cousign

ACTIVE VENTING

INSTRUCTIONS FOR ACTIVE VENTING
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This document outlines the installation and operation of active venting solutions for outdoor signs exposed to direct sunlight and high-temperature environments.

When electronics-heavy signs are mounted in direct sun, heat can accumulate inside the enclosure, potentially leading to premature failure of internal components—particularly the 5" numeric display segments. Installing active venting helps dissipate excess heat, promoting longer lifespan and reliable performance of the sign's internal electronics.

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Solution Overview

The active venting solution is designed to be as easy as possible to retrofit into existing signs exhibiting premature failure issues.

Note: This solution is experimental
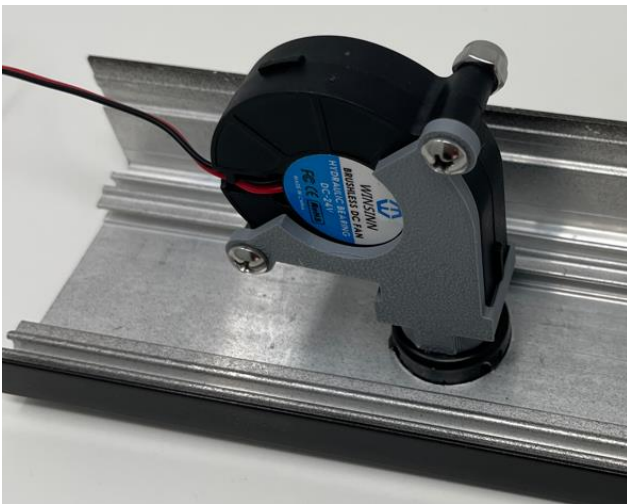
Installation Overview

Tools required (not included):

25mm step bit	Deburring tool	Hot glue or other

Any mechanism for securely mounting the temperature controller and probes. This can be hot glue, zip ties, etc.

Parts Included

1. 2 x 1" Air Vent

2. 1 x 5015 Blower Fan 24V
3. 1 x Blower fan mount (3d print)
4. 1 x KSD9700 Temperature Switch
5. 2 x 8-32 stainless steel machine screws + nuts

Installation

Note: If installing multiple blowers repeat steps for each kit. To ensure proper air flow all inlets and exhaust vents must be installed. Larger signs, or signs with lots of electronics may need more than 1 kit to efficiently vent.

Step 1: Drill Exhaust and Inlet Holes

1. Locate suitable spots for installation of your exhaust and inlet vents
   a. Exhaust should be located as high as possible on the left or right side of the enclosure.
   b. Inlet should be located on the bottom extrusion, **opposite** the exhaust.

2. Drill 1" hole in frame extrusion near the top of the sign (where hot air will collect) for exhaust.

Note: Ensure adequate space for blower assembly and temperature control.
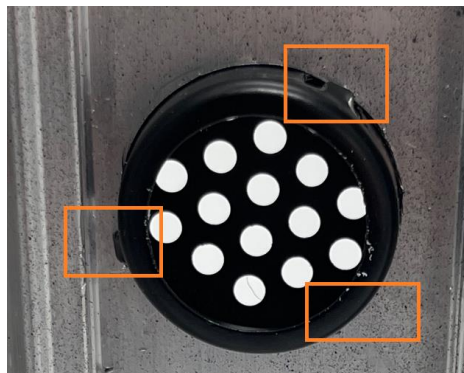
3. Drill 1" hole in bottom frame extrusion for inlet

Note: A 25mm step bit (.98") with some deburring creates a perfectly snug fit for the air vents

Step 2: Install Air Vents

1. Place air vents in each hole and bend locking tabs to prevent pullout

Step 3: Install Blower Assembly

1. Press fit the blower assembly into the exhaust vent

2. The blower assembly includes a KSD9700 temperature switch which will automatically turn the fan on and off as needed
3. Connect wires to 24V power supply with 20AWG hookup wire.
4. Ensure temperature switch is floating in air and not in contact with any glue, enclosure, or other surface. The temperature probe should be surrounded by air only.

Step 5: Install Optional Aquarium Monitor (Or Similar)

1. In addition to the temperature controller, we recommend you also install an aquarium thermometer (not included) to keep tabs on the internal temperature of the sign. Place the probe near the temperature switch(es) and route the wire outside the sign so that temperature inside the sign can be monitored when the sign enclosure is closed.

Step 6: Install Sign Face

1. Installation complete. The fans will turn on and exhaust hot air and will shut off when the internal temperature is lowered.

Fan Mount Source

The fan mount is a 3d printable part. Model below. Print with PTEG