

Automatic Solar Panel Phénix

Installation guide



Registered pattern
not contractual pictures

Warnings

The reproduction of all or any part of this guide is forbidden without a written agreement from Alden.

Alden draws your attention to the risks that may occur if the mounting is not correct.

Alden declines all responsibility if the product is not mounted in the correct way and especially if it is installed by a non-professional person.

The retailer is supposed to know the mounting rules and to follow them. He must most of all respect the choice in terms of location, electrical connections, glueing and screwing.

The retailer commits himself, by selling and installing ALDEN'S products, to inform his customer about the user's guide and the installation procedure. He will give the customer a copy of the user's guide.

He must draw the customer's attention to security.

He must inform the customer that the product must not be used for any other purpose than the one intended. If necessary, he is obliged to inform the customer of the current laws in the country where the product is going to be used.

Each product with electronic components has to be protected from undervoltage (under 10,5 Volts) and overvoltage (over 15 Volts).

Repairs or modifications that have not been approved by Alden before hand will cancel the warranty.

- Proceeding to the installation implies the acceptance of the expressed rules. •

Safety rules

- Even if the Phenix is an automatic solar panel, usual safety rules must be respected. For example: the panel must be folded down if ever the weather gets bad, windy or stormy. The Eole windmeter is delivered as an option and will automatically fold the panel down when the wind gets up.
- In stormy weather, direct the vehicle so that one or several spoilers face the wind.
- In winter, remove the snow and/or ice from the panel and the unit.
- When starting up the vehicle, watch that the panel is totally folded down.

Important : Folding the panel down takes a few minutes.

- The motorization of the Phenix is foreseen for many years without maintenance.
- The switch of the control-box must only be used when the panel is folded down. It is strictly forbidden to switch it *Off* when the panel is up. Switch it *Off* only when the panel is folded down.
- If you want to interfere with the electric circuit, remove fuses from the power supply of the solar panel and the regulator. If the vehicle is equipped with an antenna and a receiver, also remove the fuse from their power supply.

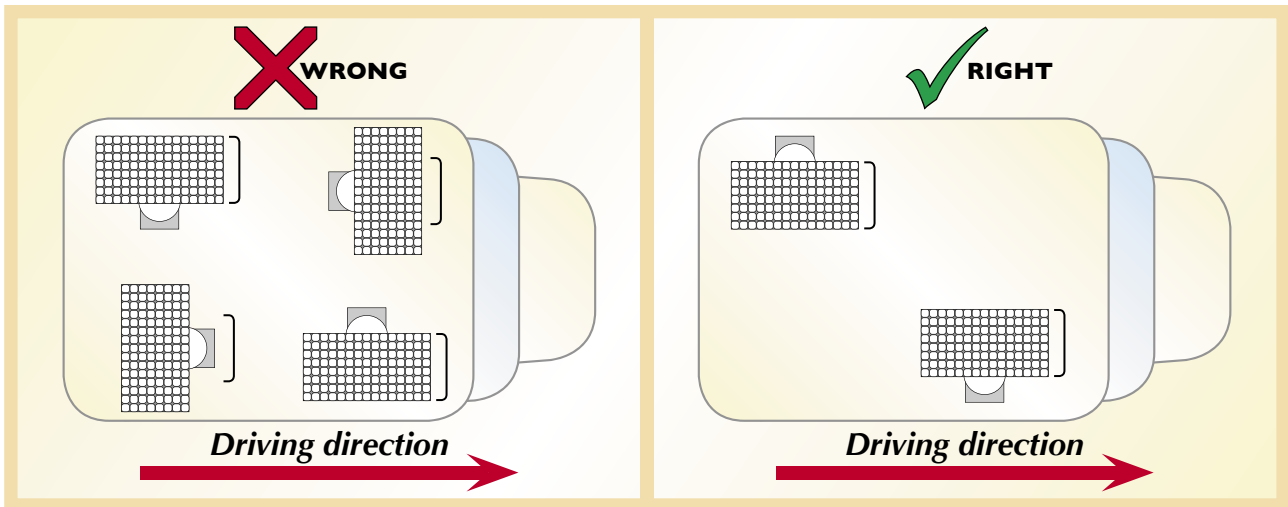
Two indispensable precautions are to be observed :

- Never let the battery go under 10,5 Volts: this can damage the battery. Nevertheless if it happens: remove the fuse from the power supply of the panel and the regulator.
- Never open the Phenix when it is stormy.

Installation

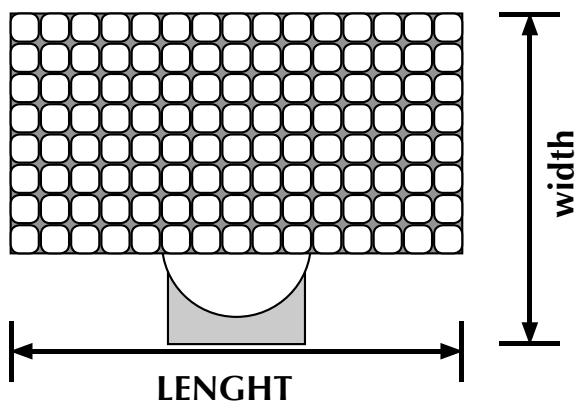
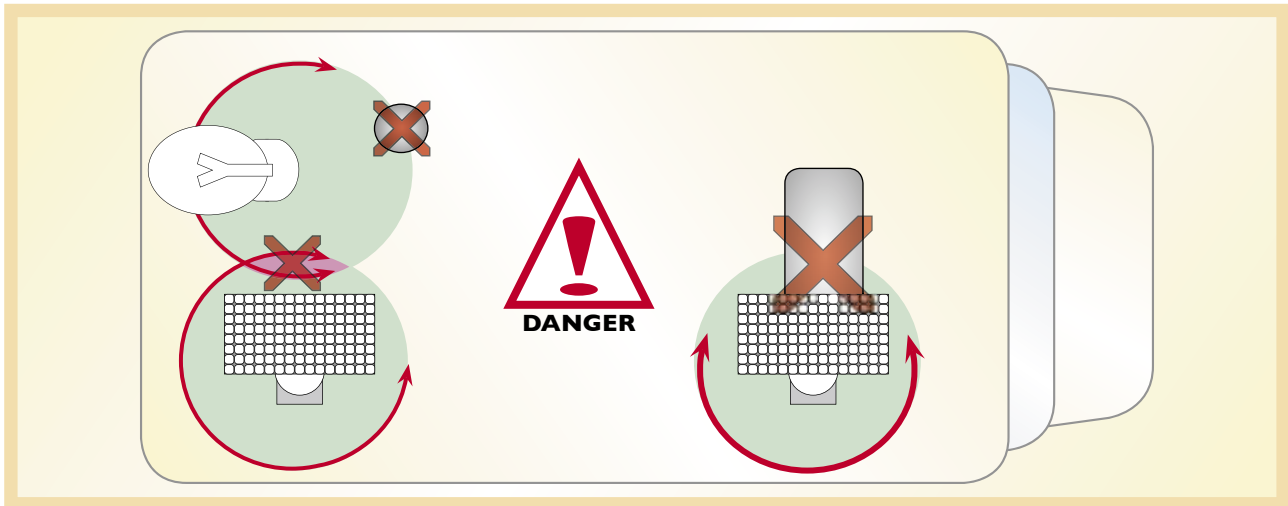
A. Place on the roof

A mobile solar panel must always be folded down towards the middle of the roof.
Never towards the outside, the front or the back.



B. Surface of rotation.

No obstacle has to be in the surface of rotation of an antenna or a panel.
(Examples: aerator outputs, equipments)



Size (without spoiler):

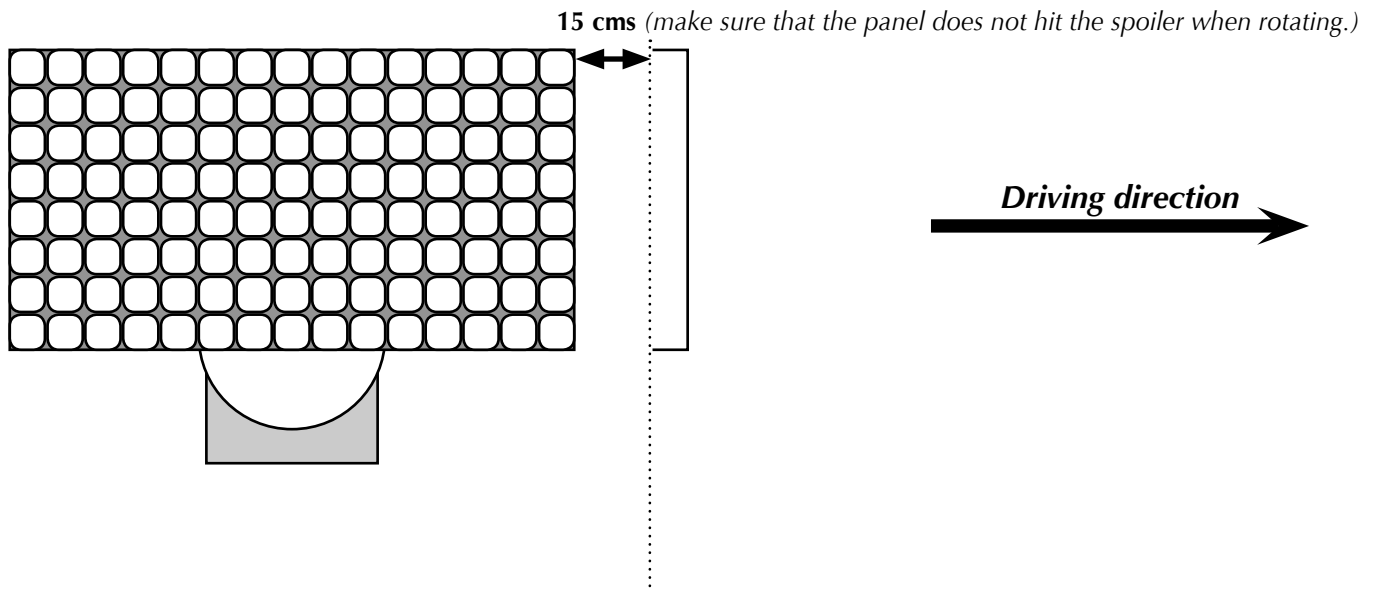
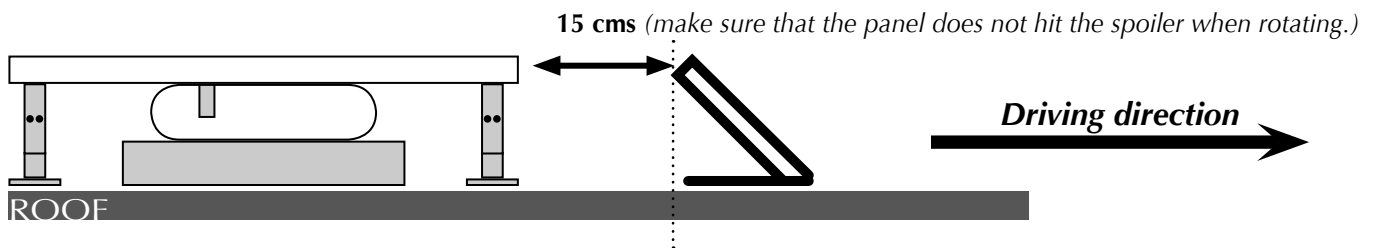
- 50 W : L x w = 1130 x 640 mm
- 75 W : L x w = 1130 x 640 mm
- 100 W : L x w = 1250 x 680 mm
- 110 W : L x w = 1440 x 640 mm

Height (when closed) : 160 mm.

C. Check the rotation area (presence / absence of obstacles).

1. Position the panel on the roof in the foreseen place and in the right way (see page 3).
2. With a temporary power supply connect the control box.
Check the polarity : *Brown wire to Plus and White wire to Minus.*
3. Place the switch of the control-box on **On** (towards the **Green button**).
4. Dial **06** then press the **Green button**. Manual mode is now activated and **Ma** appears on the screen.
5. Make the panel rotate at low inclination by using the **Left** and **Right** arrows.
Repeat the same procedure at 90° (panel completely up).
Information: to make the panel rotate, the inclination must be at least 14°.
6. Once both rotations done without hitting anything, press the **Red button** to fold the panel down.

D. Where to place the spoiler.



E. Glueing

IMPORTANT INFORMATIONS CONCERNING SIKA'S PRODUCTS :

Structural adhesive for elastic bonding applications.

According to the new international standards, dates are indicated as following: year/month.

Example : 06/03 corresponds to March of the year 2006.

Warning :

May cause sensitization by inhalation. Do not breathe gas/fumes/vapour/spray. In case of accident or if you feel unwell, seek medical advice immediatly (show this document where possible).

Contains isocyanates.

Warning :

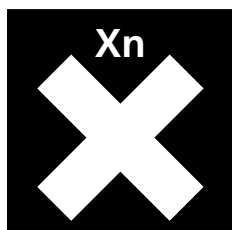
Alden declines all responsibility if these instructions are not respected.

Carefull :

During the drying time, the vehicule must stay parked once you have glued the unit.

Attention :

- **Only the supplied glueing kit answers Alden's security requirements.**
- **Inform the customer of the dangers in case of strong winds. Only start the vehicle once the panel is folded down.**
- **The warranty will be cancelled if these rules are not respected.**



methylenediphenyl diisocyanate

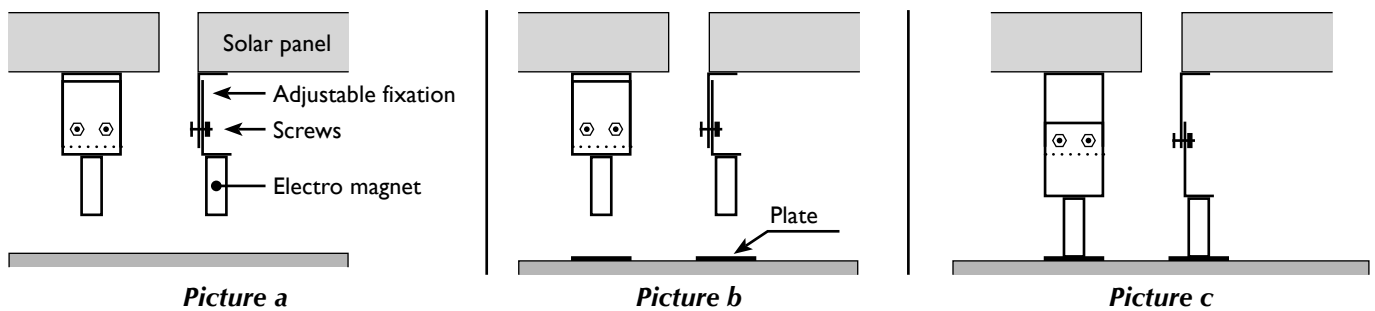
Glueing procedures:

Glueing the external unit of the panel and the spoiler:

1. Use a pencil to mark the place of the external unit of the panel and the spoiler on the roof before moving them.
2. Sand the surface you must glue (roof, under the external unit and under the deflector) with sandpaper.
3. Clean each surface with a thinner.
4. Spread Sika-Aktivator on the sanded surface.
Leave to dry for 15 to 20 minutes.
5. Glue generously the fixation paws of the external unit with SikaFlex 252 then press slightly on the unit. Layer of glue: ± 3 mm.
6. Glue generously the underside of the spoiler with SikaFlex 252 then press slightly on it. Layer of glue: ± 3 mm.
7. To accelerate the polymerization, pulverize a little water on the visible parts of the glue.
Leave to dry for 24 hours.

Installing, glueing and adjustment of the electro magnets:

8. Place the metal plate under the electro magnets.
Use a pencil to mark their place on the roof.
9. Sand the surface you must glue (roof, under the plate) with sandpaper..
10. Clean each surface with a thinner.
11. Spread Sika-Aktivator on the clean surface.
Leave to dry for 15 to 20 minutes.
12. Glue generously the underside of each plate with SikaFlex 252 and press slightly.
Layer of glue: ± 3 mm.
13. Unscrew the electro magnets supports to make them go down onto the plate (see a to c).
14. Screw the supports tight **but without forcing**.



Installing and glueing the waterproof cable box for the wires:

15. Position the waterproof cable box on the roof at the appropriate place then mark this place with a pencil before removing it.
16. Drill a hole of a suitable diameter in the center of the marked place. You need to be able to pass the supply wires through (without the domino) without twisting nor clamping them.
You must be able to cover this hole with the waterproof cable box.
17. Clean the hole to avoid damaging the wires.
18. Sand the surface you must glue (roof and under the waterproof cable box) with sandpaper.
19. Clean each surface with a thinner.
20. Spread Sika-Aktivator on the sanded surfaces.
Leave to dry for 15 to 20 minutes.
21. Disconnect the domino (panel side) then thread this wire through the PG 13,5 mm screw of the waterproof cable box. Then thread the second wire through the PG 9 mm screw.
22. Bring these two wires inside the vehicle through the hole drilled on part 16 then put the waterproof cable box on the roof to verify that wires are neither clamped, nor twisted.
If necessary, enlarge the hole.
23. Glue generously the underside of the waterproof cable box with SikaFlex 252 then press lightly on it.
Layer of glue: ± 3 mm.

It is strictly forbidden to totally fill the waterproof cable box with glue !

24. To accelerate the polymerization, pulverize a little water on the visible parts of the glue.
Leave to dry for 24 hours.

E. Installation of the control box.

1. Position the control-box in the vehicle at the foreseen place.
2. Use the drilling-plan (last page) to position the screws.
3. Bring the wire of the external unit towards the control-box.
4. Connect the external unit to the control-box with the domino. Link the 8 wires **colour to colour**.
5. Proceed to the cabling of the power supply :
 - Link the *Brown* wire to *Plus* of the cell-battery. **This wire must be equipped with a 5 Amp. fuse.**
 - Link the *Green* wire to *Ignition plus* plug. **This wire must be equipped with a 5 Amp. fuse.**
 - Link the *White* wire to *Minus* plug of the cell-battery or to the *Ground*.

Warnings :

- **In any case, even when initial cables have been put in: a direct line (no links), with a 5 Amp. fuse must go from the control-box to the cell-battery for the Plus line (brown wire).**
- **In any case, even when initial cables have been put in: a direct line (no links), with a 5 Amp. fuse must go from the control-box to the Plus after ignition located on the ignition key (green wire).**
- **The Ignition Plus must be able to deliver 2 Amp.**
- **Never use the Ignition Plus of the fridge, , the stepladder or the separator of battery.**
- **The use of the supplied wires is imperative.**
- **The warranty will be cancelled if these instructions are not followed.**

F. Installing the charge regulator.

- See page 9.
- Connect the wires from the panel to the regulator..


Caution : The wires coming out of the panel must never touch.

- If you install more than one panel, connect them in parallel.
- use 2,5 to 5 mm² wires depending on the length.
- Put the regulator as near as possible to the battery.
- Connect the **+12V** to the **Plus** of the battery; the **Moins** to the **Ground**.

Start battery option :

Connect **Start +** to the **Plus** of the start battery (wire: 2,5 mm²).

Temperature sensor option:

Connect the wires from the temperature sensor to the foreseen terminal ().

Volt/Amp display panel:

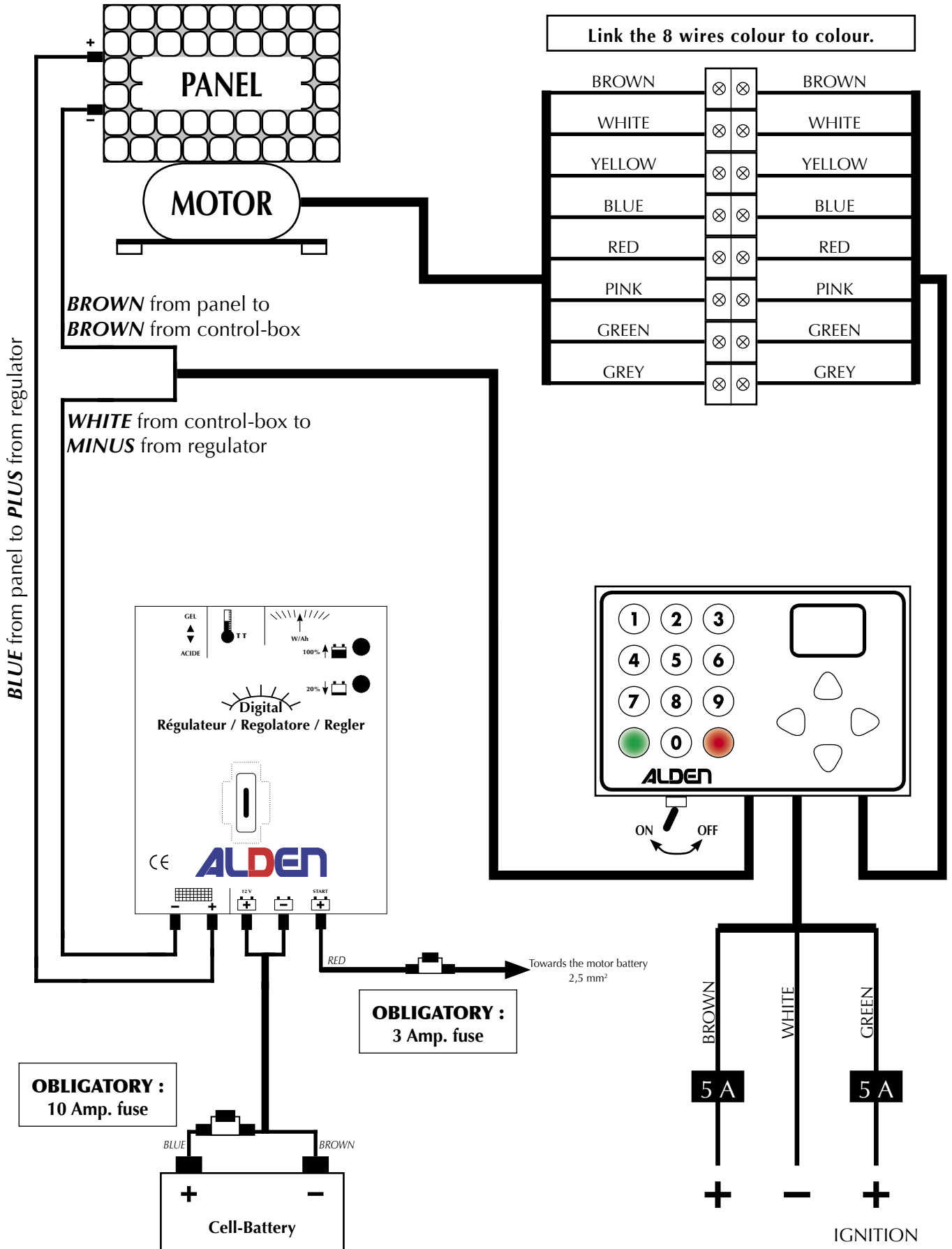
Connect the wires from the Volt/Amp display panel to the foreseen terminal ().

Caution : Cut the electricity off before doing these connections.

Obligations:

- You must install a 10 Amp fuse on the Plus line between the regulator and the cell battery.
- You must install a 3 Amp fuse on the Plus line between the regulator and the start battery.

Global connection plan



IMPORTANT :
The Ignition Plus must be able to deliver 2 Amp.

How to use the system

Warning : Never stop the automatic search. Phénix will search and find the optimal position. If it went too far or past the optimal position, it will automatically go back and find the perfect angle.

No need to interfere.

1. Switch the control box on **On**.
2. Enter the zone code then press the **Green** button.

01 : Central Europe
02 : Northern Europe
03 : Southern Europe, Northern Africa
3. After confirming, the panel will rise and you will see the elevation on the screen.
4. The panel will start to turn, the screen shows what the panel is producing.

Warning : This production cannot be compared to what is entering the battery. It is only foreseen to position the panel.

5. The panel stops automatically in front of the sun.
6. Optimize, if necessary, the position of the panel by using the **Left** and/or the **Right** arrow.
7. The automatic mode is now activated. Phénix will follow the Sun, even in its absence.
Phénix will modify its position every hour..
At sunset, Phénix will automatically fold down.
At this point, never switch the control box off.

Please take note : Depending on the geographic situation, Phénix can be up when night falls.
Do not forget to change the internal clock when you change areas.

Display and measurements :

Phénix is provided with an Amp-meter that indicates the electric output of the panel. This value is purely indicative, it allows to correct the orientation of the panel when the Sun is veiled or hidden by clouds.


8. To fold the panel down press the **Red** button.
9. Make sure the panel is totally down then switch the control box off.


Reminder : The switch must only be used when the panel is folded down.
It is strictly forbidden to place the switch on **Off** when the panel is up.

Information :

- Clouds may affect the position of the panel.
- The automatic positioning system may be affected by clouds, in which case: fold and leave the panel down.

About the regulator:

100%  (green) : battery charged.

20%  (green) : battery charging.

These 2 leds can be on at the same time, which means that the battery is nearly full and is still charging.

Programming the internal clock

- Enter the value **05** then press on **Green key** : **Ch** is displayed on the screen.
- Press on **Green key** : **An** is displayed on the screen.
- Press on **Green key** : the current year value is displayed on the screen.
- Enter the current year value (*05 for 2005*) then press on **Green key** : year value is confirmed...
- ... **Mo** is displayed on the screen.
- Press on **Green key** : the current month value is displayed on the screen.
- Enter the current month value (*07 for July*) then press on **Green key** : month value is confirmed...
- ... **Jo** is displayed on the screen.
- Press on **Green key** : the current day value is displayed on the screen.
- Enter the current day value (*26 for 26th*) then press on **Green key** : day value is confirmed...
- ... **Hr** is displayed on the screen.
- Press on **Green key** : the current hour value is displayed on the screen.
- Enter the current hour value (*14 for 2pm*) then press on **Green key** : hour value is confirmed...
- ... **Mn** is displayed on the screen.
- Press on **Green key** : the current minute value is displayed on the screen.
- Enter the current minute value (*45 for 45 minutes*) then press on **Green key** : minute value is confirmed...
- ... **00** is displayed on the screen and you will hear a double beep.
This means you have finished programming

Wind classification

When the wind gets to 5, we advice to fold your mobile equipment down (solar panel, satellite systems).

When it gets to 8, you MUST fold everything down.

<i>Strenght</i>	<i>Name</i>	<i>Speed</i>				<i>Effect</i>
		<i>Knot</i>		<i>Km/h</i>		
0	Calme	1	1	1	1	Smoke is rising straight up.
1	Very slight breeze	1	3	1	5	Smoke gives the direction of the wind; windvanes are not moving.
2	Slight breeze	4	6	6	11	You can feel the wind on your face; leaves will move.
3	Small breeze	7	10	12	19	Flags are up and leaves rustle.
4	Pleasant breeze	11	16	20	28	Dust and sand are lifting from the ground; small branches are bending.
5	Strong breeze	17	21	29	38	Small trees are swaying and the tops of all trees are moving.
6	Cold wind	22	27	39	49	You can hear the wind whistle.
7	Strong cold wind	28	33	50	61	All the trees are moving; you can only just walk facing the wind.
8	Gust of wind	34	40	62	74	You cannot walk facing the wind; some branches are breaking off.
9	Strong gust of wind	41	47	75	88	You cannot walk facing the wind; the wind is damaging buildings.
10	Storm	48	55	89	102	There is a lot of damage; young children of 12 cannot keep their feet on the ground (they can fly away!)
11	Violent storm	56	63	103	117	
12	Hurricane	64	plus	118	plus	

We remind you that if you forget to fold the system down when the wind gets strong, the warranty will be cancelled.

In case of breakdown

First of all, read the user's guide again.

The panel does not rise :

- Is the control box switched on ? If it is off, check the fuse.
- Is there enough electric power ?
- Is the driving contact removed ?
- Is the internal clock right ?

The panel does not go down : - Is there enough electric power ?

The panel does not fold down :

- Switch the control box **Off** and **On**.
- If it does not work, start the vehicle.
- If this still does not work, switch the vehicle off.

Try to fold the panel down in manual mode:

- Press **06** on the control box.
- Use **Left** and **Right** arrow to turn the panel in 'fold position'.
- Use the **Down** arrow to fold the panel down.

The panel does still not fold down : - **FIRST OF ALL : remove the fuse from the regulator and the control box.**

then :

- Take the panel of the arms.
- Open the panel's black box.
- Unplug then isolate the wires. The two wires never have to touch.
- Store the panel in the vehicle.
- Contact your retailer.

Warning:

Never let the battery go under 10,5 V.

Warning:

If there happens to be a power failure or low current (under 10,5 V) when using the panel, check the position of the Phénix. Switch the control box **Off** and **On** if the panel is not folded down.

Trial card

Tested :

By :

Serial number :

- Elevation
- Rotation
- Folding down and Ignition Plus connection.
- electro magnets.

Technical specifications*

Phénix 75 Watts :

- Length : 1130 mm
- Width : 640 mm
- Height when closed : 160 mm
- Height needed for rotation : 90 mm
- Rotation diameter : 1130 mm
- Weight : 18,8 kg

Phénix 100 Watts :

- Length : 1250 mm
- Width : 680 mm
- Height when closed : 160 mm
- Height needed for rotation : 90 mm
- Rotation diameter : 1250 mm
- Weight : 20 kg

Phénix 110 Watts :

- Length : 1440 mm
- Width : 640 mm
- Height when closed : 160 mm
- Height needed for rotation : 90 mm
- Rotation diameter : 1440 mm
- Weight : 21 kg

Charge regulator:

- Voltage : 12 Volts
- Maximum power : 110 Watts
- Maximum current : 7 Amp
- Sequential Voltage : 11,6 Volts
- Battery motor output : 13,5 - 13,9 Volts ; 0 - 1,5 Amp
- Consumption : 0,006 Amp
- Dimensions : 116 x 76 x 40 mm
- Weight : 130 gr

* : These dimensions are indicative and can be modified at any time and without notice according to the supply of solar panels.

Drilling plan for the control-box

