

AutoVent 2t™

Advanced Greenhouse Control: Fan Pad & Shade Screens

Description

An advanced environmental controller that utilizes environmental data including internal and external environmental conditions. The user then establishes what the ideal environment is to be and the controller actively works to achieve this.

The controller has many inbuilt features that don't require expensive upgrades or additional modules. All controllers are 'Plug & Play' and our experienced team can easily remotely support any questions the grower may have.



Users can enable and force any Function operation directly from unit

Changes in all settings can be affected from control unit

Users can scroll through settings and view current status of the environment

Robust IP 67 Splash resistant case with liquid crystal digital display of all readings and settings

Advantages to the Grower

The AutoVent 2t™ will expertly manage the environment to optimize it for your plants, this can:

- Increase fruit set and/or flower quality
- Create fewer stressed and vulnerable plants
- Provide the grower flexibility in control
- Protect vents from damage when the grower is absent
- Provide you peace of mind when not on site

Remote Monitoring & Alarms

The AutoVent 2t™ has an inbuilt alarms that provide an audible sound on the control unit. In addition when connected to a PC the system will dial out via the computers modem and advise the growers nominated number that an alarm threshold has been breached.

Applications
Medium to large environments

AutoVent 2t™ Controls

Fan Pads
Thermal Screens (1)
Shade Screens (2)
Fogging/Misting
Lighting⁺
Heater
Stir Fans (2)
CO2 Injector⁺

AutoVent 2t™ Monitors

Relative Humidity*
Temperature*
Solar Radiation*
Rainfall
Rain volume
Wind speed
Wind Direction
Carbon Dioxide*
Pipe Temperature*

*Inside & Outside Structure
+ Optional

Special Features

Air Conditioner Output
Lighting Multitask
1-4 Aspirated
Environment Sensors
4 Zone Fogging/Misting
CO2 Injection
1-25 Additional
Temperature Sensors to monitor other area e.g. chillers, growbags

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Technical Specifications

Environment Sensors

1-4 Aspirated	Relative Humidity*
Rain sense & volume	Temperature*
Solar radiation*	Wind speed & direction
Pipe temperature	CO2 ppm

*inside & outside greenhouse

Outputs Controlled *Optional

CO2 Injector*	Stir Fans (2 banks)
Lighting*	Heater unit
Fogging/Misting * 1-4 Zones	Fan Pad, evaporative coolers
Shade Screens (2 banks)	Thermal Screens (1 Bank)
Outputs	24vAC
Stir Fans	0-2 bank temperature and/or relative humidity
Heating	Proportional control uses 24vAC or 0-10v signals to position mixing valve
Fogging/Misting	1 Zone inbuilt. 2-6 Zones add output module
Lighting	3 Banks. Supplemental, accumulated top up or daylight extension. Requires output module
CO2	Electronic sensor
Shade Screens	2 banks. Control solar/relative humidity/time of day and/or temperature
PC Communication	PC Can be up to 1.2km from unit. Requires data cable. Preferably Cat 5E Stranded 4 pair twisted
System Reports	Exports CSV files. Monthly summary with max, min and average of all measured variables. Boiler run time and solar radiation total
Alarms	Contact closure and Audible on unit. Sound card activation on PC and Dial out via modem if activated
Electrical	Power 115/230v AC, 50/60Hz, 50Va
Physical	Weight 5.5kg

16 Manual Switch Controls

Venting

The AutoVent 2t will control up to three fan banks (or variable speed fans) together with air inlet vent and water evaporative cooling. The air inlet can be set to open at a lower temperature to give some small amount of ventilation before the need to switch on the fans.

The extraction fans can be set up as a simple three bank system each with its own set-point offset or else they can be set to operate in a binary weighted mode. To achieve this, fan bank 2 must be twice as powerful as fan bank 1 and fan bank 3 twice as powerful as fan bank 2. Then the controller can select various combinations of fans to get exactly the correct amount to hold the temperature at the set level. With this method, eight levels of fan cooling can be achieved with only three fan banks.

Fan bank one operates according to the effective set-point for each time zone whilst Fans 2 and 3 operate at user set offsets from the base set-point (eg + 1.5°C and + 3°C) At a sudden change in temperature the controller will move quickly to the switch on appropriate larger fan bank and then take a little more time to adjust the lesser fans to suit. Three set-points are provided in the pursuit of economy so that the bigger fan banks, which are obviously more costly to run, will only operate when absolutely necessary. The offset for each bank may be set to suit the crop to achieve a sensible balance between optimal temperature and economy. The advanced venting/heating algorithm will try to control both temperature AND relative humidity by varying the venting/heating setpoints within user set bounds. In addition, if the fans and fad are unable to control the temperature satisfactorily, the shading will try to assist and if this is still not successful the system will automatically switch over to air conditioning control (if fitted) or roof sprinklers.

Air Conditioner

As an option, an air conditioner may be installed. This is only used after every attempt has been made to control temperature by fans and/or evaporative cooling

Heating

Air heating can be by either proportional control or ON/OFF control. Proportional control is normally used in conjunction with a boiler heating water pipes. This provides a very gentle heat and the heating pipes can be positioned either under the grow beds or between the rows of plants. In this way less heat need be supplied as compared with general warm-air heating. Water pipe heating is gentle, economical and avoids sudden drying of the air.

The heating is used to control both the temperature and the relative humidity.

Fogging

Fogging may be used to assist with cooling or to increase humidity in dry weather. Five outputs are used; one that comes on constantly while fogging is called for and the remaining four that pulse on for short periods to inject puffs of fog to each zone in turn. The size of the puffs of fog is automatically varied depending on the size of the error that it is trying to correct. For example, if the temperature is just a little too high, then small puffs of fog will be generated whilst if the temperature is a lot too high then larger puffs will result.

Stirring fans

A single stage of stirring is provided as standard but this is increased to two zones if the output expander is fitted. Stirring fans are normally set to come on whenever the exhaust fans are off, when humidity is excessive, when injecting CO2 or when fogging.