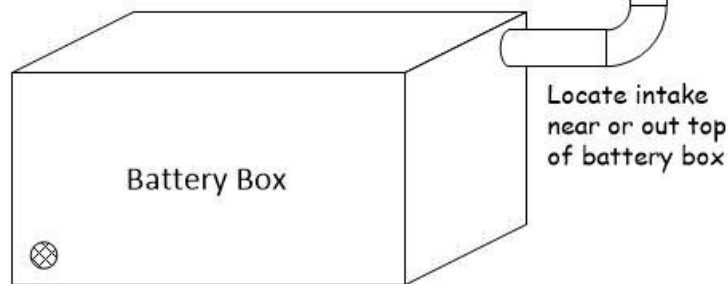


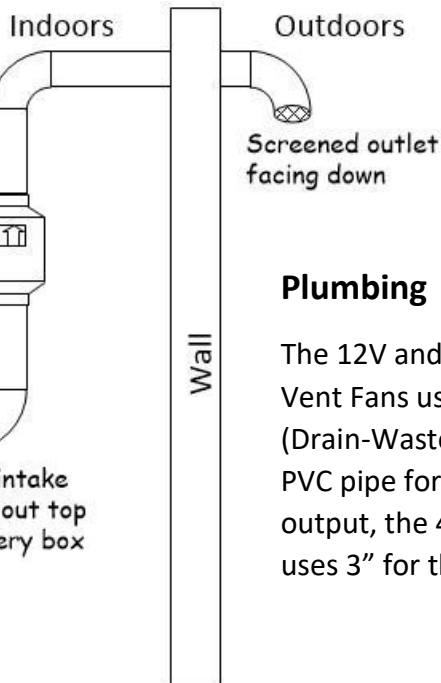
Zephyr Vent Fan Installation

- Use PVC dwv pipe and fittings
- Use curved elbows as opposed to sharp 90 degree turns. No more than 4x 90-degree elbows (360-degrees total)
- VENT FAN installed vertically with arrow pointing up
- Gluing voids warranty and makes fan replacement very difficult

Do not glue these joints!



2" Diameter min.
Screened vent, locate near
bottom opposite from fan intake



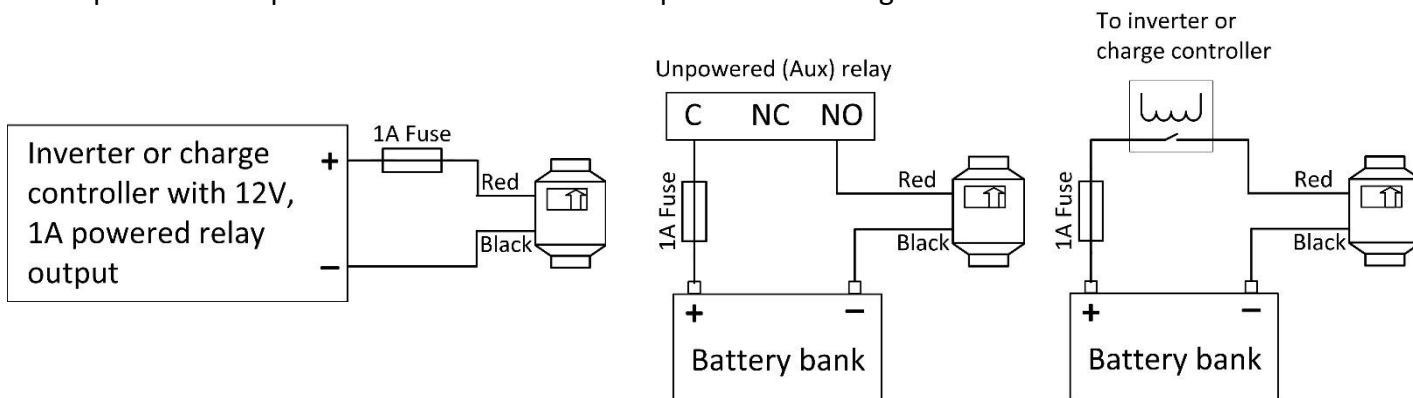
Plumbing

The 12V and 24V Zephyr Vent Fans use 2" DWV (Drain-Wastewater-Vent) PVC pipe for both intake and output, the 48V Vent Fan uses 3" for the output

Wiring

Many inverters and charge controllers have an auxiliary relay that is programmable to turn a Vent Fan on or off based on the battery Voltage. These tend to come in two version: Either a constant Voltage (often 12V), and if the current rating is sufficient this can drive a (12V) fan directly. All the Fans use less than 200 mA (0.2 Amp, this is true for the 12, 24, and 48V Vent Fans).

The other version has a dry contact (a regular unpowered relay). The battery Voltage has to be wired to the switch part of such a relay and the fan should match the battery Voltage. A 12V powered relay can also be used to drive an additional relay to use a 24V or 48V Vent Fan. An automotive relay is an often-used option. A 1 Ampere fuse is recommended to protect the wiring.



Instructions

The Vent Fan must be placed vertically with the label right side up in order for the backdraft damper to function properly. Place the Vent Fan higher than the top of the battery box and indoors, especially in cold climates (the damper could otherwise freeze shut due to the moisture in the battery gasses).

Use no more than four 90° bends including the one at the exterior terminus facing down. Put a screen on the outside pipe terminus to keep insects and debris out. If installed in a dusty or construction environment put a porous foam or paper filter on the battery box inlet. DO NOT GLUE the Vent Fan in place. Friction fit is adequate. DO NOT drip glue onto the Fan blades.

Use 2" PVC dwv pipe on 12 and 24 volt systems. Use 2" intake and 3" output PVC dwv pipe on 48 volt systems. Place a 1 amp fuse at the start of the positive circuit wire. Thermostat wire and phone splice/tap connectors (ULG or UG)) work well to connect the Power Vent. Use a cable tie around the base of the Power Vent and wires to provide strain relief and create a neat wire job. A controller is usually used in the circuit to cycle the Fan. Many inverters and charge controllers have built-in functionality to switch a fan on/off based on battery Voltage. Please refer to the appropriate manual for hook up and programming instructions. The voltage set points for turning the Fan on and off are above the full State-Of-Charge voltage of the battery but below the battery gassing voltage. In the case of grid tied systems where the batteries are kept at float voltage 24 hours/day it may be necessary to run the Fan full time as the batteries are always gassing. An alternative is to remove the backdraft damper to allow passive venting and only switch the Fan on when the batteries are above float voltage.

For the inquisitive, please note that the 48 volt Vents Fans are built with two 24 volt fans wired in series.

Set Points for Flooded Lead Acid Batteries			
Battery Voltage	Fan ON set point	Fan OFF set point	Hystereris (some inverters)
12V	13.2 Volt	13.0 Volt	0.2
24V	26.4 Volt	26.1 Volt	0.3
48V	52.8 Volt	52.2 Volt	0.6

LIMITATIONS AND DISCLAIMER.

The Zephyr Vent Fan only moves a small volume of air. It is designed for home systems with typical charging capabilities of 150 DC amps or less. Hydrogen gas creates an explosion risk at concentrations of only 4%. Make sure vent openings are free and clear including the safety vent hole at the bottom of the Vent Fan. Periodically check to make sure the Vent Fan is running during charge periods. Keep your batteries and connections clean and tight. Having no control over the use or installation of this product, we assume no liability connected with its use. The Zephyr Vent Fan itself is warranted for 2 years if installed in accordance with these instructions.