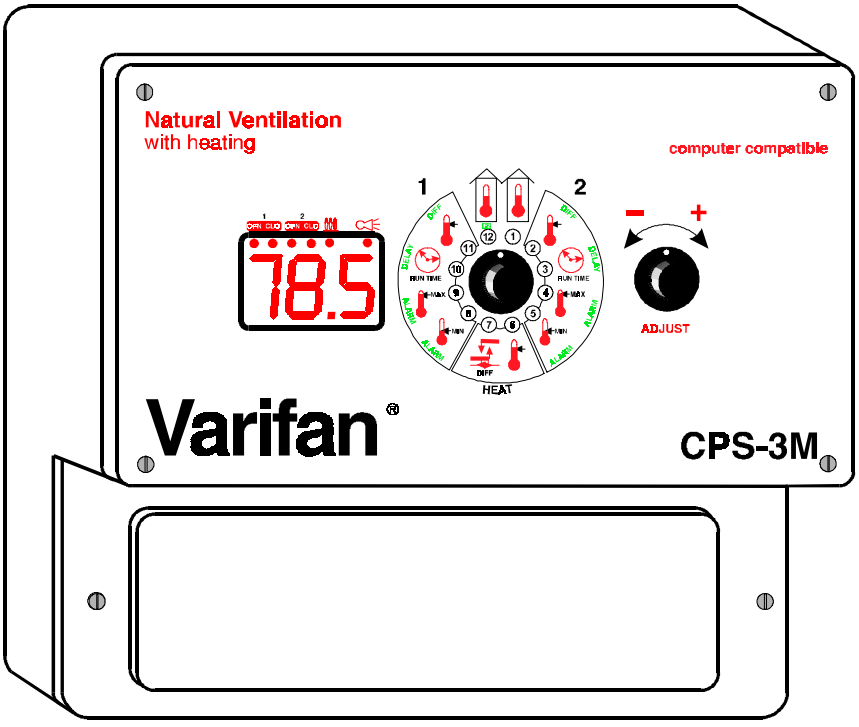
CPS-3M

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.

WARNING 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. Furthermore the manufacturer recommends to test all the functions and equipment connected to the CPS, including the alarm system and backup devices, after installation, after modifications, and once a 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.

CHAPTER 1 - INTRODUCTION

CHAPTER 2 - INSTALLATION

CHAPTER 3 - USER'S GUIDE

FUNCTION 1

FUNCTION 2

APPENDIX

WARRANTY

1. GENERAL

This document provides you with the necessary information to install and operate the CPS-3M. The document is presented as follows:

- Introduction
- Installation
- User's Guide
- Appendix

Congratulations on your purchase of a CPS-3M natural ventilation system. With options such as motor activated curtains and integrated heating units, this product is designed to provide optimal temperature control in ventilated buildings.

The CPS-3M controls natural ventilation, either simultaneously on both sides with a single actuator, or independantly on both sides with 2 actuators. Those options can be selected from a dip switch, located behind the electronic card, inside the faceplate.

Moreover, the CPS-3M is equiped with state of the art logic for extra-accurate ventilation and heating control.

The present manual has been published in order to make custom installation and control easier. Initially, the CPS-3M was designed for 3-wire actuators. If, however, four-wire actuators are used, external relays will have to be installed according to the wiring diagram (fig. 5) on page 14. Before choosing any type of relay, make sure to consult the specifications table (p. 41) of this manual. It contains the minimum load information for CPS-3M's relays.

DEFINITION OF TERMS

TEMPERATURE MAIN SET POINT
The desired temperature in a room.

ROOM TEMPERATURE
The actual room temperature

AIR INLET/ CURTAIN
A device which regulates airflow into a building by controlling the opening or closing of an air passage.

Chapter 2 describes the installation of the CPS-3M control.

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 CPS-3M from its box and inspect contents for damage. Should the contents appear to be damaged, contact your local distributor to return the material .

The package should contain the following standard items:

- 1 CPS-3M control
- 3 cable fasteners
- 2 temperature probes

The following optional items may be included:

- 3 additional temperature probes per zone for temperature averaging.

2.2 MOUNTING

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

Make sure the unit is properly installed, that is, side up with the cable entry holes facing down.

The CPS-3M will operate in a temperature range of 32°F to 120°F (0°C to 50°C).

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

Use a screwdriver to remove the faceplate and the plate on the power compartment.

Mounting hardware is not included.

Once both faceplates are off, install the mounting screw on the wall and install the unit on it. Use two more screws to secure the CPS-3M in place using the bottom mounting holes.

2.3 SWITCH SETTING

The CPS-3M is configured for a variety of options via the two following switches:

2.3.1 - Line Voltage Selector Switch

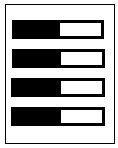
This switch is located on the surface of the main (bottom) board and adapts the CPS-3M to 115 VAC or 230 VAC line voltage.

230V
115V

See figure 1

2.3.2 - Software setting switch

This switch is located in the back of the CPS-3M faceplate and regulates the following options:



	OFF	ON
1	Fahrenheit	Celcius
2	Settings locked	Settings unlocked
3	1 zone	2 zones
4	Not used	Not used

Switch 1: Selects between a Fahrenheit or Celcius display on the front panel.

Switch 2: Locks/unlocks user settings. **Locked settings**: all settings are locked except for set points in positions (11) and (2).Hi and Lo positions (8), (9) and (4) (5) can be cleared in locked settings. **Unlocked settings**: all parameters may be modified or cleared.

Switch 3: Selects the number of zones

Switch 4: Not used

2.4 CONNECTION PROCEDURE

For the following connection procedures, refer to figures 1.

2.4.1 - Input power

Use a screwdriver to remove cable knock-outs for the installation of cables on the CPS-3M.

Do not power up the CPS-3M until all connections have been completed!

2.4.1.1 - 115 VAC

Make sure that the line voltage selector switch is set to 115 VAC. See figure 1 for wiring.

2.4.1.2 - 230 VAC

Make certain that the line voltage selector switch is set to 230 VAC. See figure 1 for wiring.

2.4.2 - Zone 1 Actuator motor

Zone 1 provides two relays which control an actuator motor connected to an air inlet. The first relay controls air inlet opening and the second controls air inlet closing. The current rating is 6 Amps (inductive).
See figure 1.

2.4.3 - Zone 2 Actuator motor

Zone 2 provides two relays which control an actuator motor connected to an air inlet. The first relay controls air inlet opening and the second controls air inlet closing. The current rating is 6 Amps (inductive).
See figure 1.

2.4.4 - Wiring diagram for a three phase motor

See figure 1a

2.4.5. - Wiring diagram for a four wire motor

See figure 5

2.5 TEMPERATURE PROBES

Temperature probes use a “Class 2” low voltage circuit. These cables can measure up to 500 feet (150 meters).

Probes longer than 10 feet (3 meters) must be shielded with a #18AWG aluminum wire, or one bigger. The shield must be connected to the CPS-3M’s SHLD terminal.

The connections for 2 temperature probes are illustrated in figure 2, whereas the connections for temperature averaging are illustrated in figure 3.

2.5.1 2 Temperature probes

Install the temperature probes in the area that best reflects the overall room temperature.

Connect both temperature probe leads and the shield to the terminals labelled IN1 and IN2 (see figure 2).

2.5.2 Temperature averaging

- **1 Zone**: Four temperature probes are required to perform temperature averaging in larger rooms
- **2 Zones**: Eight temperature probes are requiredto perform temperature averaging in two rooms (4 per zone)

To get superior readings, place the probes in locations that best reflect room temperature (see figure 3).

2.6 ALARM

The CPS-3M provides a normally open and normally closed dry contact for alarming low or high temperature conditions. Moreover, this same contact can be used to signal a power failiure. It may be connected to an alarm system or directly to a siren and / or auto-dialer.

Make the normally closed (NC) or normally open (NO) connections as indicated in figure 2.

Momentary power interruptions may trigger false alarms! To avoid them, when the CPS-3M is connected to an alarm system, install a time delay relay between the CPS-3M and the alarm system.

2.7 POWERING UP

Before powering up the CPS-3M, attach the faceplate to the casing of the CPS-3M using the six screws previously removed.

Set Selector knob to position (12).

Upon power up, the unit will test its display by briefly lighting up all the segments of its LEDs. Make sure all segments light up.

Following the LED display test, the unit displays the room temperature.

If the temperature is not displayed, refer to the Trouble Shooting section of this manual.

Figure 1 Wiring for 2 actuators and 1 heating unit

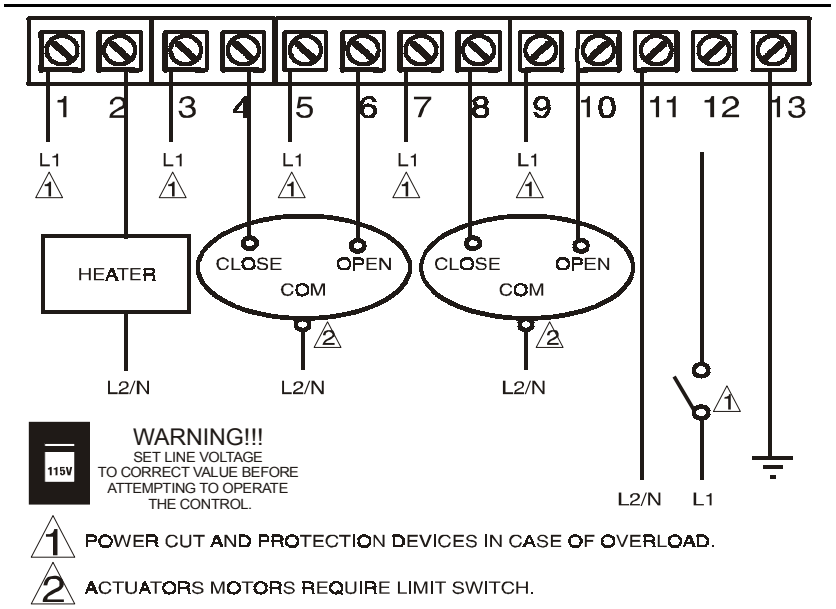


Figure 1a Wiring diagram for a three phase motor

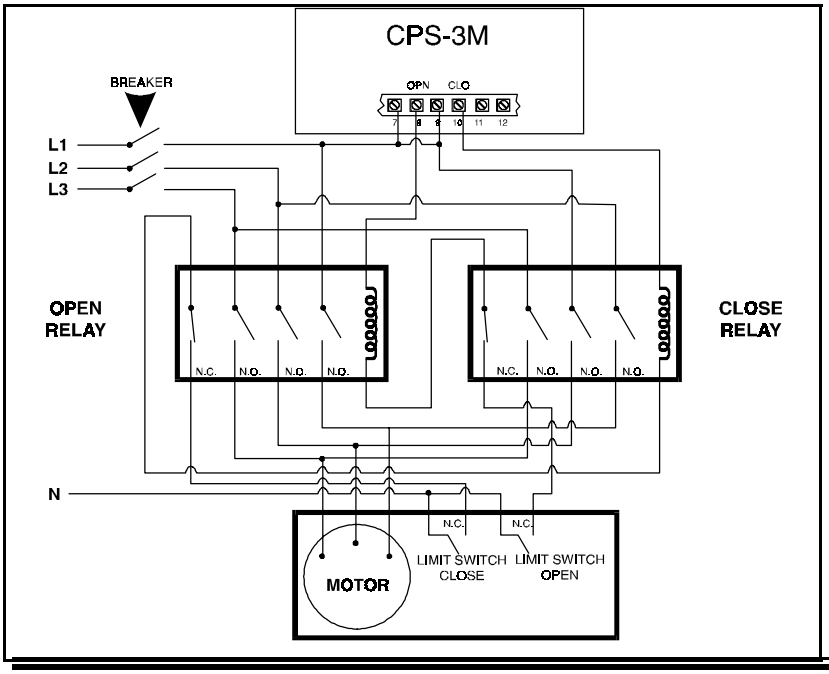


Figure 2 Temperature probes

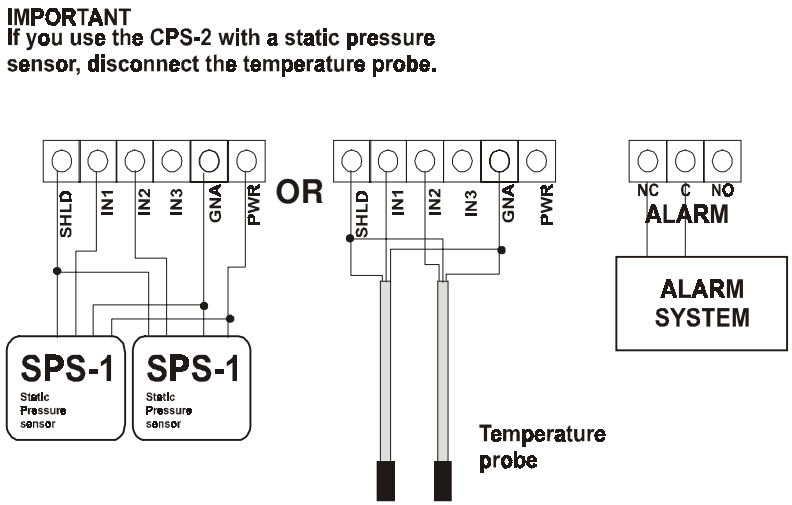


Figure 3 Probe connection for temperature averaging in 1 zone

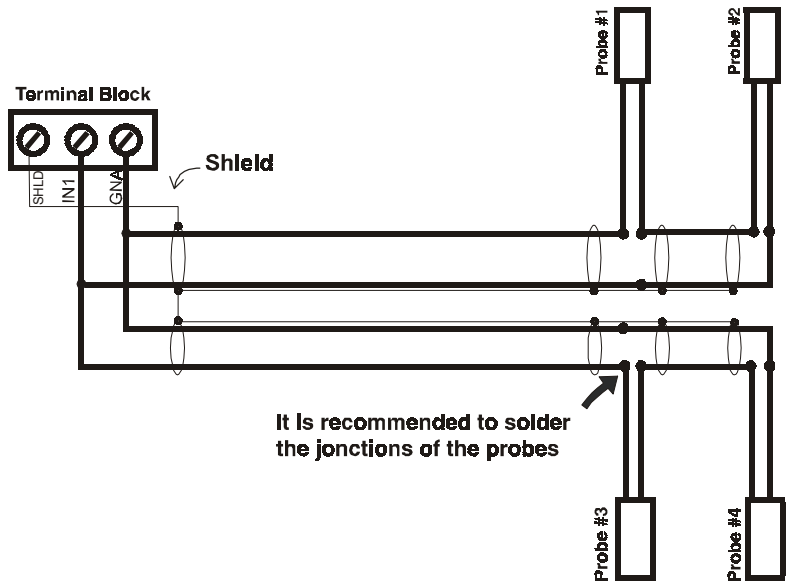


Figure 4
Main (bottom) board: terminal blocks, switch and jumpers.

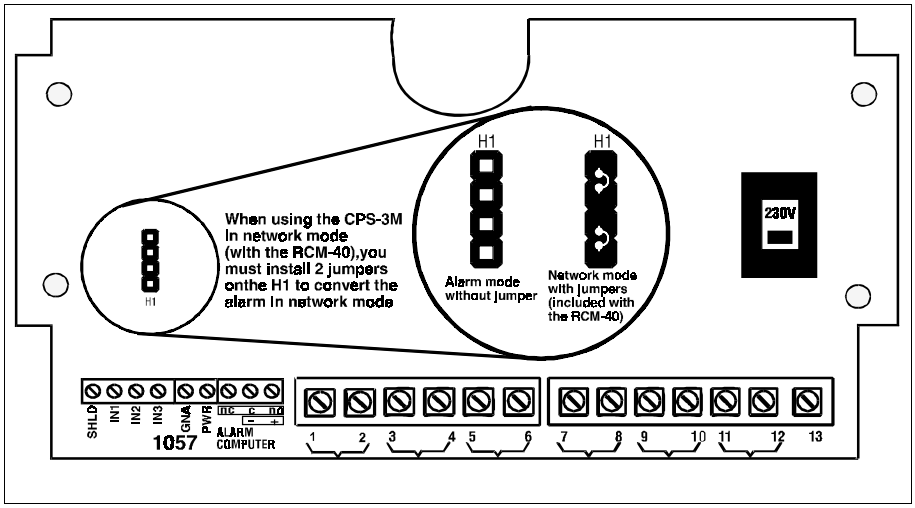
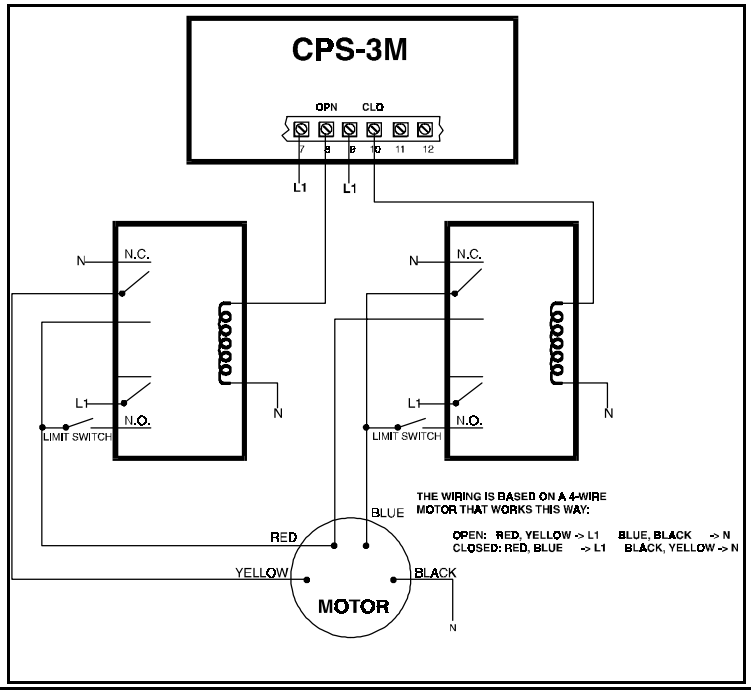
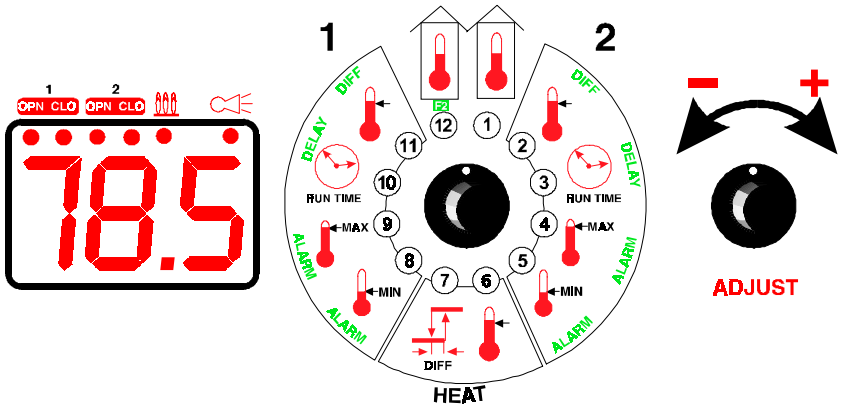


Figure 5
Four wire motor with parallel windings





The CPS-3M's faceplate shown above features a LED status window and two control dials which are usedrespectively to select a function and select a setting.

LED Status Window

The LED status window features a 3 digit LED readouts display of temperature in Fahrenheit or Celsius, and programmable settings.
In addition, the LED status window displays the operational status of zone 1 and 2 via 2 LEDS per zone(see above picture). When illuminated, each LED indicates that the actuator motor is operating. A fifth LED is for the heating unit and a sixth one is for the Hi / LO temperature alarms.

Control Dials

The center dial is the selector dial and is used to select one of the CPS-3M's 12 primary or 8 secondary functions. The dial to the right of the selector dial is the adjustor dial and is used to adjust the setting of each function or to enter secondary mode.

The 12 primary functions are:

- 1 Zone 2 room temperature
- 2 Zone 2 temperature main set point
- 3 Zone 2 actuator max run time

- 4 Zone 2 record high temperature
- 5 Zone 2 record low temperature
- 6 Heating set point
- 7 Heating differential
- 8 Zone 1 record low temperature
- 9 Zone 1 record high temperature
- 10 Zone 1 actuator max. run time
- 11 Zone 1 temperature main set point
- 12 Zone 1 room temperature display

Any one of these primary functions is selected by rotating the selector dial to the corresponding number and associated graphic image on the faceplate. When a primary functions is selected, the window displays a blinking value. Function 12 displays room temperature in zone 1 and function 1 displays room temperature in zone 2.

The 8 secondary functions are:

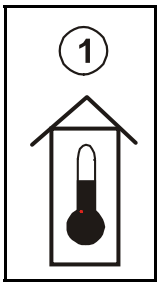
- 2 Zone 2 differential
- 3 Zone 2 delay (actuator 2)
- 4 Zone 2 high temperature realtive alarm
- 5 Zone 2 low temperature relative alarm
- 8 Zone 1 low temperature relative alarm
- 9 Zone 1 high temperature relative alarm
- 10 Zone 1 delay (actuator 1)
- 11 Zone 1 differential

Select any one of these secondary functions by:

- rotating the selector dial to position (12)
- rapidly rotating the adjustor dial back and forth to enter secondary mode.
- rotating the selector dial from function (12) to any other secondary function.

When secondary functions (2) through (11) are selected, the status window displays a blinking value along with a scrolling LED display. Selection of function (12) switches the CPS-3M back to primary mode.

ZONE 2 ROOM TEMPERATURE DISPLAY



This position displays the actual room temperature (zone 2). When monitoring only 1 zone, the displays shows three horizontal bars for this position.

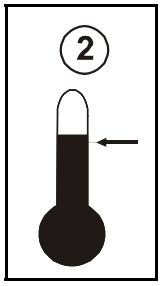
Room temperature is displayed to the nearest 0.1 degree from a minimum display of 42.0°F (5.5°C) to a maximum display of 111°F (44.0°C). If temperature is lower than 42.0°F, **Lo** is displayed. If temperature is higher than 111°F, **Hi** is displayed.

Viewing the room temperature:

- rotate the selector dial to position (1)

The room temperature for zone 2 is displayed on the CPS-3M.

ZONE 2 MAIN SET POINT TEMPERATURE (MANUAL MODE)



The main set point establishes the target temperature in the building. The main set point temperature is adjusted in 0.5 degree increments from a minimum setting of 42.0°F (5.5°C) to a maximum setting of 111°F (44.0°C).

Adjusting the main set point temperature:

- rotate the selector dial to position (2),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The main set point temperature is displayed on the CPS-3M.

Manual mode:

The actuator motor may be manually controlled by adjusting the main set point to OPN or CLO, thereby causing the air inlet to either remain fully open or closed.

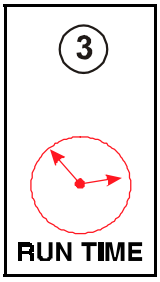
To open the air inlet:

- rotate the selector dial to position (2), then, the adjustor dial counterclockwise to the minimum setting, until the display shows OPN. At that particular moment, the air inlet is opening.

To close the air inlet:

- rotate the selector dial to position (2), then, the adjustor dial clockwise to the maximum setting, until the display shows CLO. At that particular moment, the air inlet is closing.

ZONE 2 MAXIMUM RUN TIME



The air inlet timer establishes the maximum period of running time for the actuator's motor, which shouldn't count for more than 25% of the inlet's total movement, according to the actuator's manufacturer.

The timer is adjusted in 1 second increments from a minimum setting of 1 second to a maximum setting of 4 minutes.

Adjusting the inlet timer:

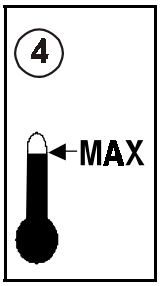
- rotate the selector dial to position (3),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The CPS-3M automatically calculates a run time according to temperature variations and the difference between room temperature and the main set point.

Example:

The timer is set to 30 seconds. When the control determines that the air inlet must open, the timer's delay set by primary function (3) must run until the end. Then the actuator motor will operate for 30 seconds before stopping.

ZONE 2 RECORD HIGH TEMPERATURE



This position displays the highest recorded temperature since the last clear.

The record high temperature is rounded to the nearest 0.5 degree from a minimum display of 42.0°F (5.5°C) to a maximum display of 111.0° F (44.0°C). If a temperature higher than 111.0° F is recorded, **Hi** is displayed.

Viewing the highest temperature recorded in zone 2:

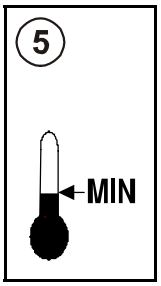
- rotate the selector dial to position (4)

Clearing the high temperature value:

- quickly rotate the adjustor dial counterclockwise, then clockwise.

CLr will be briefly displayed on the CPS-3M

ZONE 2 RECORD LOW TEMPERATURE



This position displays the lowest recorded temperature since the last clear.

The record low temperature is rounded to the nearest 0.5 degree from a minimum display of 42.0°F (5.5°C) to a maximum display of 111.0° F (44.0°C). If a temperature lower than 42.0°F is recorded, **Lo** is displayed.

Viewing the lowest temperature recorded:

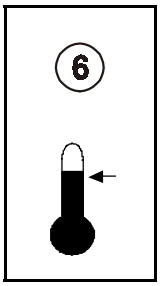
- rotate the selector dial to position (5)

Clearing the low temperature value:

- Quickly rotate the adjustor dial counterclockwise, then clockwise.

CLr will be briefly displayed on the CPS-3M.

HEATING SET POINT



The CPS-3M has an absolute heating set point; meaning that this function establishes the temperature at which heating goes ON. It stops, then starts again when temperature reaches the heating differential set by position (7).

When 2 zones are selected, the temperature considered is the average temperature of the 2 zones. And when only one zone is selected, the temperature selected is the one in the controlled zone. For heating to start, the average temperature of 2 zones or of a single zone must reach the heating set point.

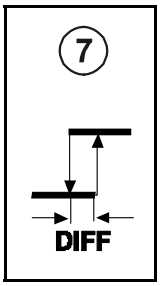
The heating set point is rounded to the nearest 0.5 degree from a minimum display of 41.0°F (5.5°C) to a maximum display of 112.0°F (45.0° C). Upon startup of the heating unit, the curtains pause for ± 5 second, then close completely.

Adjusting the heating set point:

- rotate the selector dial to position (6),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The heating set point is displayed on the CPS-3M.

HEAT DIFFERENTIAL



The heating differential represent the temperature to reach before turning the heating device off. Heating starts at the temperature initialized by function (6) of the primary mode, and stops when the temperature goes over the heating differential.

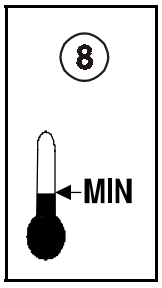
The differential is adjusted in 0.5 degree increments from a minimum setting on 0.0°F (0.0°C) to maximum setting of 6.0°F (3.0°C). This prevents the heating device to start and stop too frequently.

Adjusting the heating differential:

- rotate the selector dial to position (7),
- rotate the adjustor dial counterclockwise to decrease the differential, and clockwise to increase it.

The differential is displayed on the CPS-3M.

ZONE 1 RECORD LOW TEMPERATURE



This position displays the lowest recorded temperature since the last clear.

The record low temperature is rounded to the nearest 0.5 degree from a minimum display of 42.0°F (5.5°C) to a maximum display of 111.0°F (44.0°C). If a temperature lower than 42.0°F is recorded, **Lo** is displayed.

Viewing the lowest temperature recorded in zone 1:

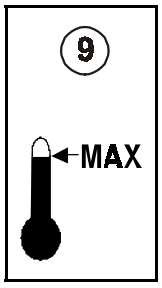
- rotate the selector dial to position (8)

Clearing the low temperature value:

- quickly rotate the adjustor dial counterclockwise, then clockwise.

CLr will be briefly displayed on the CPS-3M.

ZONE 1 RECORD HIGH TEMPERATURE



This position displays the highest recorded temperature since the last clear.

The record high temperature is rounded to the nearest 0.5 degree from a minimum display of 42.0°F (5.5°C) to a maximum display of 111.0°F (44.0°C). If a temperature higher than 111.0°F is recorded, **Hi** is displayed.

Viewing the highest temperature recorded in zone 1:

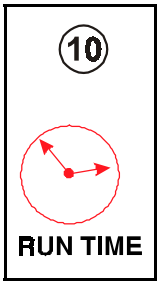
- rotate the selector dial to position (9)

Clearing the high temperature value:

- quickly rotate the adjustor dial counterclockwise, then clockwise.

CLr will be briefly displayed on the CPS-3M.

ZONE 1 MAXIMUM RUN TIME



The air inlet timer establishes the maximum period of running time of the actuator's motor, as determined by its manufacturer.

The air inlet timer is adjusted in 1 second increments from a minimum setting of 1 second to a maximum setting of 4 minutes.

Adjusting the open run timer:

- rotate the selector dial to position (10),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

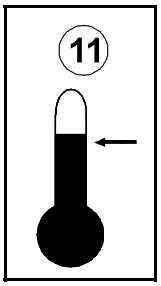
The timer's setting is displayed on the CPS

The CPS-3M automatically calculates a run time according to temperature variations and the difference between room temperature and the main set point.

Example:

The timer is set to 30 seconds. When the control determines that the air inlet must open, the timer's delay set by secondary function (10) must run until the end. Then the actuator motor will operate for 30 seconds before stopping.

ZONE 1 MAIN SET POINT TEMPERATURE (MANUAL MODE)



The main set point establishes the target temperature in the building. The main set point temperature is adjusted in 0.5 degree increments from a minimum setting of 42.0°F (5.5°C) to a maximum setting of 111°F (44.0° C).

Adjusting the main set point temperature:

- rotate the selector dial to position (11),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The main set point temperature is displayed on the CPS-3M.

Manual mode:

The actuator motor may be manually controlled by adjusting the main set point to OPN or CLO, thereby causing the air inlet to either remain fully open or closed.

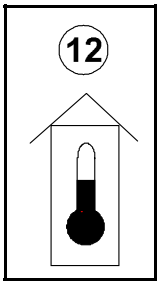
To open the air inlet:

- rotate the selector dial to position (11), then, the adjustor dial counterclockwise to the minimum setting, until the display shows OPN. At that particular moment, the air inlet is opening

To close the air inlet:

- rotate the selector dial to position (11), then, the adjustor dial clockwise to the maximum setting, until the display shows CLO. At that particular moment, the air inlet is closing.

ZONE 1 ROOM TEMPERATURE DISPLAY



This position displays the room temperature (zone 1). The selector should generally remain on this position.

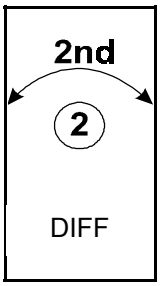
Room temperature is displayed to the nearest 0.1 degree from a minimum display of 42.0°F (5.5°C) to a maximum display of 111°F (44.0° C). If temperature is lower than 42.0°F, **Lo** is displayed. If temperature is higher than 111°F, **Hi** is displayed.

Viewing the room temperature:

- rotate the selector dial to position (12)

The room temperature for zone 1 is displayed on the CPS-3M.

ZONE 2 DIFFERENTIAL



The differential minimizes erratic behavior of the actuator motor when the room temperature is exactly at the main set point. The differential setting is above the set point when curtains are closing, and below set point when they are opening. This feature, which greatly reduces equipment wear, represents the inactivity zone for the CPS-3M, that is if the main set point is reached.

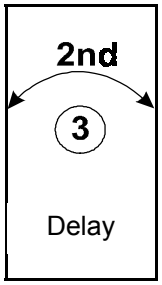
The differential is adjusted in 0.5 degree increments from a minimum setting of 0.0°F (0.0°C) to a maximum setting of 6°F (3°C) degrees.

Adjusting the differential setting for zone 2:

- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (2),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The differential setting is displayed on the CPS-3M.

ZONE 2 DELAY TIMER (ACTUATOR 2)



The delay is the period when the actuator is not running. It follows the running time automatically set by the CPS-3M. The delay follows the maximum running time to avoid overheating.

The delay timer is adjusted in 1 second increments from a minimum setting of 30 seconds, to a maximum setting of 4 minutes.

Adjusting the delay timer for zone 2:

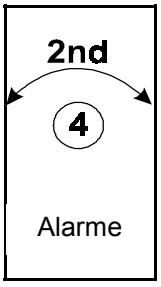
- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (3),
- rotate the adjustor dial counterclockwise to decrease the delay, and clockwise to increase it.

The delay timer is displayed on the CPS-3M.

Example:

The delay timer is set to 1 minute. The actuator motor, when called upon to open the air inlet, will operate after a delay of 1 minute.

ZONE 2 HIGH TEMPERATURE ALARM



This function establishes the temperature **difference** above the main set point that the room can reach before a high temperature relative alarm is signalled. When a high temperature alarm occurs, the alarm relay is activated and the alarm LED lights up on the CPS-3M.

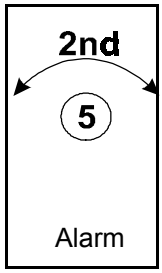
The high temperature alarm is adjusted in 0.5 degree increments from a minimum setting of 0.0°F (0.0°C) to a maximum setting of 30.0°F (18.0°C).

Adjusting the high temperature relative alarm setting for zone 2:

- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (4),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The high temperature relative alarm setting is displayed on the CPS-3M.

ZONE 2 LOW TEMPERATURE ALARM



This position establishes the temperature **difference** below the main set point (zone 2) that the room can reach before a low temperature relative alarm is signalled. When a low temperature alarm occurs the alarm relay is activated and the alarm LED lights up on the CPS-3M.

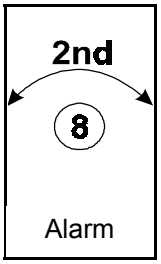
The low temperature alarm is adjusted in 0.5 degree increments from a minimum setting of -30.0°F (-18.0°C) to a maximum setting of 0.0°F (0.0°C)

Adjusting the low temperature relative alarm setting for zone 2:

- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (5),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The low temperature relative alarm setting for zone 2 is displayed on the CPS-3M.

ZONE 1 LOW TEMPERATURE ALARM



This position establishes the temperature **difference** below the main set point (zone 1) that the room can reach before a low temperature alarm is signalled. When a low temperature alarm occurs the alarm relay is activated and the alarm LED lights up on the CPS-3M.

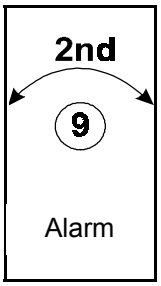
The low temperature alarm is adjusted in 0.5 degree increments from a minimum setting of -30.0°F (-18.0°C) to a maximum setting of 0.0°F (0.0°C)

Adjusting the low temperature relative alarm setting for zone 1:

- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (8),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The low temperature relative alarm setting for zone 1 is displayed on the CPS-3M.

ZONE 1 HIGH TEMPERATURE ALARM



This position establishes the temperature **difference** above the main set point (zone 1) that the room can reach before a high temperature relative alarm is signalled. When a high temperature alarm occurs, the alarm relay is activated and the alarm LED lights up on the CPS-3M.

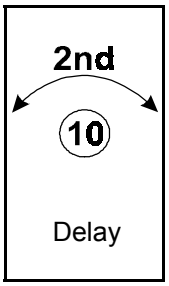
The high temperature alarm is adjusted in 0.5 degree increments from a minimum setting of 0.0°F (0.0°C) to a maximum setting of 30.0°F (18.0°C).

Adjusting the high temperature relative alarm setting for zone 1:

- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (9),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The high temperature relative alarm setting is displayed on the CPS-3M.

ZONE 1 DELAY TIMER (ACTUATOR 1)



The delay is the period when the actuator is not running. It follows the running time automatically set by the CPS-3M. The delay follows the maximum running time to avoid overheating.

The delay timer is adjusted in 1 second increments from a minimum setting of 30 seconds, to a maximum setting of 4 minutes.

Adjusting the delay timer for zone 1:

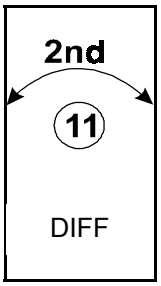
- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (10),
- rotate the adjustor dial counterclockwise to decrease the delay, and clockwise to increase it.

The delay timer is displayed on the CPS-3M.

Example:

The delay timer is set to 1 minute. The actuator motor, when called upon to open the air inlet, will operate after a delay of 1 minute.

ZONE 1 DIFFERENTIAL



The differential minimizes erratic behavior of the actuator motor when the room temperature is exactly at the main set point. The differential setting is above the set point when curtains are closing, and below set point when they are opening. This feature, which greatly reduces equipment wear, represents the inactivity zone for the CPS-3M, that is if the main set point is reached.

The differential is adjusted in 0.5 degree increments from a minimum setting of 0.0°F (0.0°C) to a maximum setting of 6°F (3°C) degrees.

Adjusting the differential setting for zone 1:

- rotate the selector dial to position (12),
- rapidly rotate the adjustor dial back and forth to enter secondary function mode,
- rotate the selector dial to position (11),
- rotate the adjustor dial counterclockwise to decrease the setting, and clockwise to increase it.

The differential setting is displayed on the CPS-3M.

APPENDIX

TROUBLESHOOTING

SYMPTOM	CAUSE and REMEDY
Lo is continually displayed	– Temperature displayed is below 42.0°F (5.5°C). – Probe is disconnected or defective.
Hi is continually displayed	– Temperature is above 111.0°F (44.0°C). – Probe is short circuited or defective.
Actuator motor is not operating	– Check if the actuator LED is on. If it is ON, doublecheck wiring and actuator motor.
Display is blank	– Make sure the line voltage selector switch is properly set. – Make sure the 10 pin flat cable, between the main board and the CPS-3M faceplate, is properly connected.

SPECIFICATIONS

DESCRIPTION	VALUE
INPUT POWER	– 100 mA – 115/230 VAC – 50 / 60 Hz
ZONE 1 (relay 1 and 2) **Not Fused**	– 10 Amp max; 115V/230V – 1/2 HP @ 115V – 1 HP @ 230V – Min. Rating 10mA at 115V* – 20mA at 230V*
ZONE 2 (relay 3 and 4) **Not Fused**	– 10 Amp max ; 115V/230V – 1/2 HP @ 115V – 1 HP @ 230V – Min. Rating 10mA at 115V* – 20mA at 230V*
ALARM (dry relay	– 5 Amp; 30V AC/DC

* The relay will not function properly if the charge is smaller than the minimum charge required.

Storage temperature: -4°F to 130°F (-20°C to 55°C)

Operating temperature: 32°F to 122°F (0°C to 50°C)

Weight: 5 lbs. (2.25 kg)

Dimension: 8.35” X 4.60” X 7.87”
(212mm X 117mm X 200mm)

RECORD FORM

FUNCTION 1

Dial	Option	Default Setting		User
2	Temperature set point #2	5.5 to 44°C	42 to 111°F	
3	Actuator max. run time	1 sec. to 4 min.		
6	Heating set point	5.5 to 45.0°C	41 to 112°F	
7	Heating differential	0.0 to 3.0°C	0.0 to 6.0°F	
10	Actuator max. run time	1 sec. to 4 min.		
11	Temperature set point #1	5.5 to 44.0 °C	42 to 111°F	

FUNCTION 2

2	Differential	0.0 to 3.0°C	0.0 to 6.0°F	
3	Delay timer for actuator 2	30 sec. to 4 min.		
4	High temperature alarm #2	0.0 to 18.0°C	0.0 to 30°F	
5	Low temperature alarm #2	-18 to 0.0°C	-30 to 0.0°F	
8	Low temperature alarm #1	-18 to 0.0°C	-30 to 0.0°F	
9	High temperature alarm #1	0.0 to 18.0°C	0.0 to 30.0°F	
10	Delay timer for actuator 1	30 sec. to 4 min.		
11	Differential	0.0 to 3.0°C	0.0 to 6.0°F	

Limited Warranty

The manufacturered 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 for 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 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.

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