

EcoOnline™

Solar Roof Mounted Bi-Panel Fan Manual



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Installation Manual - Revised 26/01/2014



Optex Solar P/L
www.EcoOnline.com.au
email: info@EcoOnline.com.au

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1 Key Terms

This manual was written to follow guidelines and recommendations given in:

- 'HAZPAK' produced by the work-cover authority
- Incolink Safety Handbook

Please take the time to read the entire manual before starting any work. Particular attention should be given to text contained in the following key terms.

Please note EcoOnline has a strong product safety policy; do not install products without reading safety guidelines in the manual. Please report any product safety issues or near misses to info@EcoOnline.com.au no matter how trivial.

 DANGER	Indicates a SAFETY issue that is likely to cause injury or death if the user does not follow the instructions.
 WARNING	Indicates a SAFETY issue that may cause injury or death if the user does not follow the instructions.
 CAUTION	Indicates a SAFETY issue that may cause injury or property damage if the user does not follow the instructions.
 Read Carefully	Refers to critically important information related to the correct functioning of the unit.
 Tip	Refers to useful information for the optimal operation of the unit.

2 Pre-Installation Suitability & Safety Checklist

The following outlines mandatory suitability and safety requirements for installing an EcoOnline™ Solar Attic Fan. Please read carefully, if any of the following requirements cannot be met this unit should NOT be installed.

 DANGER	Due to the potential of falling from heights, we recommend that the installation of the unit on a roof should only be undertaken by a professional installer unless you are accustomed to and confident of performing the work safely.
 WARNING	At present this fan system is not recommended for installations in cyclonic regions C or D, or on houses situated on top of hills exposed to extreme winds.
 WARNING	Warning: this unit is rated not for bush fire prone areas.
 WARNING	When installing this unit air intake eave grills MUST be installed. Failure to do so could create negative pressures in the roof cavity and house which could interfere with proper fluing of carbon monoxide stemming from combustion heating appliances.
 CAUTION	This unit is to be installed on slate tiles or metal roofs ONLY , not recommended for modulated roof tiles due to the difficulty of flashing.
 CAUTION	Building regulations vary from state to state and MUST override any instructions supplied in this manual. It is the responsibility of the purchaser/installer to check that installations comply with any relevant state laws and regulations.
 Read Carefully	The EcoOnline™ Solar Attic Fan requires access to the roof cavity to secure metal strips from underneath the unit to the roof battens.
 Read Carefully	For metal roofs the unit requires the installation of about 4 eaves grills per unit to aid air flow.

3 Warranties

EcoOnline™ offers the following Warranties on the solar attic fan:

- 2 year return to base Motor Warranty
- 2 year return to base Thermostat Warranty
- 20 year return to base solar PV panel Warranty

See EcoOnline.com.au [Terms and Conditions](#) page for further details.

4 Included Components

Bi-Panel Attic Fan Unit	Extra Components
	
<p>1 × 20W Solar Fan 1 × Zincalume flashing template.</p>	<p>2 × Half surface hinges 1 × Parallel connector 1 × Nut and bolt set</p>

5 Tools Required

- Leaver action tin snips
- Clamps
- Rivet gun
- Grinder with masonry cutting blade (optional for roof tiles)
- Hand powered drill with socket and drill bits
- Marking pen
- Industrial Ladder (with means to secure the ladder at the base and top)

6 Extra Materials Required

- For some roof tiles extra flashing may be required
- Silicon gun and sealant (with masking tape)
- Rivets
- Eve grills (air inlets)

7 Safety When Working at Heights



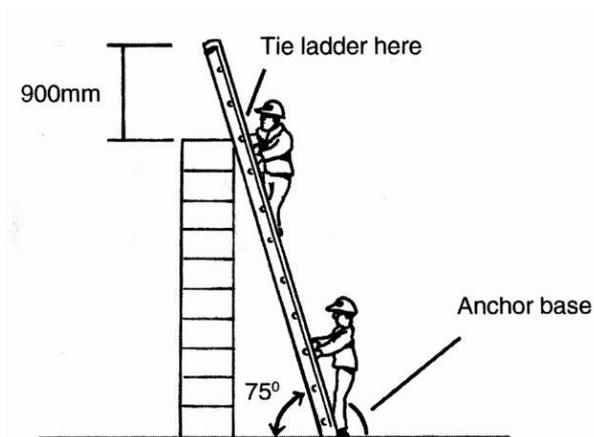
DANGER

WHEN WORKING AT HEIGHTS - SAFETY COMES FIRST. A person can easily fall off a ladder or roof and be seriously injured. For installations on a roof pitch greater than 22° and/or a double story house we strongly recommend a highly competent professional installer install your solar attic fan. The installer **MUST** use an appropriate safety harness.

The installer should always take the necessary safety precautions:

- Choose an appropriate day: cool, dry, calm and partly cloudy.
- Plan out your install: make sure you have all required components, tools and have plenty of allocated time.
- Only work at heights when you are well rested and alert.
- Never work alone, always work with at least one other person.
- Always use a safety harness or fall arrest system attached to appropriate roof anchor points.
- Wear clothes that fit well but that do not restrict movement.
- Use proper non-slip shoes.
- Use sunscreen.

7.1 Ladder Safety



The chance of a falling from a ladder should never be underestimated. Use only solid **industrial grade** ladders in good repair that have been checked for faults.

Note: even a small unexpected movement of the ladder, such as a small slip, can cause loss of balance and result in a fall.

The ladder should be placed on solid ground and should **ALWAYS** be securely anchored at the base and secured at the top to prevent slipping. Always have one person

8 Choosing a place to install the Solar Attic Fan

When choosing a location for your attic fan you should consider the following:

- You'll need roof cavity access to fasten attachments under the unit.
- Unit should be free from shading (this includes overhead cabling or TV antennas).
- Should be installed preferably between roof rafters.
- The unit should be installed as high up on the roof as possible.
- For a metal roof the flashing base should go under the ridge cap.
- For a tile roof the unit should be installed at **least three tiles down** from the ridge capping so as not to damage it during installation.

9 Optimal Solar Panel Orientation

9.1 Bi-Panel Unit

Bi-panel units should have a first panel facing the 11am-12noon sun with the second panel facing the afternoon sun to create a broad power peak. It does not matter which panel faces the afternoon sun.

Plan your installation first

For your added safety the EcoOnline™ Solar Attic Fan comes with a separate universal square flashing template so that most of the flashing work can be done conveniently and safely on the ground minimizing time spent on the roof.

1. Place the template around the unit and mark the overlap lines (40mm overlap).
2. On the roof, use the template to plan your installation.
3. Mark all screw holes, bend lines, cut lines on the square flashing and on the roof.

10 Attaching the flashing



WARNING

When working with power or hand tools always follow the safety instructions.

- Where appropriate wear the recommended personal protective equipment, such as **gloves, safety glasses, respiratory and hearing protection**.
- Make sure electrical cables are kept away from any water and from foreign objects which pose a **potential cable severing or crushing hazard**.
- When using glues, solvents or sealing agents make sure **you know and seek the proper first aid** in case of an accident.

1. Cover a table with a plastic drop sheet and lay the unit on the edge of the table.
2. Apply a small (2mm diameter) spherical bead of silicon around the top base of the unit.
3. Lay the flashing in place on the silicon.
4. Clamp the top overlap area of the flashing halves to the base of the unit.
5. Drill one rivet hole in this top overlap area and rivet the three pieces in place (rivet from the bottom).
6. Re-align the two halves of the flashing so that the bottom edge runs straight.
7. Starting from this top rivet, drill and rivet the next two holes on either side.
8. Follow clockwise and anti-clockwise on either side until the bottom is reached.
9. The last rivet should fasten the bottom section.
10. Do not rivet the two opposing ends first as this may create modulations in the mid section of the flashing.
11. Place more silicon all around the edge of the flashing (top and bottom) and rivet points.
12. Finish by drilling, cutting and bending the flashing appropriately by using your markings and the edge of the table, make sure the flashing runs flat.

11 Attaching the Second Panel

1. Before you fix the second panel in place you will need to drill fixing holes to secure the supplied half surface hinge to the second panel so that you can anchor the panel to the roof using fixing screws.
2. Next use the supplied flat hinges and Philips bolts and nuts to fix this second panel to the edge of the first panel. (Note: you will need a second person for this task to hold the panels in place).

3. Important: use a thread lock epoxy or silicon on the threads to lock the threads in place.
4. Secure the extra cross wind brace using the butterfly bolt and lock nut. Note make sure the thread penetrates deeply into the blue lock nut part of the nut.

12 Finishing

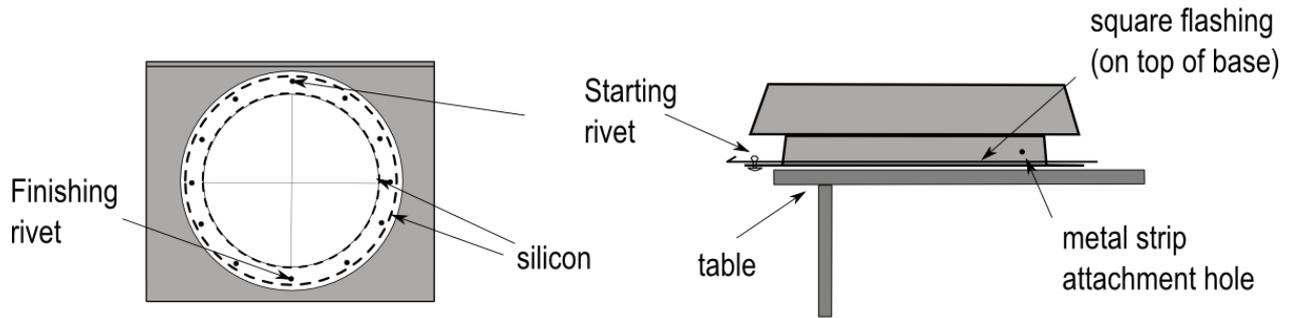
5. Attach the metal securing strips to the body of the unit.
6. On the slate roof, remove tiles by sliding the top tiles up and removing the bottom tiles for cutting (if applicable).
7. For a metal roof undo ridge capping screws, cut a 45cm diameter hole using tin cutters.
8. Insert the finished unit in place and secure using fixing screws.
9. Put tiles back and run silicon under any side tiles and side flashing overlaps.
10. Connect the power to the unit.
11. In the roof cavity, secure metal strips using a screw to the nearest roof batten.



CAUTION

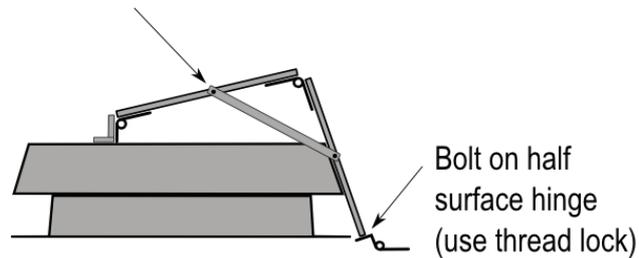
During the installation the solar panels must be disconnected to prevent the unit from inadvertently activating during the install. The motor can be burn out if the unit activates while the fan blades are not free to move.

Square flashing attachment

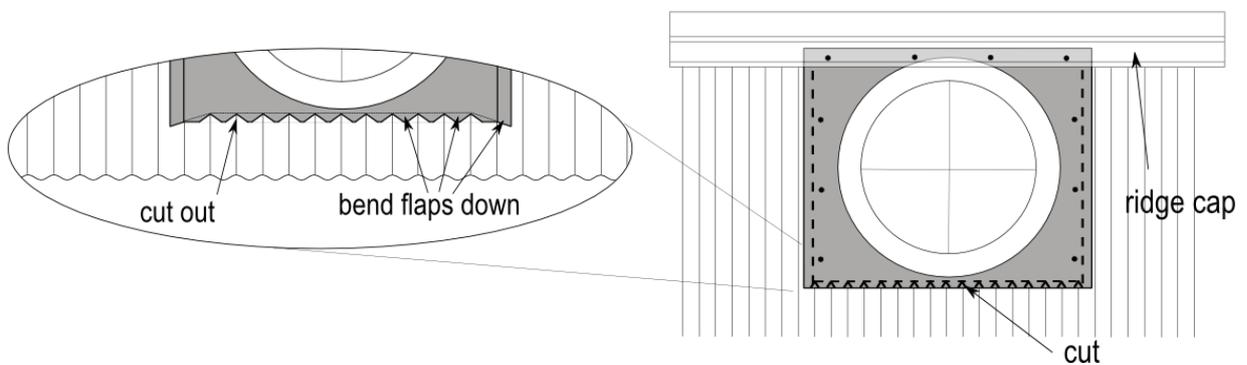


Installing wind proofing side struts

Bolt 2 X wind struts using butterfly bolt and lock nut



Metal roof configuration



WARNING

To minimize time spent on the roof, most of the flashing work should be performed on the ground.



CAUTION

Important: ALWAYS install wind proofing struts for the 20W version when mounting the unit in cyclonic and/or strong wind areas.



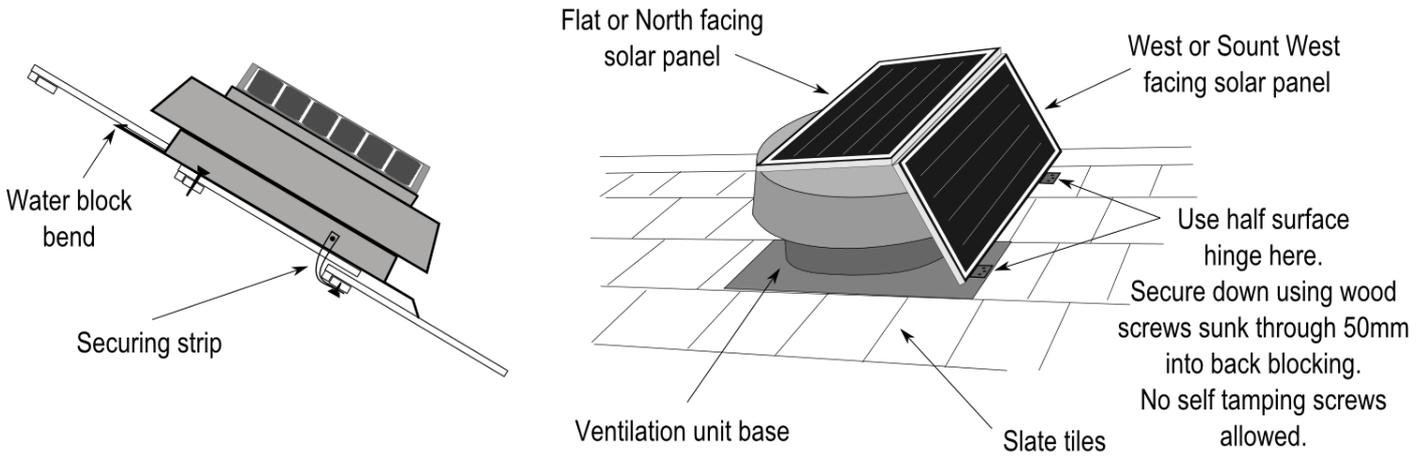
CAUTION

Important: The securing screws **MUST** be drilled through the unit's thicker gauge steel circular flashing and **NOT** just through the add-on square flashing.

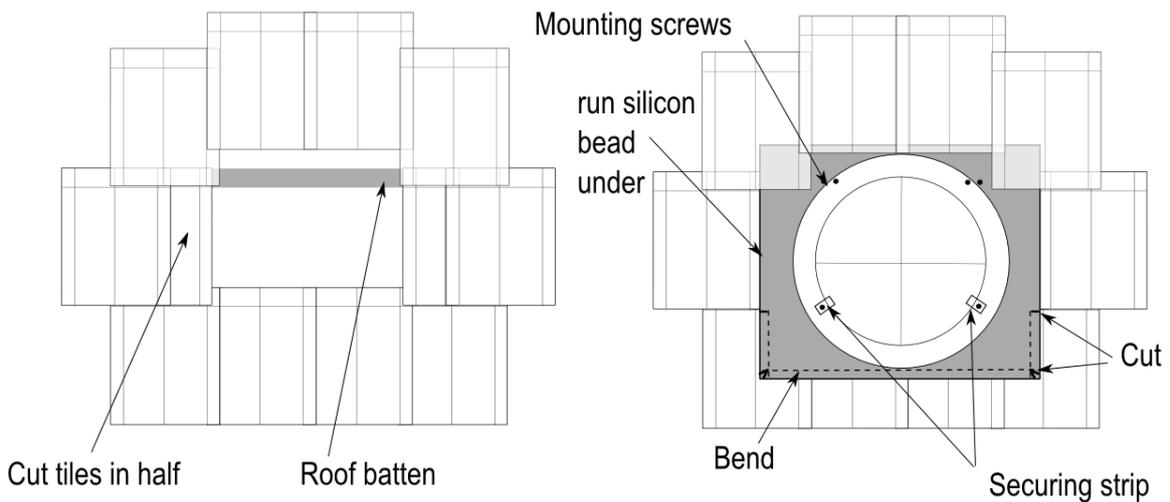


CAUTION

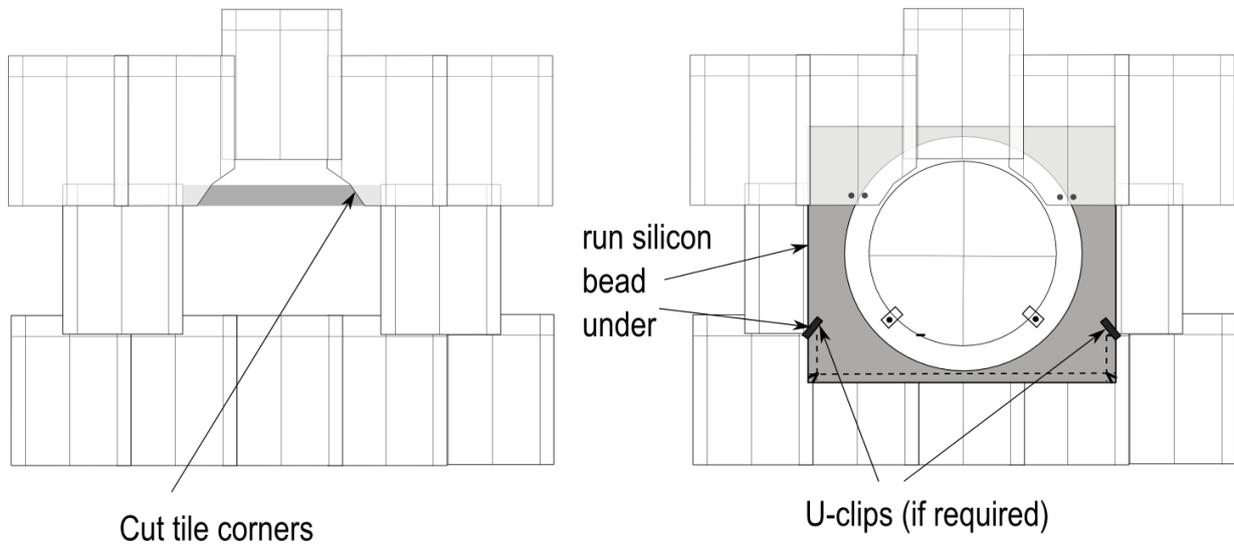
Some non-flat roof tiles may require extra flashing to seal the bottom run off of the unit. If in doubt seek advice.



SlateTile Mounting Option 1 (tile trimming required)



SlateTile Mounting Option 2 (tile trimming required)



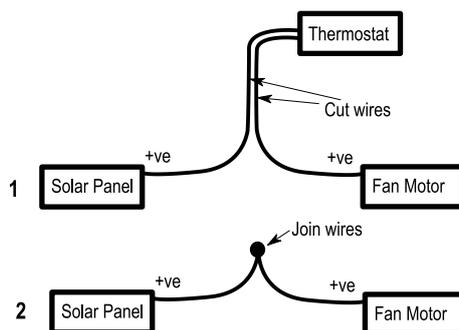
13 Adjusting the Thermostat

The activation temperature of the fan can easily be adjusted using the existing (27°C) fixed temperature thermostat. For example if you require the unit to activate more often (i.e. at a lower roof cavity temperature) simply cut and extend the thermostat wire and situate the thermostat higher in your roof cavity.

On the other hand situating the thermostat lower in your roof cavity will result in the thermostat sampling cooler air - in this case the unit will not come on as often.

If a complete removal of the thermostat is required simply cut off the thermostat and join the two resulting wires (see figure below).

Removing the Thermostat



WARNING

Note: when extending/altering wiring, the extra wire should be **double insulated dual core PVC cord with minimum copper area 0.75m²**. All solder joints must be sealed using a **good quality adhesive lined heat shrink**.



WARNING

Never run a 12-24V cable near or in the same compartment or conduit as other 240V cables due to the chance of mistaking the two cables at some later point in time during installation or servicing.

14 Trouble Shooting

Problem	Cause	Solution
Unit in full sun and not working	Thermal switch prevents the unit from activating below 27°C	No fix required
Flashing will not lie flat around the fan base	Rivet holes were not aligned properly	Create a small bend running the length of the flashing, alternatively, bend U clips and use them to clip the flashing to the roof tile on either end, silicon in place.