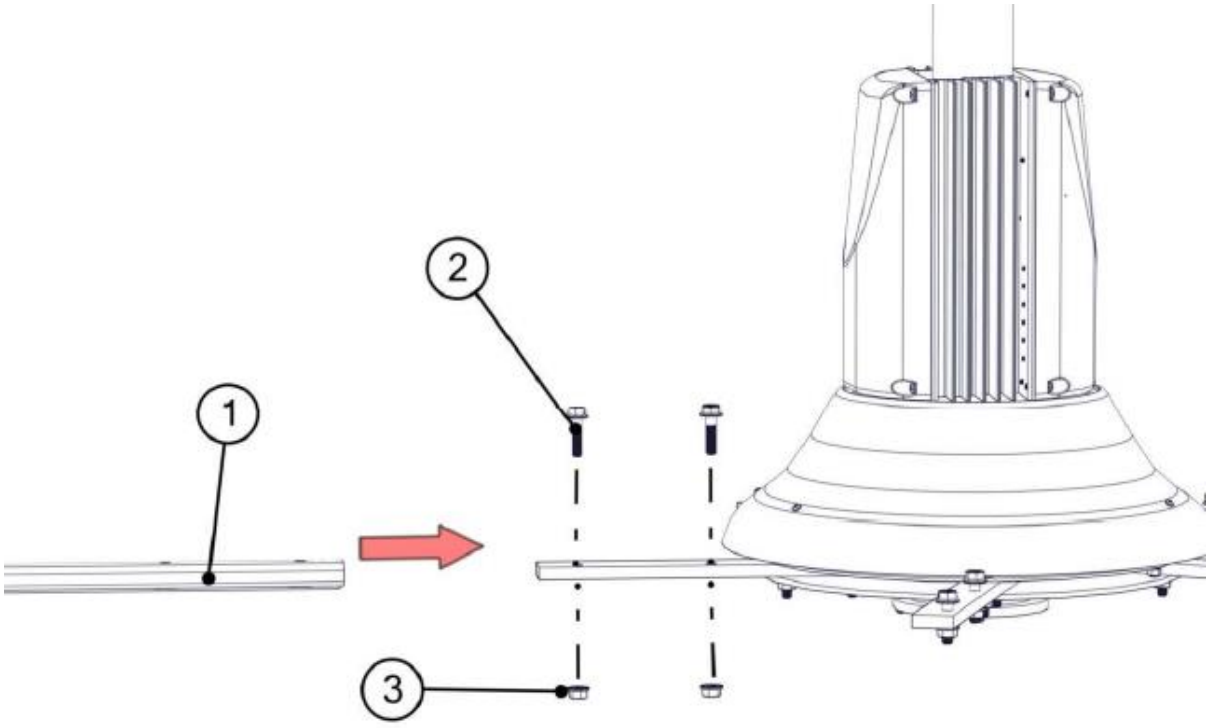
The following picture shows the installation of the control board:



5.9 Blades Assembly

The Anemoi AIRSLIM [M] fan has five blades. To assemble the blades, it is necessary to introduce and fix them to the motor guides.

Use the M6x25 screws, M6 nuts and M6 washer provided by applying a tightening torque of 37Nm as shown in picture:



No.	Description
1	Blade
2	Screw M6x25 + Washer M6
3	Nut M6 + washer M6

The fan blades should be installed with the concave part at the lower end.

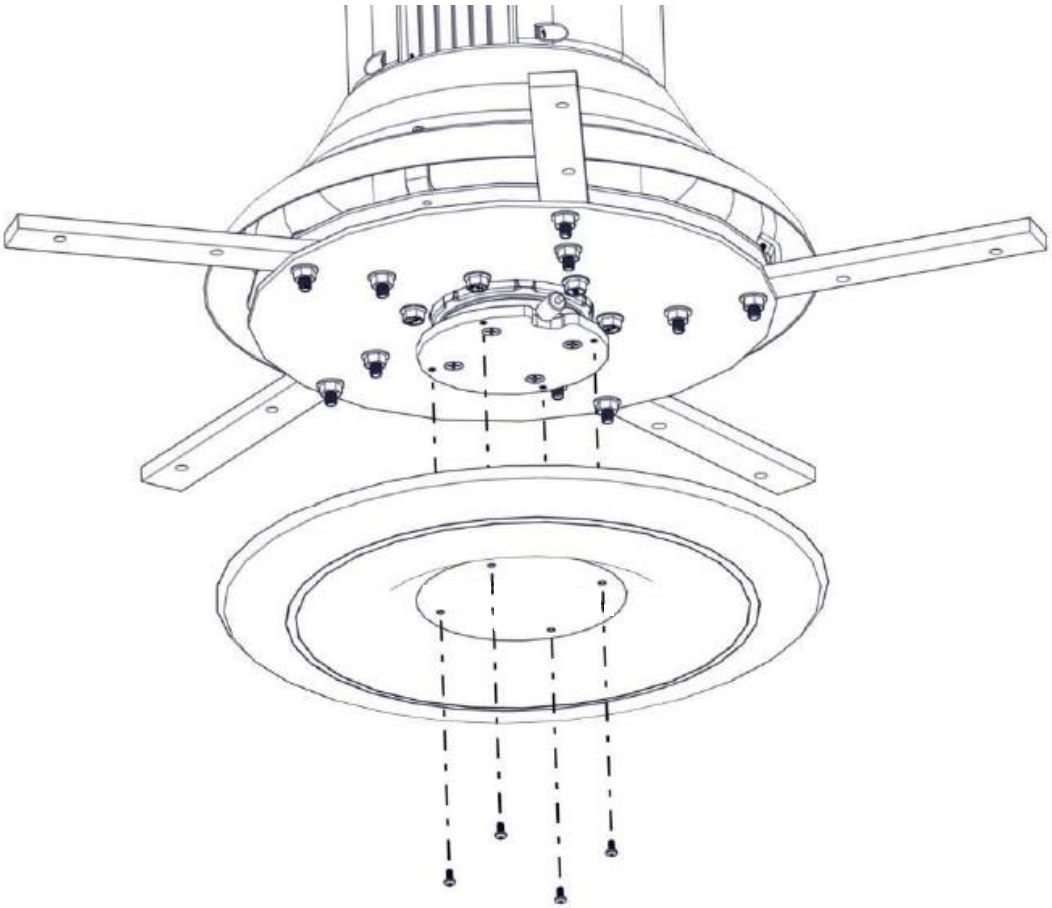
CAUTION!

Tighten the blade screws correctly. Failure to do so may result in incorrect installation.

Check that there are no objects that can avoid the blades rotation. Failure to do so may result in equipment damage.

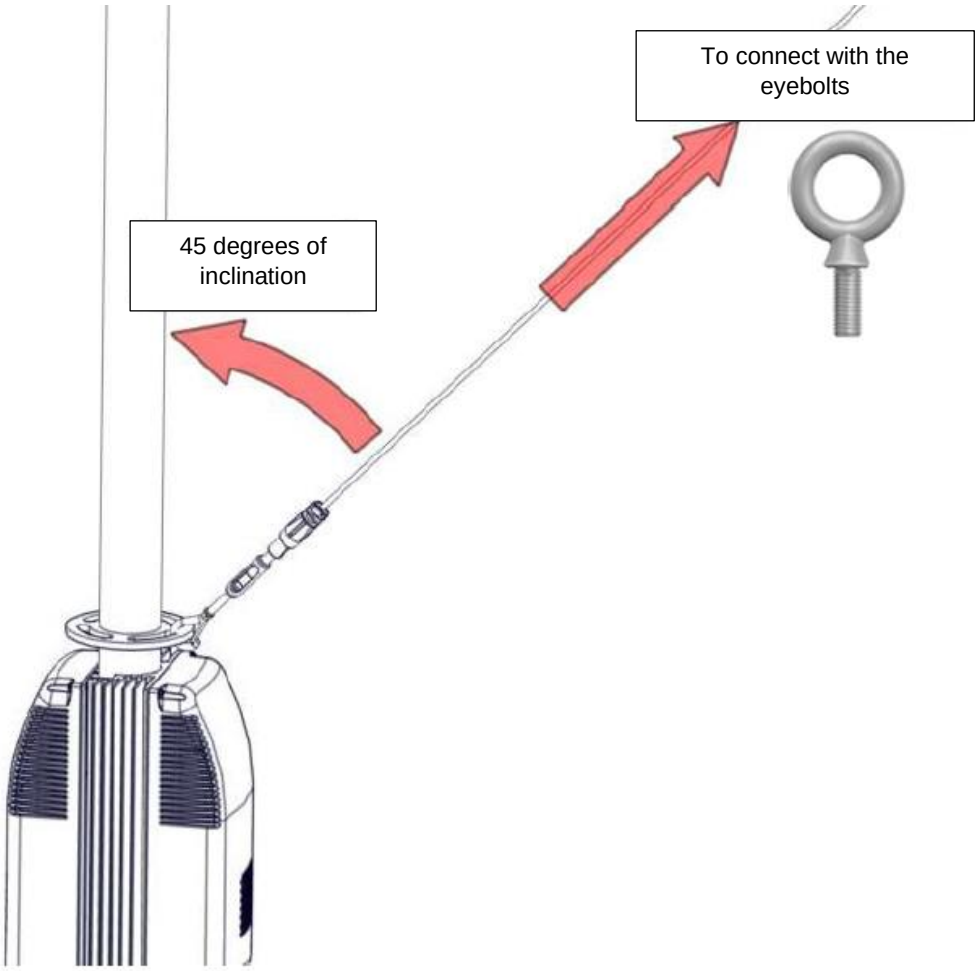
5.10 Cover Fixation

The fan includes a special cover to hide the screws. Use the screws provided to cover the bottom of the motor as shown in picture:



5.11 Guy Wires Fixation (Optional)

When the extensión rod esceeds one meter, it is needed guy wires fixation to secure the fan, in order to avoid oscillations. The extension rod must be ordered specially prepared with four perforations to connect the four safety cables. These must be introduced into the perforations at a 45º angle, as shown in the following picture:



All guy wires should be perfectly tightened using the levelling instrument to make sure that the extension rod stays in a vertical position.

CAUTION!

Fasten the guy wires clamps correctly to ensure that they cannot be unscrewed. Failure to do so may result in equipment damage.

6 ELECTRICAL INSTALLATION

WARNING!

Follow the instructions and recommendations contained in this section. Failure to do so may result in serious injury or death.

The Anemoi AIRSLIM [M] fan motor is controlled by a control plate located above the motor. To ensure the operation of the fan, the user must connect power and control cables.

Before installing the fan, it is necessary to remove power supply to prevent any accident. Check that power supply is disconnected before starting the installation.

All cabling must comply with national and local regulations on cable cross-sections and ambient temperature. **Copper (60°C/75°C) conductors are recommended.**

Follow any national or local regulation regarding electrical installations.

CAUTION!

Follow national and local electrical regulations. Failure to do so may result in serious injury or death.

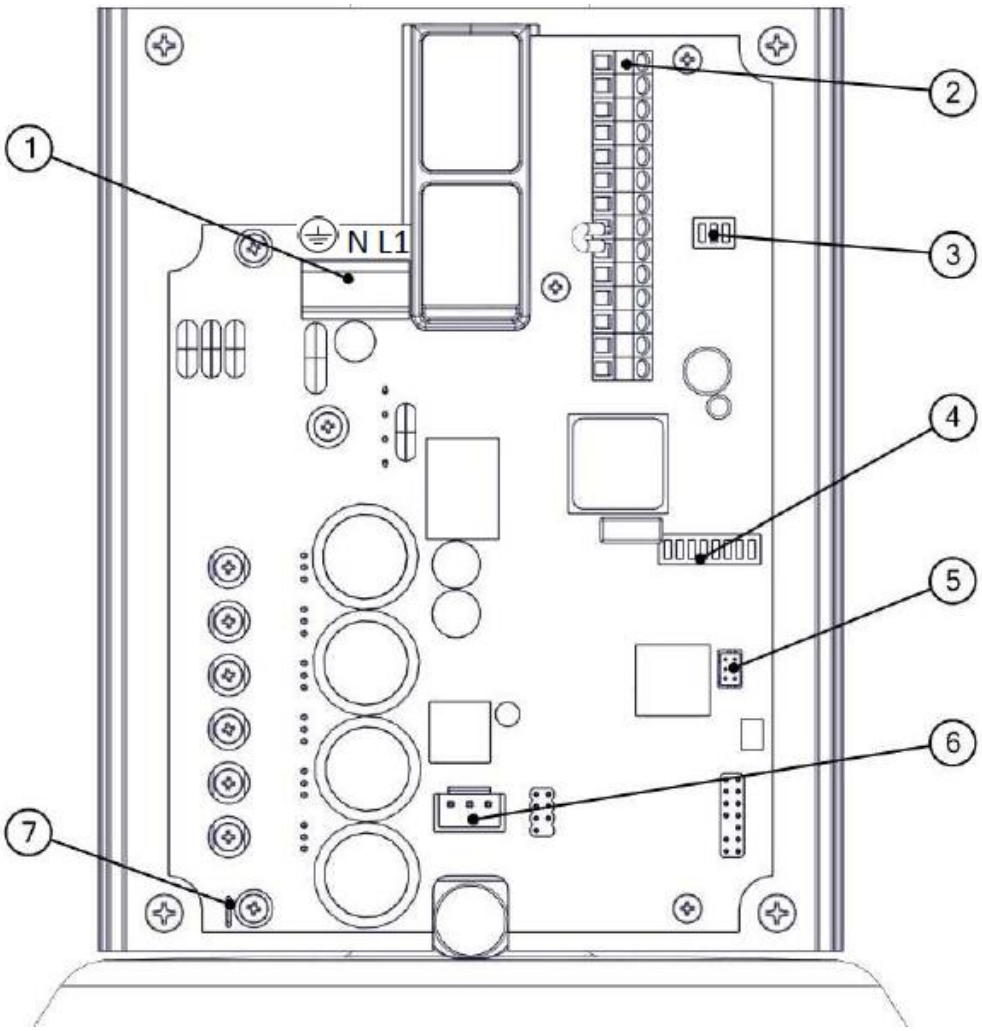
Check that power supply is disconnected before starting the installation. Failure to do so may result in serious injury or death.

Do NOT install the fan with wet hands. Failure to do so may result in serious injury or death.

6.1 Connectors and Switches Location

The Anemoi AIRSLIM [M] fan has all the connectors on the control board that is installed on the motor. This board also has several switches that allow you to configure communications.

The following image shows the location of the connectors and switches:

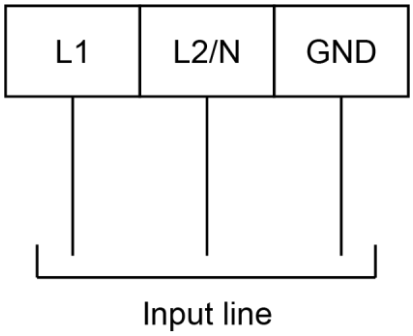


Nº	Description
1	Power connector
2	Control cables connector
3	Switch1
4	Switch 2
5	Engine sensors connector
6	Motor power connector
7	Motor ground connection

6.2 Power Connections

The Anemoi AIRSLIM fan motor has three connectors that must be connected to the control board. In the figure of section 6.1 you can see where to connect the cables directly to connectors 5, 6 and 7.

The Anemoi AIRSLIM [M] fan control board must be connected to an electrical voltage of 110VAC - 240VAC I, 50 / 60Hz. These cables are connected to connector 1 of the figure in section 6.1. The labels L1, L2 / N and GND can be read on the plate.



It is possible to use both shielded and unshielded cables, with a maximum section of 4mm².

The electrical cables must be arranged in a separate circuit from the control cables to avoid interference.

WARNING!

Do NOT use wires with worn or damaged insulation. Doing so may result in serious or fatal electrical shock, fire or other accidents.

Ensure that the wires are held securely and protected from abrasion, chaffing, overload or other damage. Risk of serious or fatal electrical shock, fire or other accidents.

Do NOT connect the motor to the input line directly. Failure to do so may result in equipment damage.

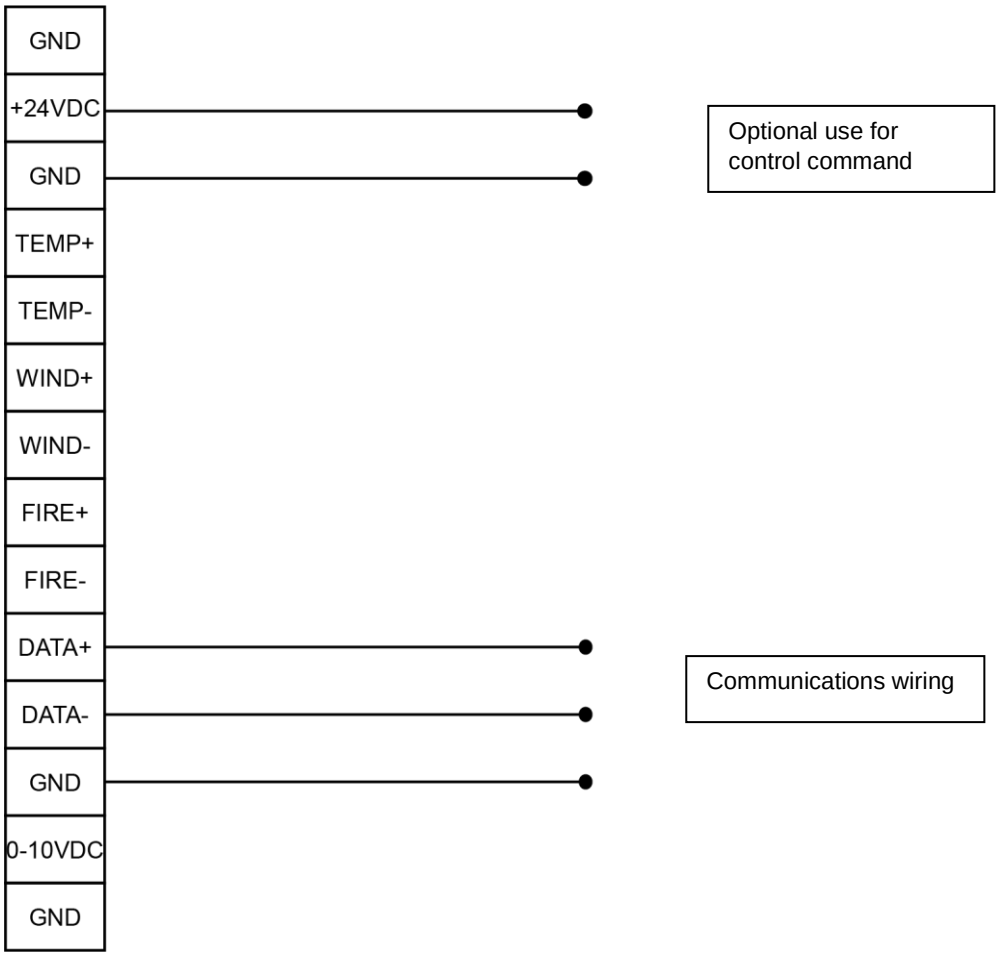
Connect the ground line (GND) first. Failure to do so may result in equipment damage.

6.3 Control Connections

The Anemoi AIRSLIM [M] fan needs an external control to work. The external control is connected directly to the fan control board using shielded cable type modbus cable RS485 2x2x0.50 mm² POSCY.

The control connections of the fan are located in connector 2 of the figure in section 6.1.

The following figure shows the detail of the control connectors:



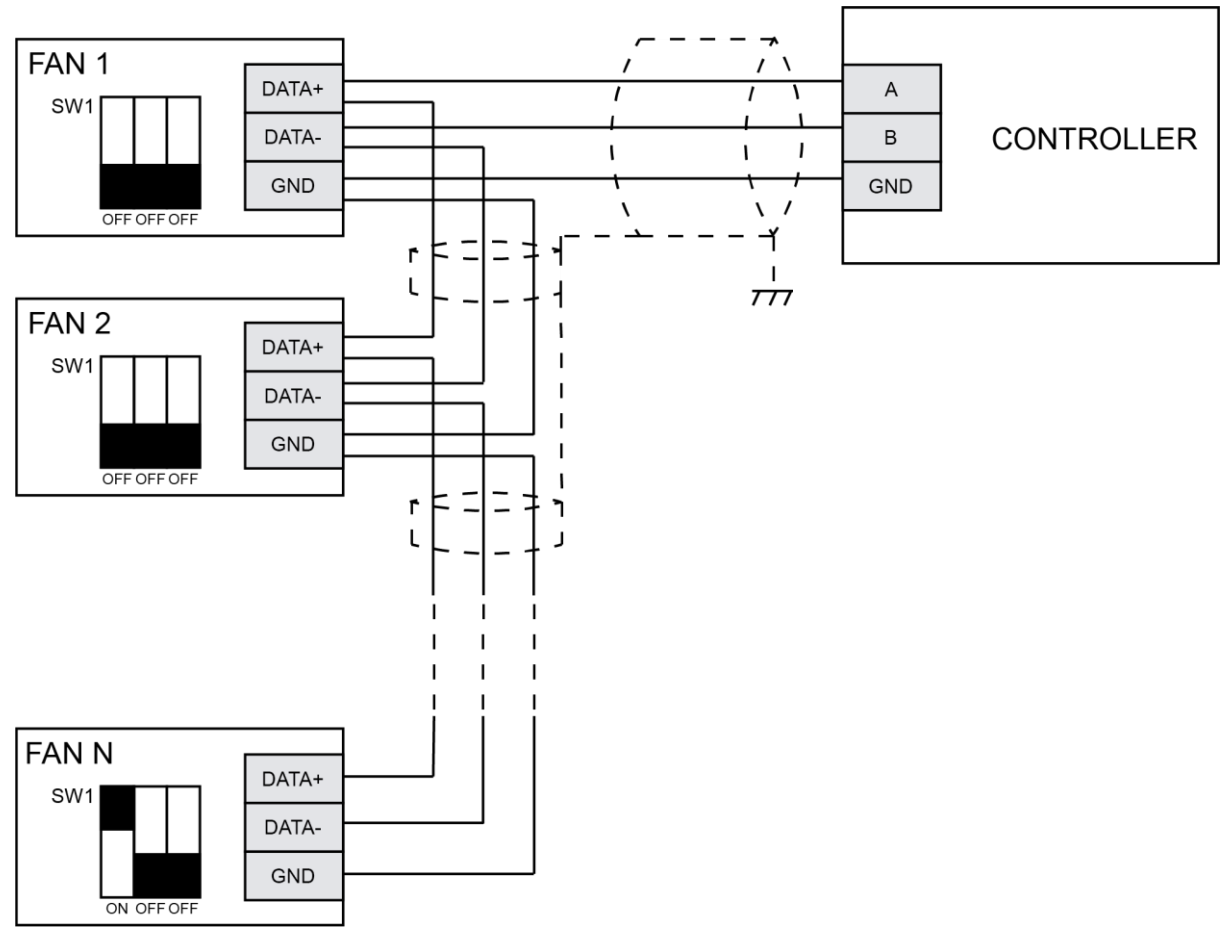
The maximum section to the control terminals, flexible / rigid cable without sleeves is 1.5 mm².

6.4 Multi Fans Installation

In installations with multiple fans, it is possible to control the fans using a single controller. In this case, the controller is connected to the different by using control connections described in section 6.3.

The connection must be made in series. The last fan of the series, the switch must be configured as ON / OFF / OFF and in the rest of the fans as OFF / OFF / OFF. The location of switch 1 can be seen in the figure of section 6.1.

The next figure shows the correct connections:



WARNING!

The earth meshes of each cable section must remain together. Failure to do so may lead to communication errors.

Connect only one end of the earthing to the ground. Failure to do so may lead to communication errors.

The fans connected in a network can be operated individually with a customized Modbus address in each of them. There are two options to customize the Modbus address:

- Connecting a computer and writing the value in address 29 as long as Pin8 of switch 2 is in the ON position. The communications are configured in this case as follows:

  Speed: 19200 bps
  Number of bits: 8
  Parity: Without parity

  The location of switch 2 can be seen in the figure of section 6.1.

- Setting pins 1 to 5 of switch 2 as follows as long as Pin8 is in OFF position:

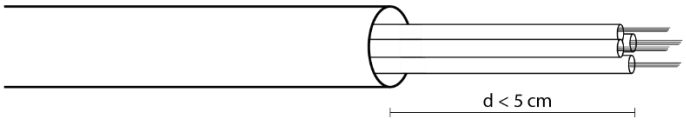
Adress	Pin1	Pin2	Pin3	Pin4	Pin5
1					
2	ON				
3		ON			
4	ON	ON			
5			ON		
6	ON		ON		
7		ON	ON		
8	ON	ON	ON		
9				ON	
10	ON			ON	
11		ON		ON	
12	ON	ON		ON	
13			ON	ON	
14	ON		ON	ON	
15		ON	ON	ON	
16	ON	ON	ON	ON	
17					ON
18	ON				ON
19		ON			ON
20	ON	ON			ON
21			ON		ON
22	ON		ON		ON
23		ON	ON		ON
24	ON	ON	ON		ON
25				ON	ON
26	ON			ON	ON
27		ON		ON	ON
28	ON	ON		ON	ON
29			ON	ON	ON
30	ON		ON	ON	ON
31		ON	ON	ON	ON

Note: the blank space in the previous table corresponds to the OFF position.

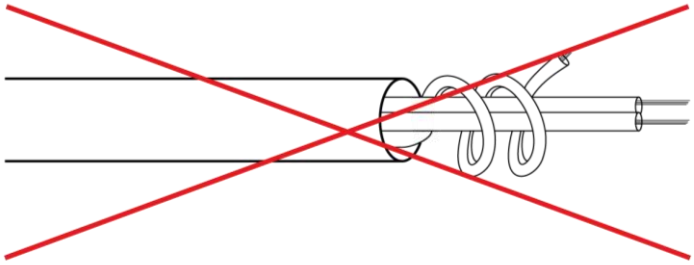
6.5 Wiring installation recommendations

To ensure correct installation and functioning of the Modbus control fan, please keep in mind following recommendations:

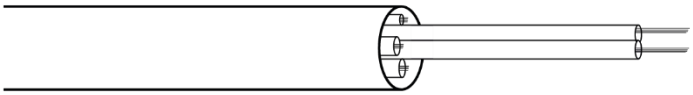
1- Please strip the wire 5cm as a maximum as shown below:



2- Communication cables cannot be wound. If it were done, they could act as an antenna.



Communication cables that are not used have to be cut and left inside the shielded tube as shown below.

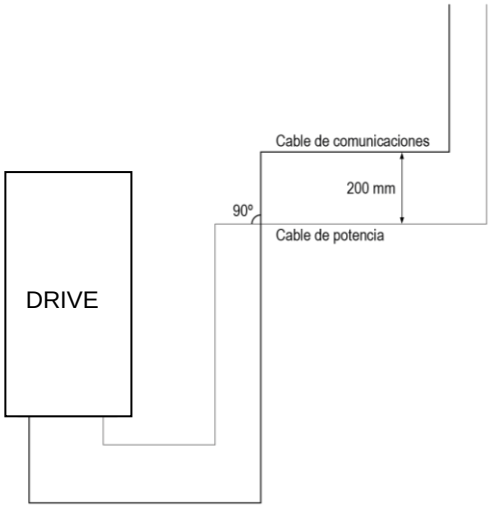


WARNING!

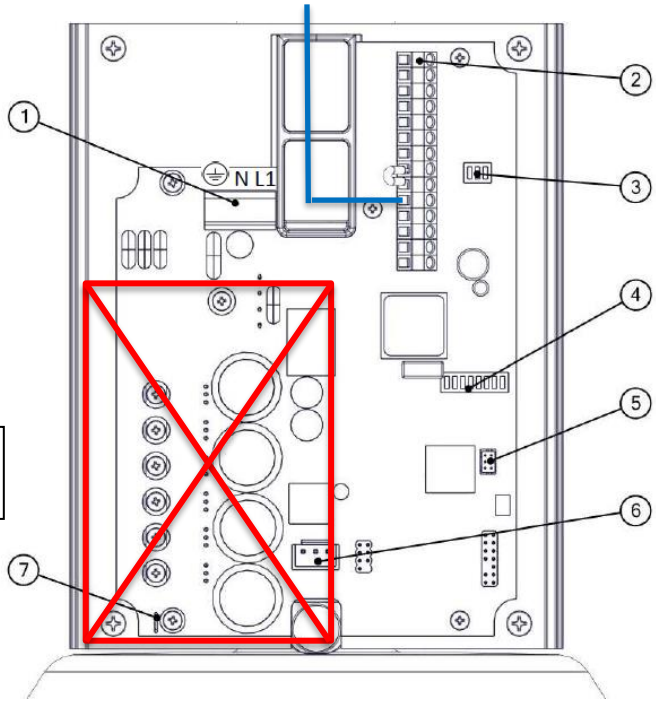
Do not strip the communication cable more than 5cm. Failure to do so may lead interferences.

Do not wind the unused communications cable. Failure to do so may lead interferences.

3- Please keep always a distance of at least 20cm between the power and the data cable. If both cables must cross at some point, please ensure that they do so at a 90º angle to prevent interference.



4- The data cable should follow the shortest path and he should avoid areas of power drive, as shown below:



Communications cable must be performed shortly and directly

Avoid power zones marked in red

WARNING!

Maintain a minimum distance between electrical and communications wiring. Failure to do so may lead interferences.

Avoid power zones. Failure to do so may lead interferences.

7 MANTENAINCE

WARNING!

Do NOT repair or clean the fan while it is in operation or connected to the power supply. Doing so may result in serious or fatal electrical shock.

Please maintain the fan as follows:

Every three months:

- Verify that the fan is working properly.
- Ensure that the fan does not make any noises or vibrations.
- Check that the blades have not received any impact.

Yearly:

- Check that there no alarms or faults in in the control screen.
- Ensure that the extension rod screws are properly tightened.
- Ensure that the anchoring screws are properly tightened.
- Ensure that the blade screws are properly tightened.
- Clean the blades using a wet cloth.
- Check that the safety cable is properly fastened.
- Check that the guy wires are properly tightened.
- Check power and control connections in the control box.

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