VELIT

Rooftop DC Air Conditioner
Instruction Manual

Model：Velit V3

Thank you for purchasing the Velit V3 Rooftop Air Conditioner. For safety and the best performance, please read and follow these instructions carefully. The latest electronic version of this document is available for download on the product page. We hope you enjoy your Velit air conditioner. For any product questions or issues, you can reach out to us at support@velitcamping.com or use the online chat box at velitcamping.com.

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Google Play

App Store

Always Bench Test Before Installing!

You may need to connect the display panel to bench test

IMPORTANT SAFETY INFORMATION

This manual has safety information to help users eliminate or mitigate the risk of accidents and injuries.

The installation of this unit MUST comply with the following code:

U.S: NFPA1192,NFPA70
CANADA: C22.1,CSA Z240

1 Understand Signal Words

⚠ WARNING

Indicates a hazardous situation that if NOT avoided, could result in death or serious injury.

⚠ CAUTIDN

Indicates a hazardous situation that if NOT avoided, could result in minor or moderate injury.

NOTICE

Indicates practices NOT related to physical injury

2 General Safety Message

This unit MUST be installed and repaired by qualified personnel who are familiar with the risk involved.

Do NOT modify this product in any way.

Any modifications can be extremely hazardous.Only use accessories authorized by Velit.

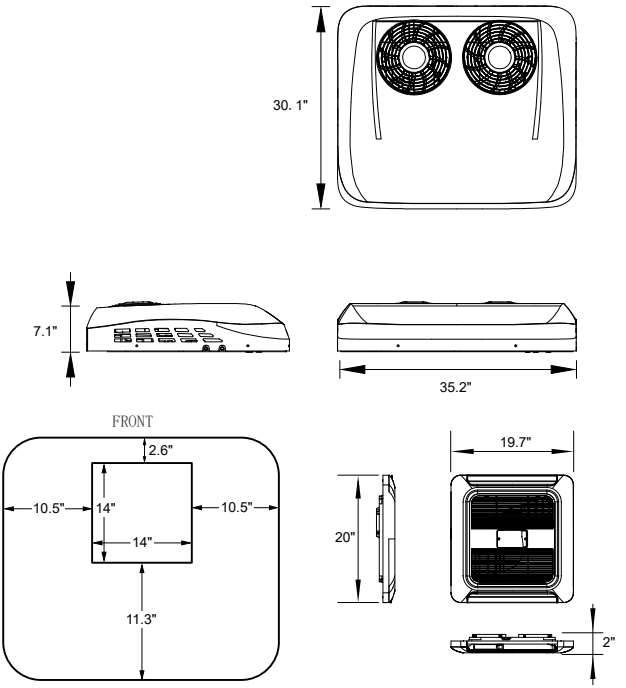
Do NOT use this unit in or near flammable environment.

Do NOT let children use the unit without supervision.

Do NOT use this unit when the ambient temperature is lower than 40°F. This could cause frost inside the unit.

Do NOT power wash the unit or use detergent to clean the unit.

SPECIFICATIONS



Model	Velit V3	
Input Voltage	DC 12V	DC 48V
Cooling Capacity	10000BTU	12000BTU
Operating Current	25A/48A/63A	12A/18A/25A
Rated Power	300~760W	576~1200W
Refrigerant	R32/460g	R32/460g
Operating Temperature	38-125℉ / 0-52℃	
Noise Level	ECO mode:55dB Boost mode:65dB	
Exterior Unit Dimension	W31.1"*L35.2"H7.1"	
Weight	65lb/29kg	

Inside The Box

Part Name	Quantity
V3 Air Conditioner	1
Air Distribution Box Assembly	1
Mounting Bracket	1
Sealing Gasket	1
Return Air Filter	1
Leveling Block	4
Zip Tie	5
Cable Tie Mount	5
Outside Duct & Inside Duct	1
Wiring Harness	1
Remote	1
Display Panel	1
User Manual	1
Cutting Template	1

Hardware Kit

Thread Rod M8×100mm	4
Thread Rod M8×150mm	4
Flange Nut M8	4
Lock Nut M8	4
Screw M5×16mm	4
Flat Washer M8	4
Self-Tapping Screw M4.2×13mm	14

ELECTRICAL REQUIREMENT

Ensure your power supply can continuously provide the recommended current to prevent voltage drop or damage.
Always include at least 15% overhead for safe operation.

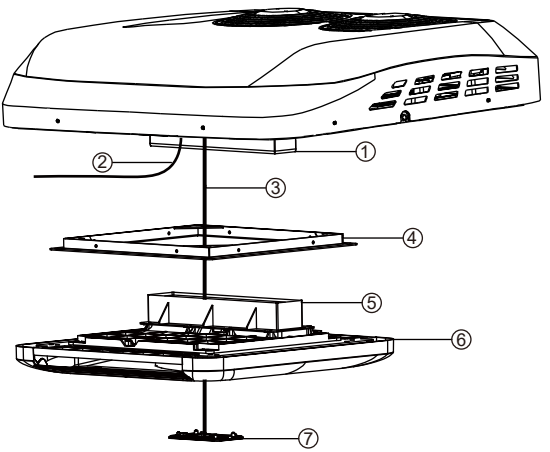
Voltage	Rated Current	Recommended Supply Current (+15%)
12V	63A	75A+
48V	25A	30A+

The unit comes with a 15 ft (4.5 m) wiring harness with in-line fuse. the wiring needs to be extended, refer to the table below:

	Fuse	15FT (stock)	15-20FT	20-25FT
12V	100A	5 AWG	4 AWG	2 AWG
24V	50A	8 AWG	6 AWG	4 AWG
48V	30A	10 AWG	8 AWG	6 AWG

Note - Fuses are sized larger than the maximum operating current to handle the compressor startup surge. Always ensure the fuse is rated for the wire and voltage used.

INSTALLATION



1. Outside Duct
2. Power Cable
3. Control Panel Wiring Harness
4. Mounting bracket
5. Inside Duct
6. Air Distribution Box
7. Control Panel

ADB Install Video

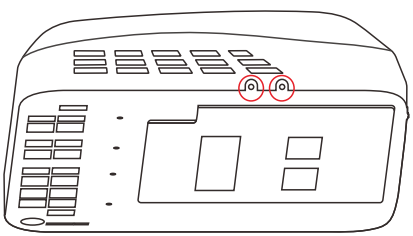
Opening Size & Positioning

- Velit V3 is designed to fit a standard 14" × 14" opening (± 1/2" tolerance).
- If an existing opening is already present, proceed to Step 7.

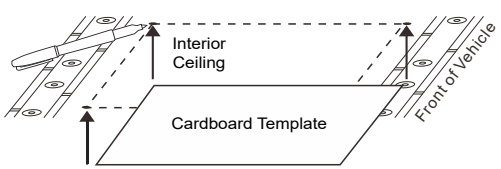
⚠ WARNING

Cutting into structural beams, plumbing, or electrical lines can cause serious injury or death. Always verify the selected location is clear of all internal components.

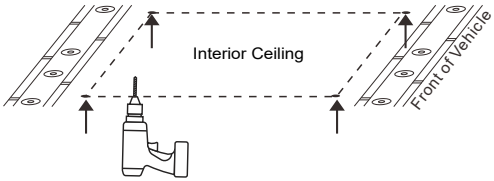
- A 1:1 cardboard template is included to help position the unit.
- Ensure sufficient space for the 30.1" × 35.2" rooftop shroud.
- Center the opening between ceiling ribs for the easiest installation.
- Ensure drainage ports (both sides) are not blocked by rooftop components (solar panels, vents, etc.).



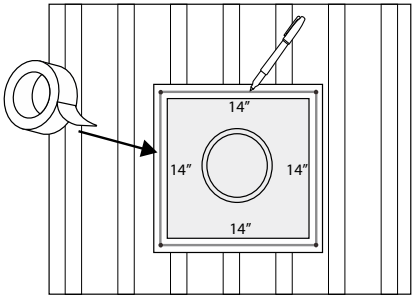
- The unit may be mounted in forward, rearward, or sideways orientations, with a maximum tilt of 30°.
- If installing accessories such as solar panels above the unit, leave at least 6" of clearance above the outside condenser fan. Obstructions may reduce efficiency and cooling capacity.
- Use the template to mark the four corners on the interior ceiling with a permanent marker.



• Drill through each corner using a 1/8" drill bit.



• On the roof, use pilot holes as guides, apply painter's tape over the cutting area



• Draw a precise 14" × 14" square connecting the holes with a straight edge

• Before cutting, measure all four sides and the diagonals repeatedly. Ensure your marked lines form a perfect 14" x 14" square. If the lines are incorrect, remove the tape and repeat the marking process until the measurements are exact.

• Cut precisely along the marked lines using an approved cutting tool (e.g. jigsaw, nibbler or cutting wheel).
• Immediately use a sander or file to smooth out all rough edges.

NOTICE

This smoothing action prevents personal injury and ensures the final sealant adheres to a clean surface.

• Remove the painter's tape.

• Thoroughly clean the exposed, rough-cut edges with a solvent, such as isopropyl alcohol, to remove all metal shavings, debris, and dust.

• Immediately apply an appropriate rustproof coating to the cleaned metal edge. This protective action is mandatory to prevent rust and ensure a strong, long-lasting final sealant bond.

NOTICE

For a perfectly clean and straight edge on your rust-proofing application, re-apply a fresh strip of painter's tape roughly 1/8" to 3/16" from the cut line. Apply the coating and then immediately remove the fresh tape before the primer/sealant skins over to achieve a crisp, professional line.

NOTICE

Do NOT remove the protective adhesive liner from the gasket until the gasket is ready for final installation.

Sealing Gasket

• The unit includes a standard single-layer gasket (closed-cell, higher-density foam), which is sufficient for most installations.
• Place the gasket loosely around the 14" × 14" roof opening.

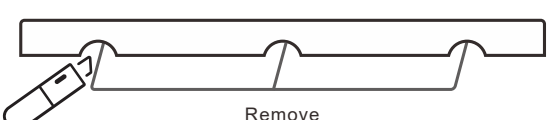
NOTICE

Two people are required to safely lift and position the V3 unit. Do not attempt installation alone.

• Carefully position the A/C unit on top of the gasket to evaluate fit.
• Visually estimate clearance, keeping in mind the gasket will compress approximately 5%–10% during final tightening.

Gasket Preparation & Installation

①. Trace and Cut
• Identify any roof ridges or contours
• Trace these onto the gasket
• Use a knife or razor blade to remove material so the gasket sits perfectly flat and flush



②.Final Placement

•Once properly trimmed, remove the adhesive liner

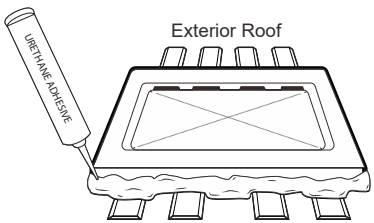
•Firmly press the gasket into position around the opening

•Apply even pressure along the entire perimeter to ensure a strong bond

③.Waterproofing

•Clean the surrounding roof area using alcohol wipes or PrepSol to remove oil, wax, or residue

•Apply a continuous bead of urethane sealant around the entire outer edge where the gasket meets the roof



Position the Air Conditioner

• After the gasket adhesive and sealant have set:

①Carefully and evenly position the unit over the 14" × 14" opening

②Ensure the unit base is perfectly centered

• Verify alignment:

①From the rooftop: confirm even spacing around the opening

②From the interior: confirm all components are properly aligned within the cutout

Proper alignment is critical for correct installation of the interior Air Distribution Box and crossbars.

WARNING

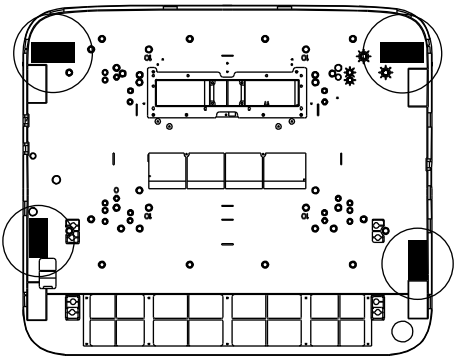
Do NOT apply adhesive, sealant, or any compound on top of the gasket

The gasket is designed to create a self-compressing, watertight seal when properly torqued

Do not puncture, tear, or damage the gasket when inserting mounting bolts

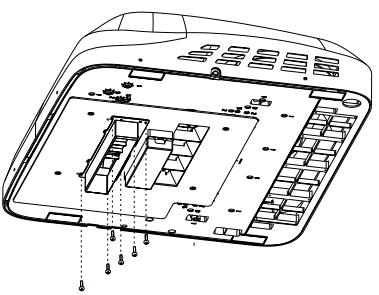
Avoid contact with or damage to electrical components during placement

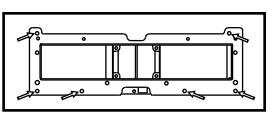
• Leveling Strip must be installed to ensure the unit is supported at all edges. To install, remove the adhesive liner and adhere the strip to the underside of the A/C unit's base plate, just outside the installed gasket, on the low side of the unit. This corrective action is mandatory to ensure proper condensation drainage and to minimize vibration and prevent undue stress on the unit's base caused by uneven contact with the roof.



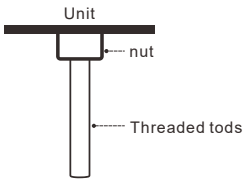
Mounting Bracket and Air Distribution Box

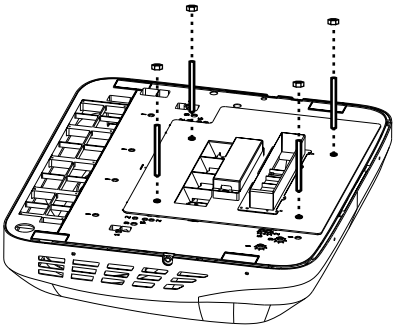
• Install the outside duct onto the bottom of the AC unit with six M4*2 self-tapping screws





• Insert four M8 threaded rods into the holes on the bottom of the AC unit.
• Tighten the flange nuts all the way down to secure the threaded rods

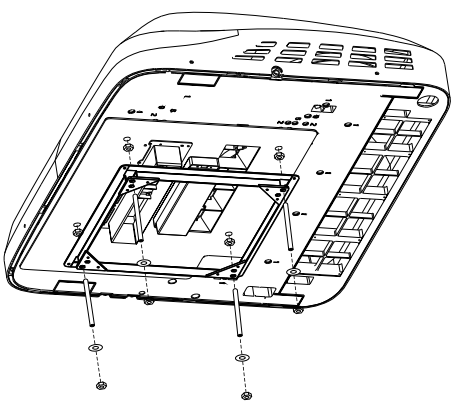




• Carefully place the AC unit over the roof opening
• From inside the vehicle, position the mounting bracket so that the threaded rods pass through the holes at each corner of the bracket.
• Tighten the assembly with washers and lock nuts to a torque specificationof 3.3-4.2 lb.ft (4.5-5.6 Nm).

NOTICE

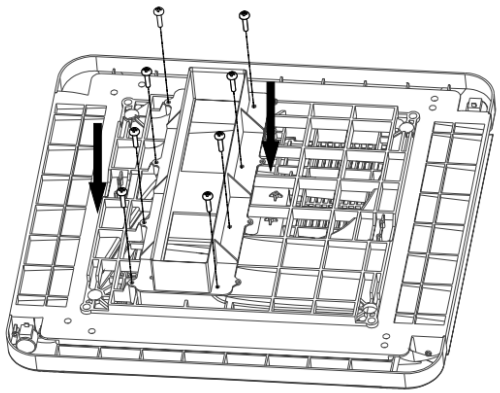
Do NOT overtighten, as this may strip the plastic bottom plate.



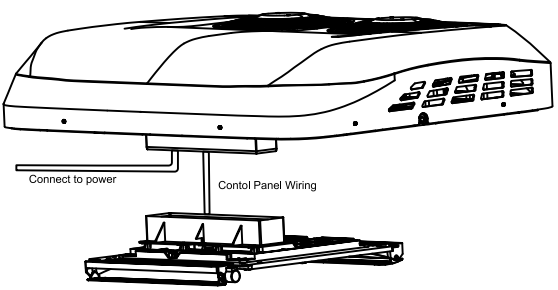
NOTICE

The ceiling is hidden in the image above for clarity. The mounting bracket is located inside the vehicle.

• Connect the inside duct to the air distribution box(ADB) frame with eight M4*2 self-tapping screws



• Connect the AC unit to the power supply and route the control panel wiring through the ADB frame.

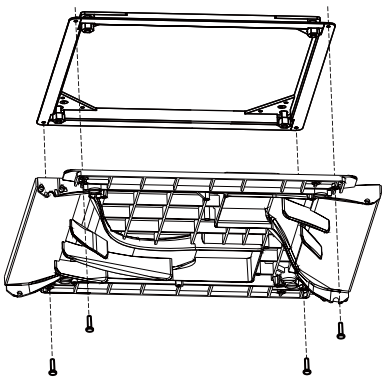


• Separate the ADB cover from the frame by removing the six M4.2×16 screws

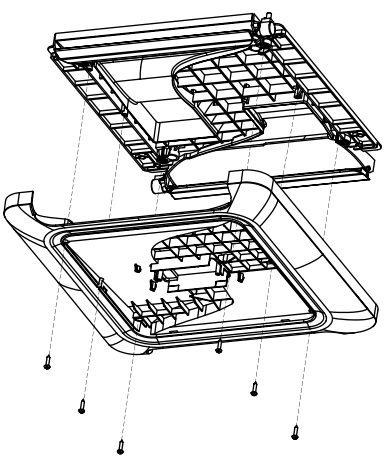
NOTICE

The ADB cover and frame are pre-assembled at the factory for shipping. Disassemble these two parts before installation, and retain the six M4.2×16 screws for reuse in the step below.

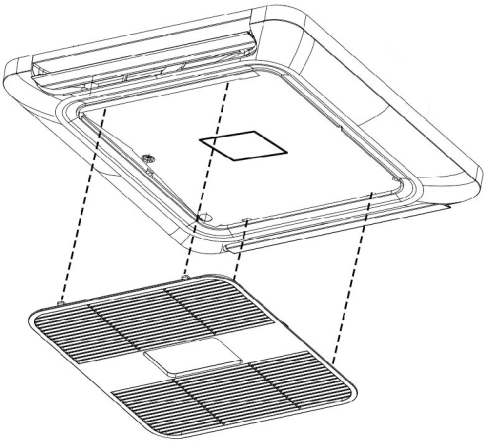
• Attach the ADB frame to the mounting bracket using four M5 screws.



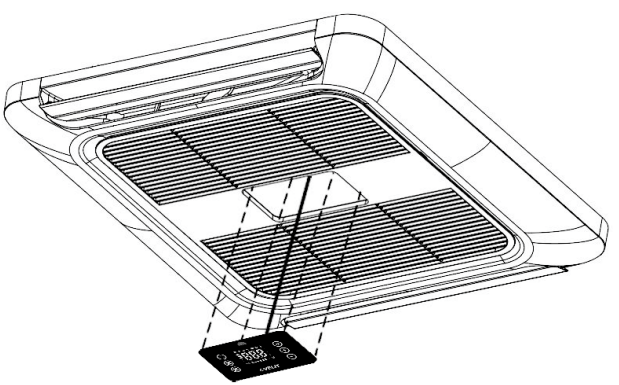
• Secure the ADB cover to the ADB frame with six M4.2*19 self-tapping screws



• Attach the intake grill to the ADB, ensuring it is securely in place.



• Pull the display panel wiring through the opening. The other end is connected to the control box located at the bottom of the rooftop unit.
• Connect the wiring to the control panel and mount the control panel onto the intake grill.



OPERATION

1. Modes

Modes only change the maximum compressor output. The unit will automatically reduce output and eventually turn off the compressor when the set temperature is reached
Output from low to high:

Sleep:  < ECO:  < Cooling:  < TURBO: 

Fan speed can be adjusted individually in different modes. The fan stays on all the time even when the set temperature is reached

Vent Mode Operation

Turn Vent Mode on or off by short pressing the Vent button on the display panel or remote control.

When Vent Mode is activated:

- The compressor and evaporator fan will turn off
- The air flap will automatically open
- The ventilation fan will turn on

Fan speed can be adjusted by pressing the Fan Speed button.
When Vent Mode is turned off:

- The unit will resume operation in the previous mode that was active before Vent Mode was enabled

2. Control Panel

1 Power ON/OFF

2 Fan Speed

3 Vent

4 Mode Switch

5 Temperature +

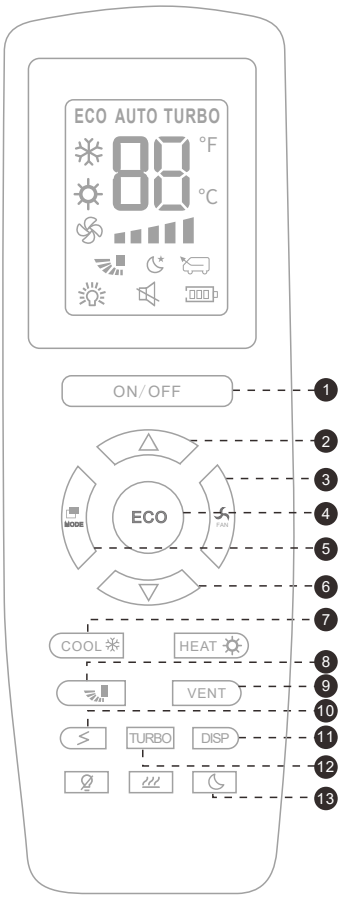
6 Temperature -

1. Power ON/OFF: Short press to turn on unit
   Long press 2s to turn off
   Short press to turn off/on display while the unit is on
2. Fan Speed: Cycle between 5 fan speed settings
3. Vent: Turn on/ off vent mode
4. Mode Switch: Short press to switch between operating modes:
   Sleep Eco Cooling Turbo
5. Temperature + : Increase set temperature
6. Temperature - : Decrease set temperature

3. Remote Control

NOTICE

This is a general-purpose remote.Some buttons do not apply to this model.



1. Turn ON/DFF
2. Increase temp
3. Change fan speed
4. ECO mode
5. Switch between modes
6. Decrease temp
7. Cooling mode
8. Swing
9. Vent mode
10. View voltage
11. Timer
12. Turbo mode
13. Sleep mode

4. Switch Display Unit ℃/°F

Method 1: When the unit is on, long press Mode button 3s
Method 2: When the unit is powered off, on the remote control, short press the mode button and down arrow button at the same time. The display unit on the remote will switch. Turn on the unit with the remote and the unit on the display panel will sync with the remote.

5. Under/Over-Voltage Protection

Low voltage protection will auto shut off the unit when the supplied voltage islower than the cut-off voltage (default 10.5/21.5/40V) and the low-voltage redlight will light up. The unit will turn on automatically once the supplied voltageis higher than the recover voltage(default 12/23/42V) When the supplied voltage is higher than 18/36/72V, the unit will turn off andthe high-voltage red light will light up. The unit will turn on automatically oncethe supplied voltage is lower than 15/30/60V.

TROUBLESHOOTING

Error Codes and Troubleshooting

Code	Cause	Troubleshooting
E0	Ambient temperature sensor (White 2 pin connector)	Use a flathead screwdriver to pry open the display panel. Ensure the white 2-pin connector is seated properly. Replace the sensor or the display panel if needed.
E1	Evaporator temperature sensor (Red 2 pin connector)	Use a flathead screwdriver to pry open the display panel. Ensure the red 2-pin connector is seated properly. Replace the sensor or the display panel if needed.
E2	Over-current	System pressure is high. Ensure the outside condenser fan and the side/bottom air inlet are not blocked. Rinse the condenser with water to remove debris, then power cycle the unit after letting it sit for 20 minutes.
E3	Blocked rotor	Ensure the three terminal screws securing the compressor wiring are tight. Then, power cycle the unit after letting it sit for 20 minutes. Contact customer service if the issue persists.
E4/EL	Low-voltage	Check the battery voltage and measure the voltage at the terminal when the error code occurs. By default, this error code triggers when voltage drops below 10.5V. Make sure the wiring is connected properly and there are no loose nuts or crimps
E5	Short protection/faulty controller	Ensure the three terminal screws securing the compressor wiring are tight. Then, power cycle the unit after letting it sit for 20 minutes. Contact customer service if the issue persists.
E6/EH	Over-voltage	Check the system voltage. It should be less than 15V for the 12V model.
E7	Compressor startup failure	Ensure the three terminal screws securing the compressor wiring are tight. Then, power cycle the unit after letting it sit for 20 minutes. Contact customer service if the issue persists.
E8	Condenser fan	Remove the shroud and make sure condenser the fan connector is properly seated

EF	Evaporator blower fan	Pry open the display panel and make sure the 4pin blower fan connector is properly seated.
Eb	Controller lack-phase	Ensure the three terminal screws securing the compressor wiring are tight. Then, power cycle the unit after letting it sit for 20 minutes. Contact customer service if the issue persists.
EU	Controller overheated	Ensure the outside condenser fan and the side/bottom air inlet are not blocked. Rinse the condenser with water to remove debris, then power cycle the unit after letting it sit for 20 minute.
SP	Controller disconnected	Pry open the display panel and make sure the 4pin compressor connector is properly seated. Power cycle the unit.

AC Cycles on and off constantly (Short Cycling)

Cause

Short cycling occurs when the evaporator coil becomes too cold and the anti-freeze protection program shuts off the compressor to prevent icing. This mostly happens when the ambient temperature is lower than 70F.

Solution

- Make sure all vents are open. Try to run at a low power setting (Sleep or ECO) with a high fan speed setting. This should mitigate the issue or increase the cycling interval.
- Unplug the red temperature sensor connector located on the back of the display panel to allow continuous operation.
- Contact customer support to replace the display panel with the latest firmware version to help alleviate the short cycling issue.

AC does not blow cold

- Make sure the ambient temperature is higher than 70F.
- Put the AC in turbo mode and the lowest temperature setting
- The unit should draw over 100W (10A in 12V, 5A in 24V, 3A in 48V) when the compressor is running properly.
- If it draws over 100W, it's an refrigerant issue. If it draws less than 100W, it is likely an electrical issue.
- Submit us a ticket noting your power draw

For more information, go to our online knowledge base to view the latest troubleshooting documents and submit a support ticket.

help.velitcamping.com