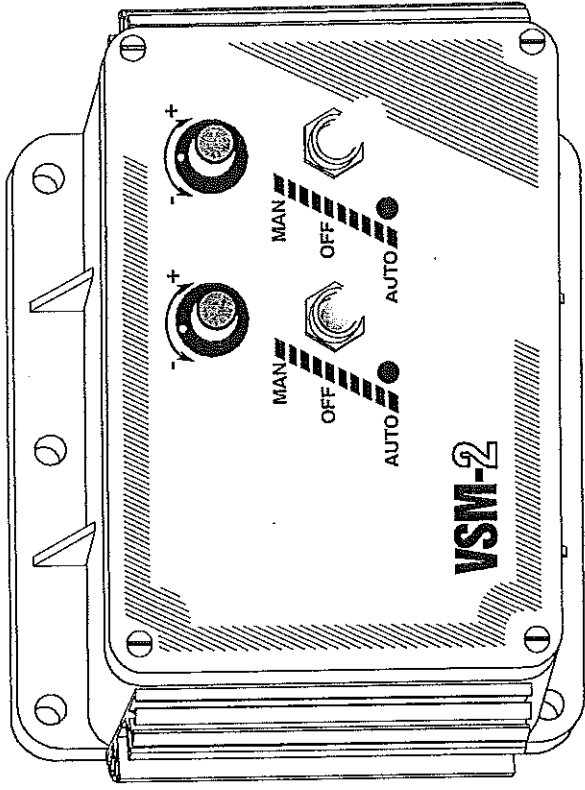


# VSM-2

## User's Manual



Although the manufacturer has made every effort to ensure the accuracy of the information contained herein, this document is subject to change without notice due to ongoing product development.

## **WARNINGS AND PRECAUTIONS**

Equipment, probe failure, blown fuses and/or tripped breakers may prove harmful to the contents of the building. Therefore it is strongly recommended to install backup devices and alarm or warning devices. Spare equipment should also be available at the owner's site. Equipment manufactured by the manufacturer is protected against normal line surges. High surges caused by thunder storms or power supply equipment may damage this equipment. For added security against line voltage surges it is recommended that surge and noise suppression devices be installed at the electrical distribution panel. Use of shielded cable for probes is recommended for protection against lightning. These devices are available from most electrical supply distributors.

## **RECOMMENDATIONS**

The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Further more the manufacturer recommends to test all the functions and equipment connected to the SVC, including the alarm system and backup devices, after installation, after changes to the installation and every month after that. Fuse verification and replacement, as well as the proper setting of control values shall be the responsibility of the owner of this equipment.

---

---

## TABLE OF CONTENTS

---

---

### INTRODUCTION

1. General .....	4
1.1 Description .....	4

### INSTALLATION

2.1 Unpacking .....	5
2.2 Mounting .....	5
2.3 Connection Procedure .....	6
2.3.1 Cabling .....	6
2.3.2 Connecting 115 VAC Fans .....	6
2.3.3 Connecting 230 VAC Fans .....	6
2.3.4 Connecting to a MSC or an IC .....	7
2.4 Powering Up .....	7

USER GUIDE .....	11
------------------	----

### APPENDIX

Troubleshooting .....	12
Specifications .....	13

## 1. GENERAL

This document provides a description of the VSM-2 control module. This document is organized as follows:

- Introduction
- Installation
- User's Guide
- Appendix

### 1.1 DESCRIPTION

The VSM-2 is designed to drive two variable speed fans of up to 10A under the control of a MSC or an IC control system resulting in a clean air environment for your livestock.

The VSM-2 provides you with automated control over its two stages via the use of the MSC, IC or alternatively by manual switch and dial control on the VSM-2 front panel.

Under MSC or IC control, the VSM-2 keeps you constantly informed of its two stages via LED indications.

The manufacturer recommends that the installation instructions which follow be adhered to as closely as possible, and all work be performed by a certified electrician. Failure to do so may void the warranty!

## 2.1 UNPACKING

Unpack the VSM-2 from its box and inspect contents for damage. Should the contents appear to be damaged, contact your local distributor for return material procedures.

The package should contain the following standard items:

- 1 VSM-2 control panel identified by VSM-2 printed on the faceplate of the unit
- 2 cable fasteners or fuses

To limit the unit's exposure to noxious gases install the unit in a hallway.

Make certain that the unit is mounted right side up with the cable entry holes facing down.

The VSM-2 will operate in a temperature range of 32°F - 120°F (0°C - 50°C).

The enclosure is watertight, is not splash proof or immersion proof. **DO NOT WATER** the control. Cover the control carefully with plastic when you are cleaning the room.

It is prohibited to use overhead cables outside the building.

## 2.2 MOUNTING

Mount the control panel to the wall using the mounting holes located on the flange of the control housing.

Once the VSM-2 is in place, use a screwdriver to remove the four screws holding the faceplate to the housing.

## 2.3 CONNECTION PROCEDURE

For the connection procedures which follow refer to Figures 1 and 2.

### 2.3.1 - Cabling

Use a screwdriver to remove cable knock-outs for the installation of cabling to the control panel.

**Do not apply power to the control panel until all connections have been completed!**

### 2.3.2 - Connecting 115VAC Fans

Refer to figure 1.

- Connect L1 of the power source to terminal 1 for fan 1 and terminal 3 for fan 2.
- Connect the ground wire of the power source to the ground wire in the housing of the unit.
- Connect the neutral side of the power source to the neutral of fans 1 and 2.
- Connect the live lead of fan 1 to terminal 2.
- Connect the live lead of fan 2 to terminal 4.

### 2.3.3 - Connecting 230VAC Fans

Refer to figure 2.

- Connect L1 of the power source to terminal 1 for fan 1 and terminal 3 for fan 2.
- Connect the ground wire of the power source to the ground wire in the housing
- Connect L2 of the power source to the appropriate terminals of fans 1 and 2.
- Connect the appropriate lead of fan 1 to terminal 2.
- Connect the appropriate lead of fan 2 to terminal 4.

### 2.3.4 - Connecting to a MSC or an IC

- Install an 18 AWG cable pair between the VSM-2 and the MSC or IC. The cable can extend to a maximum length of 500 feet (150m).
- Connect one end of the cable to the (+) and (-) terminals of the VSM-2 low voltage terminal block. Refer to the bottom left corner of figures 1 or 2.

Refer to your MSC or IC manual for further connection procedures.

## 2.4 POWERING UP

Before powering up the VSM-2, attach the faceplate to the casing of the control panel using the four screws previously removed.

To test the unit independently of the MSC or IC, set the two toggle switches located on the front of the unit to **MAN** (manual). Fans 1 and 2 should both operate, and their speeds can be adjusted via the fan speed dials. If they do not, refer to the Trouble Shooting section in the appendix of this document.

When you have completed verifying fan operation set both toggle switches to **AUTO**.

### **CAUTION**

Ensure that the same phases supplying the MSC and the IC series are the same as the two power lines of the variable fan(s). Otherwise, the control signal of the MSCs and ICs will be too early or too late and the fan will not rotate as expected.

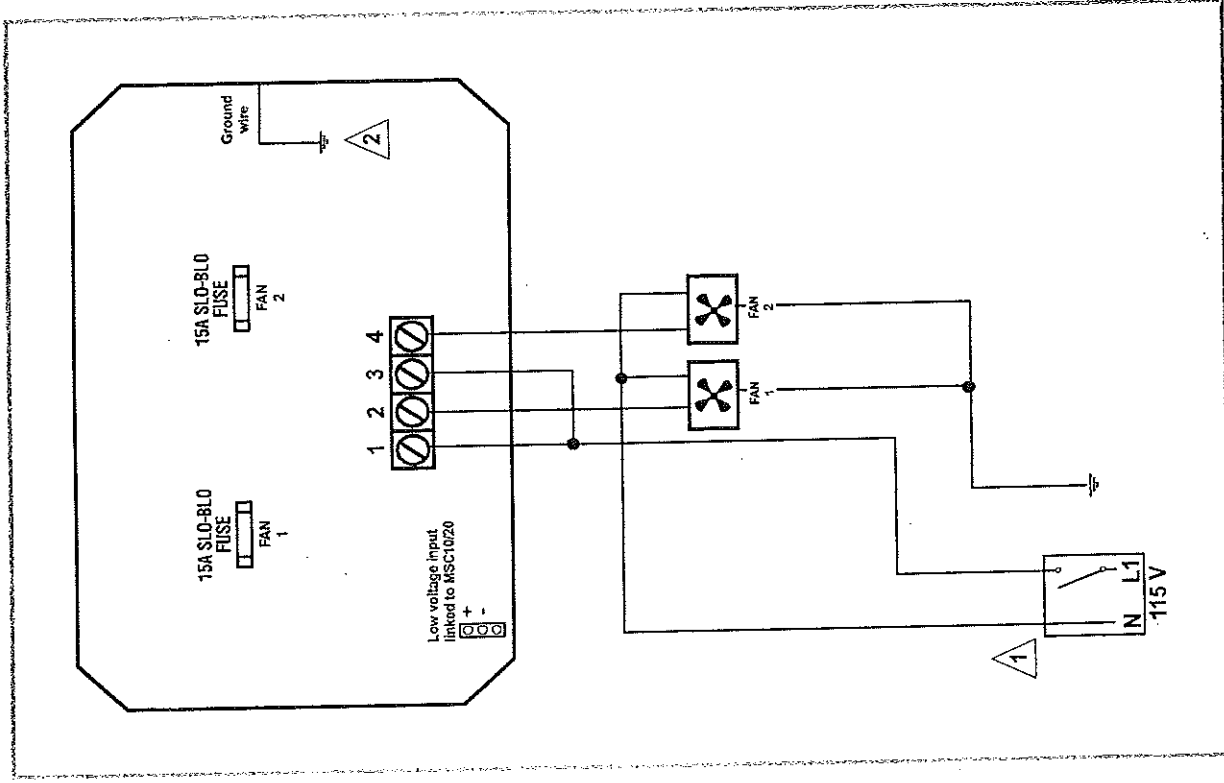


Fig. 1  
Main Board: Connection of 115 VAC source and 115 VAC fans



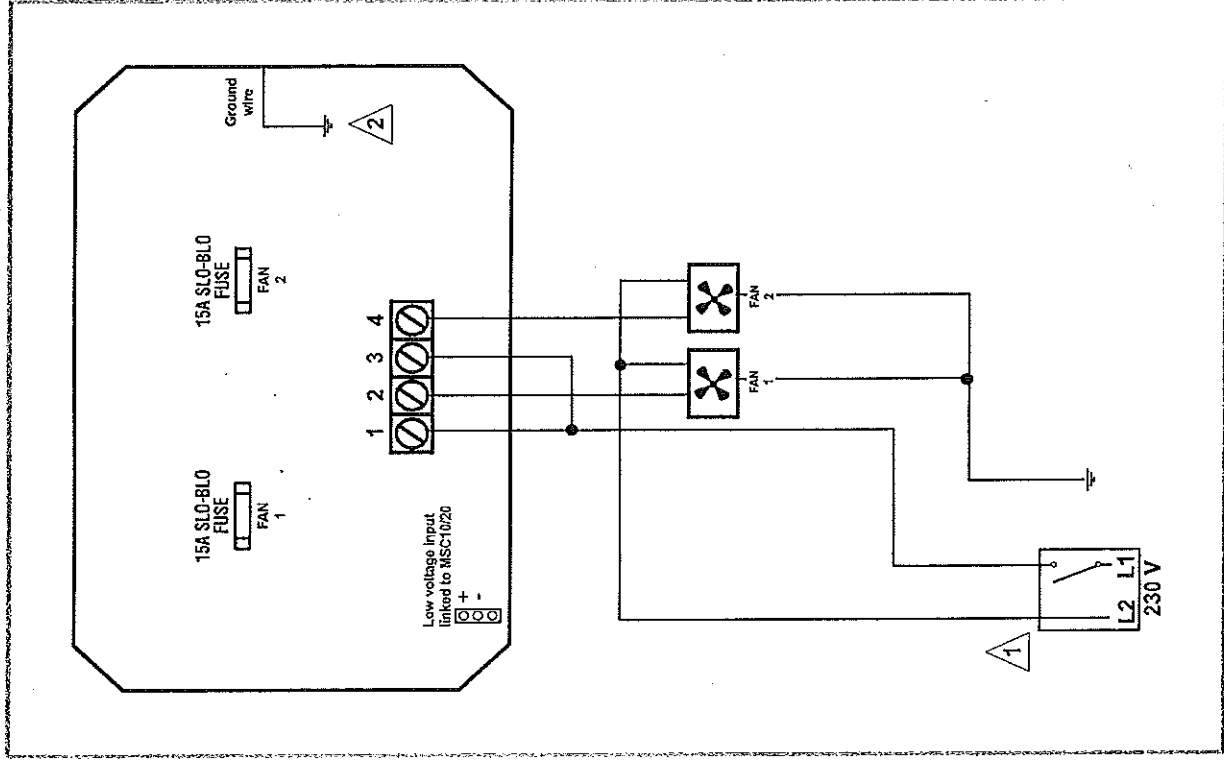
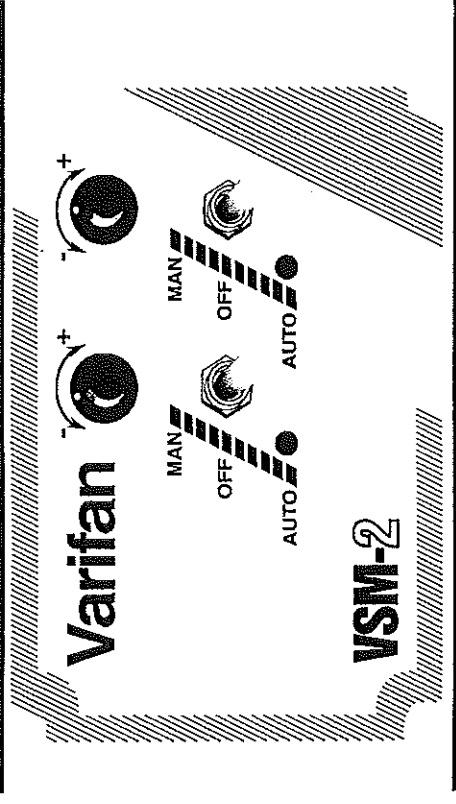


Fig. 2  
Main Board: Connection of 230 VAC source and 230 VAC fans

Notes for Figures 1, and 2

- ⚠ Power cut and protection devices in case of overload.
- ⚠ Connect the grounding wire from the power cord to the ground terminal wire (shown in Figures 1 and 2) inside the housing.

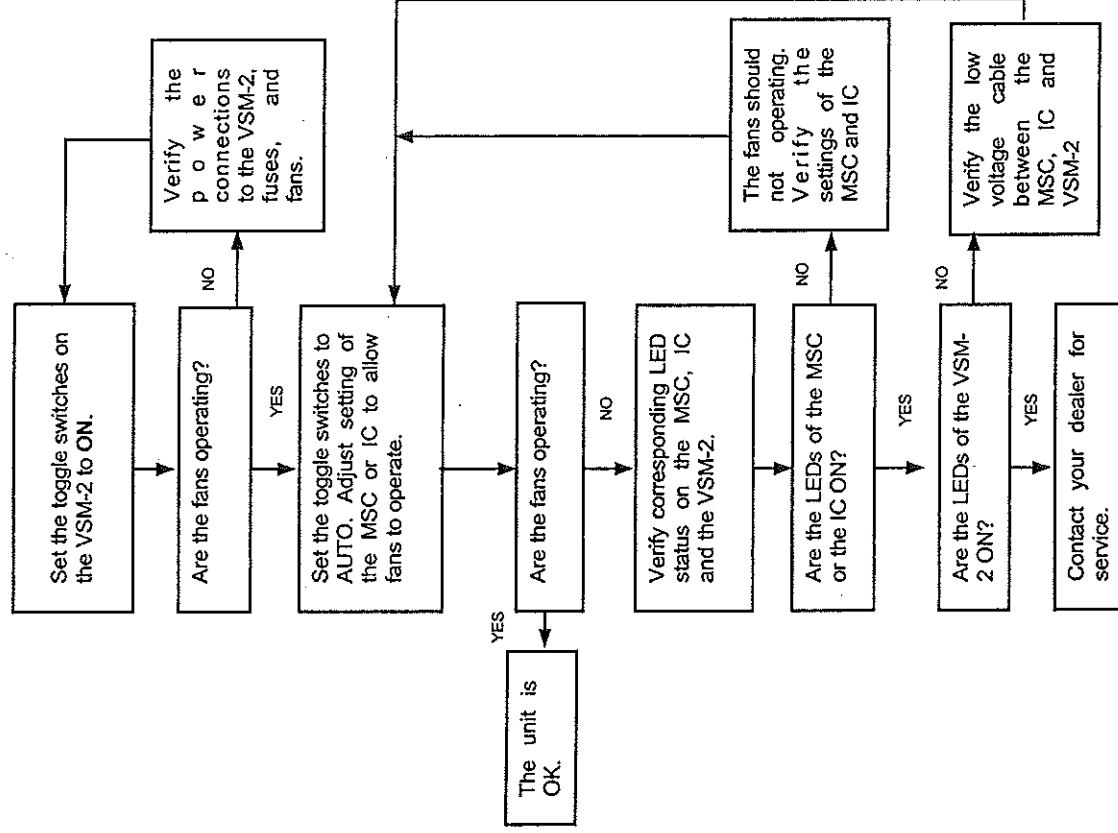


The VSM-2 front panel (shown above) features two 3-position toggle switches and speed dials with accompanying status LEDs. The left toggle switch is used to control fan 1, and the right toggle switch is used to control fan 2. The speed dials are used to manually adjust fan speed. A status LED located beneath each switch indicates the ON/OFF status of the corresponding fan as controlled by the MSC or the IC. These status LEDs are unaffected by the position of the toggle switches. For example, when the MSC or the IC send a command to the VSM-2 for a fan to operate, the corresponding LED will turn ON even if the toggle switch is the ON or OFF position.

The toggle switches permit the fans to be set in one of three modes as follows:

- OFF** To turn the fans permanently off, set the toggle switches to the **OFF** position.
- MAN** To turn the fans continually on, set the toggle switches to the **MAN** position, and adjust their speed via the fan speed dials
- AUTO** To allow the fans to operate under the control of the MSC or the IC, set the toggle switches to the **AUTO** position.

**TROUBLE SHOOTING**



**NOTE: When calling for service take note of the LED status of the MSC, IC and the VSM-2.**

SPECIFICATIONS

Description	Value
STAGE 1 (Solid state relay)	- 10 AMP 115/230 VAC
	- 50/60 Hz
	- Min. rating 300mA @ 230V
	- Min. rating 150mA @ 115V
	- Fuse 15A
STAGE 2 (Solid state relay)	- 10 AMP resistive 115V/230 VAC
	- 50/60Hz
	- Min. rating 300mA @ 230V
	- Min. rating 150mA @ 115
	- Fuse 15A

Storage Temperature: 32 to 158°F (0 to 70°C)  
Operation temperature: 32 to 122°F (0 to 50°C)  
Weight: 3 lbs. (1.35 kg)  
Dimensions: 7.75" X 5.75" X 4" (196 X 146 X 101mm)

## Limited Warranty

The manufactured equipment and supplied components have gone through rigorous inspection to assure optimal quality of product and reliability. Individual controls are factory tested under load, however the possibility of equipment failure and/or malfunction may still exist.

For service, contact your local retailer or supplier. The warranty period shall be of two years from manufacturing date. Proof of purchase is required for warranty validation.

In all cases, the warranty shall apply only to defects in workmanship and specifically exclude any damage caused by over-voltage, short circuit, misuse, acts of vandalism, fortuitous events, acts of God, flood, fire, hail, lightning or any other natural disaster. Any unauthorized work, modification or repair on this product automatically voids the warranty and disclaims the manufacturer from all responsibility.

The manufacturer assumes only those obligations set forth herein, excluding all other warranties or obligations. This warranty stipulates that in all cases the manufacturer shall be liable only for the supply of replacement parts or goods and shall not be liable for any personal injury, damages, loss of profits, interrupted operations, fine contravention of the law or damages to the production of the PURCHASER and the PURCHASER shall take up the defense and hold the manufacturer faultless regarding any legal or extra legal proceedings, notice, or claim by the customer or by a third party, and regarding any legal and extra legal expenses and fees brought forward on by such damages.