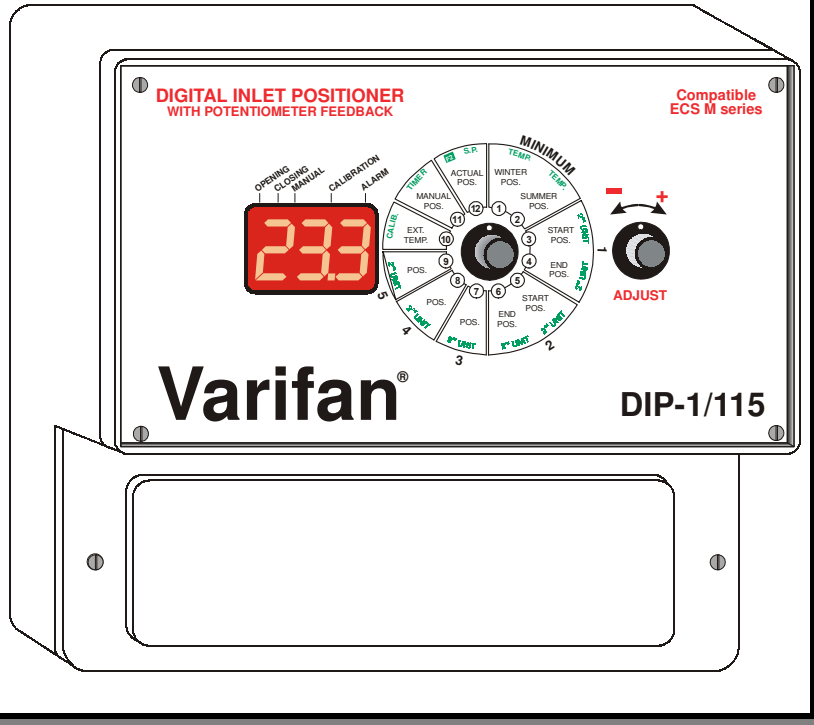


# DIP-1/115

## INSTALLATION/ USER'S GUIDE



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. Further more the manufacturer recommends to test all the functions and equipment connected to the DIP, 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.

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## **1. GENERAL**

This document provides a description of the DIP-1 control panel, and is organized as follows:

- Introduction
- Installation
- User's Guide
- Appendix

### **1.1 DESCRIPTION**

Congratulations on the purchase of your DIP-1/115 control. The DIP-1/115 is specially designed to position a curtain or air inlet for actuators with 115VAC potentiometer feedback. The DIP-1/115 provides a full air inlet control.

The DIP-1/115 offers the following features:

- Compatible with 1 or 2 controls of the ECS-M series
- Automatic detection of the ventilation stage

This control allows a minimum positioning or selection for summer and winter, to avoid abrupt temperature changes.

The air inlet automatically gets positioned when a ventilation stage (on the ECS-M) is activated, the air inlet gets proportional positioned between the start and the end position when the stage is variable. If the stage is controlled by a relay (single speed stage), the air inlet gets positioned by stage.

The DIP-1/115 memorizes the highest percentage and positions the air inlet at its position.

The DIP-1/115 provides you with full control over the air inlet by using an easy to follow display panel. All programmable features can be customized to meet your requirements. The DIP-1/115 keeps you constantly informed by displaying the status of the air inlet as well as the actual position.



## CHAPTER 2 - INSTALLATION

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Chapter 2 describes the installation of the DIP-1/115 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 DIP-1/115 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 DIP-1/115 control.
- 1 installed outside temperature probe (2004-1K).
- 3 cable fasteners or fuse.
- 1 Installation/User's manual.

### 2.2 MOUNTING

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

**Mounting hardware is not included with the unit.**

**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 DIP-1/115 will operate in a temperature range of 32°F - 120°F (0°C - 50°C).**

**Install the DIP-1/115 not longer the 2 meters from each ECS.**

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

**\*It is prohibited to use overhead cables outside the building.**




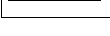
## DIP-1/115

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Install mounting screw on wall and hang the unit in place by sliding the rear mounting hole of the DIP-1/115 over the screw. Use two more screws to secure the DIP-1/115 in place using the bottom mounting hole.

### 2.3 SOFTWARE SETTINGS SWITCH

The switch is located behind the DIP-1/115 faceplate and adjusts the following options.

OFF	ON	OFF	ON
	1	Fahrenheit	Celsius
	2	Setting locked	Setting unlocked
	3	2 Units	1 Unit
	4	Automatic calibration	Normal operation

**Switch 1** Selects between a Fahrenheit or Celsius display on the DIP-1/115.

**Switch 2** Locks / unlocks. All settings are locked while this switch is off.

**Switch 3** One or two ECS-M connected to the DIP-1/115.

**Switch 4** To enable automatic calibration switch 4 must be OFF. **When automatic calibration is done, you must put the switch back ON return to normal mode.**

### 2.4 CONNECTION PROCEDURE

For the connection procedure which follow, refer to figure 1.

#### 2.4.1 Input power

Use a screwdriver to remove cable knock-outs for the installation of cabling to the DIP-1/115.

**Do not apply power to the DIP-1/115, ECS-M and the actuator until all connections have been completed!**



**2.4.2 Connecting to the actuator (figure 1)**

- Connect L1 to terminal L of the DIP-1/115.
- Connect N (neutral) to terminal N of the DIP-1/115.
- Connect a wire between terminal OPEN of the DIP-1/115 and terminal OPEN of the actuator.
- Connect a wire between terminal CLOSE of the DIP-1/115 and terminal CLOSE of the actuator.
- Connect a wire between terminal COM of the DIP-1/115 and terminal COM of the actuator.
- Connect a shielded cable between terminal (wiper) of the potentiometer and terminal (POT) of the DIP-1/115.
- Connect a shielded cable between the potentiometer and terminal (GNA) of the DIP-1/115.
- Verify jumpers according potentiometer used (figure 3).

The accuracy of the actuator's positioning depends on the type of actuator. The positioning is accurate at more or less 1/8 in (3mm)

**NOTE**

**It is recommended to use the actuator on the longest travel time possible to obtain maximum accuracy in the curtain's positioning (min. 12 in. or 30 cm).**

**Remember that a bad connection of the cables / pulley between the actuator and the curtain influences the accuracy of the curtain's positioning.**

**2.4.3 Connecting to the ECS-M**

- Disconnect power of the ECS-M.
- These cables can extend up to a distance of 6 feet (2 meters).
- Connect one end of the cable to the (SIN), (SCK) and (GND) terminal of the DIP-1/115 to the ECS-M. (If you connect only one unit to the DIP-1/115, use terminal (AUX INPUT 1).

## **2.5 TEMPERATURE PROBE**

Outside temperature probes use a “Class II” low voltage circuit. These cables (AWG#18 min) can measure up to 500 feet (150 meters). Outside temperature probe is illustrated in figure 2.

### **2.5.1 Outside temperature probe**

**Do not expose outside temperature probes to direct sunlight !**

Install the outside temperature probe in an area that best reflects the overall outside temperature.

## **2.6 ALARM**

**Use a shielded cable for probes. Connect the shields to the “SHLD” terminal. Failure to do so may result in inaccurate readings and inefficient protection against lightning and electromagnetic fields.**

The DIP-1/115 provides a normally closed and a normally open dry contact for monitoring communication failures between the DIP-1/115 and the ECS-M, loss of power between the DIP-1/115 and the ECS-M and potentiometer malfunction. This contact may be connected to an alarm system, or directly to a siren and / or an auto-dialer.

Do the connection according to the normally open (NO) / normally closed (NC) options illustrated in figure 2.

**Momentary power interruptions may trigger false alarms! To avoid false alarms when the DIP-1 is connected to an alarm system, install a time delay relay between the DIP-1/115 and the alarm system.**

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## 2.7 POWERING UP

Before powering up the DIP-1/115, attach the faceplate to the casing of the unit using the screws previously removed.

Set selector knob to position (12).

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

Following the LED display test, the unit displays the actual position of the air inlet.

If the actual position of the air inlet is not displayed or ER 5 comes on, refer to the Troubleshooting section of this manual.

### ADJUSTING THE POTENTIOMETER LIMIT VALUES

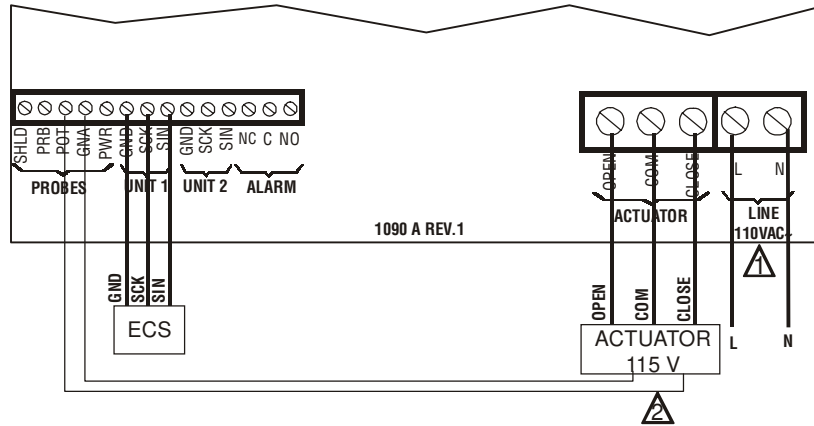
**In order to function properly, the DIP-1 has to be manually calibrated the first time it is started. The initial calibration is done by following these 3 steps:**

- Make sure the #4 switch is ON.
- **Step 1:** Set the DIP-1/115 in manual mode (position 11).
- **Step 2:** Turn the Adjustor dial to HI and wait for the motor to stop at least 15 seconds.
- **Step 3:** Turn the Adjustor dial to LO and wait for the motor to stop.

It is **important** to follow those 3 steps to allow the DIP-1/115 to memorize the inlet minimum and maximum positions. They are saved everytime a Lo or Hi position is reached. Even if the position hasn't changed, it is still recorded after 10 seconds or so.

## DIP-1/115

Fig. 1 Connection between, actuator, ECS-M and DIP-1/115



⚠ Power cut and protection devices in case of overload.

⚠ If ER4 is displayed, check if the reading of the potentiometer is lower when the air inlet is close. (If the value of the POT is higher when the air inlet is closed, connect the POT wire to the second terminal of the actuator).

Fig 2.  
Probe and Alarm Wiring

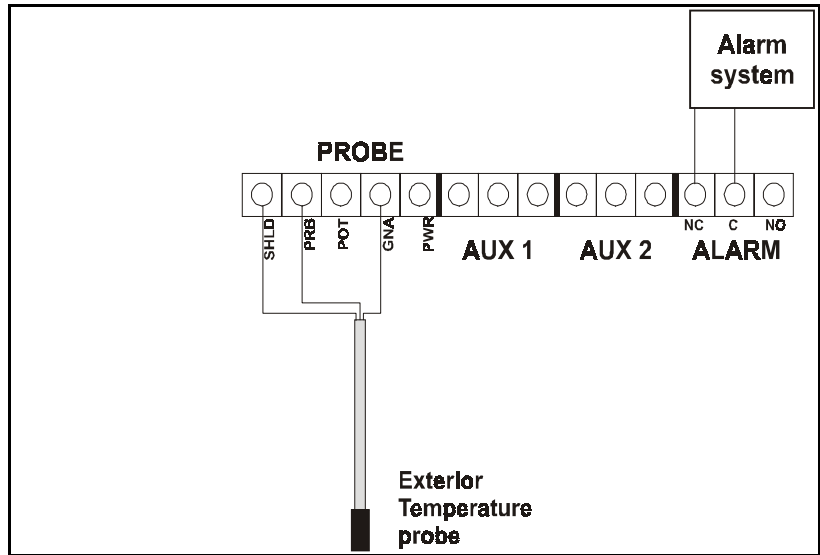
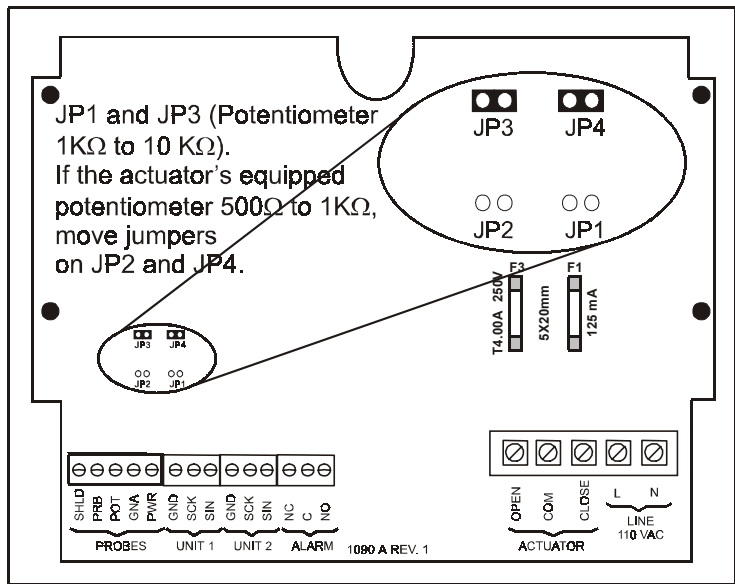


Fig 3.  
Main Bottom Board: Terminal Block and Fuse Location



## **CHAPTER 3 - USER'S GUIDE**

The DIP-1/115 front panel shown next features a LED status window and two control dials that are respectively used to select a function and adjust a setting.

### **LED STATUS WINDOW**

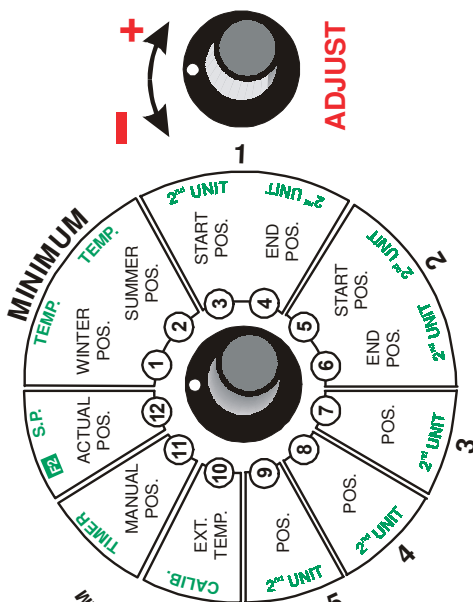
The LED status window features a 3 digit LED readout for outside temperature, the display of inlet position and programmable settings.

In addition, the LED status window displays the operational status of air inlet, control, potentiometer and alarm via 6 additional LEDs (shown next in LED window). The first and second LEDs indicate if the air inlet is closing or opening. The third LED indicate the DIP-1/115 in manual mode. The fourth LED provides the potentiometer actual status: if the LED flashes when the actuator is ON, this means the DIP-1/115 detect an intermittent contact coming from the potentiometer. Solution: replace the potentiometer. If the LED flashes while the actuator is stopped, this means the DIP-1/115 do not detect the presence of the potentiometer. Solution: verify the wiring and the potentiometer. The fifth LED indicates when the auto-calibration is in process, and the sixth indicate an alarm to lost contact between ECS-M and DIP-1/115.

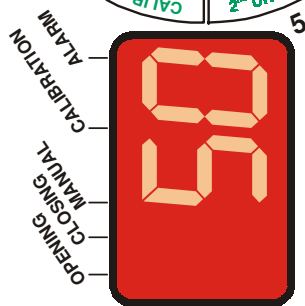
### **CONTROL DIALS**

The center dial is the Selector dial and is used to select one of the DIP-1/115's 12 primary or secondary functions. The dial located to the right of the Selector is the Adjustor dial and is used to enter secondary function mode and to adjust setting of each function.

Compatible  
ECS M series



DIGITAL INLET POSITIONER  
WITH POTENTIOMETER FEEDBACK



DIP-1

Varifan®

## ***DIP-1/115***

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The 12 primary functions are:

- 1 Winter minimum position
- 2 Summer minimum position
- 3 Start position, when the first stage begins to operate at minimum speed (unit 1)
- 4 End position, when the first stage runs at its maximum speed (unit 1)
- 5 Start position, when the second stage begins to operate at minimum speed (unit 1)
- 6 End position, when the second stage runs at its maximum speed (unit 1)
- 7 Position, when the third stage begins to operate (unit 1)
- 8 Position, when the fourth stage begins to operate (unit 1)
- 9 Position, when the fifth stage begins to operate (unit 1)
- 10 Exterior temperature display
- 11 Manual positioning of the air inlet
- 12 Actual position of the air inlet display

Any of these functions is selected by rotating the Selector dial to the corresponding number and graphical image printed on the faceplate of the DIP-1/115. When primary functions 1 through 11 are selected, the LED status window displays a flashing value. But if it displays 3 horizontal stripes, it means your system doesn't include that function. Function 12 displays the actual position of the air inlet and doesn't flash.



The 12 secondary functions are:

- 1 Desired temperature for winter
- 2 Desired temperature for summer
- 3 Start position, when the first stage begins to operate at minimum speed (unit 2)
- 4 End position, when the first stage runs at its maximum speed (unit 2)
- 5 Start position, when the second stage begins to operate at minimum speed (unit 2)
- 6 End position, when the second stage runs at its maximum speed (unit 2)
- 7 Position, when the third stage begins to operate (unit 2)
- 8 Position, when the fourth stage begins to operate (unit 2)
- 9 Position, when the fifth stage begins to operate (unit 2)
- 10 Automatic calibration
- 11 Timer
- 12 Static room pressure display during the automatic calibration

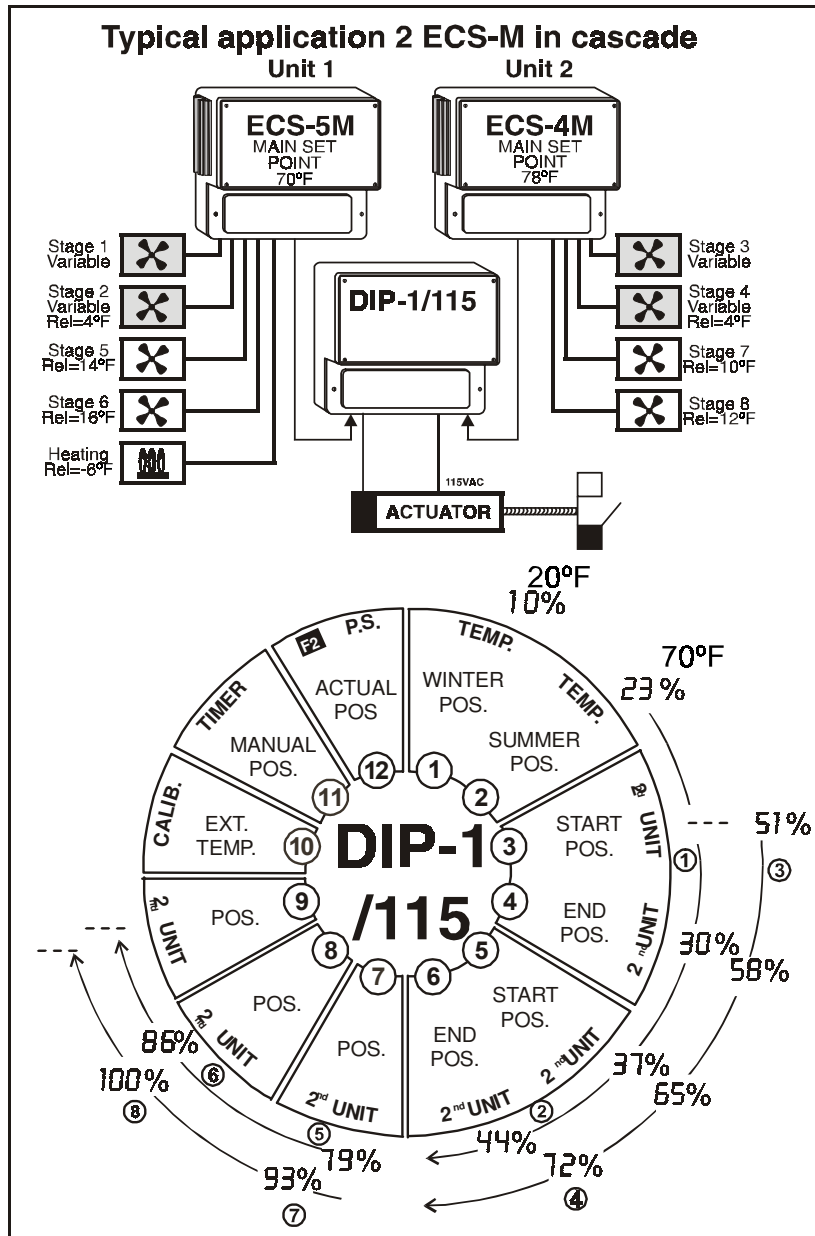
Select any one of these secondary mode functions by:

- rotating the Selector dial to (12)
- rapidly rotating the Adjustor dial back and forth to enter in secondary mode
- rotating the Selector dial from function (12) to any other function.

When secondary functions 1 through 11 are selected the status window displays a flashing value along with a scrolling LED display. Selection of function 12 removes the DIP-1/115 from the secondary function mode.

**DIP-1/115**

Fig 4.  
Typical Application, 2 ECS-M in cascade



Here is a typical application (figure 4). In this example, an ECS-4M and an ECS-5M in cascade are illustrated to demonstrate the complete operation of the DIP-1/115.

**Here is a description of this installation:**

**WINTER POS, SUMMER POS:** Functions 1 & 2 allow setting of a minimum opening position (in percentage) for each season.

**TEMP.:** Functions 1 & 2 secondary mode allow setting of temperature for winter and summer. When outside temperature is between 0°C(20°F) and 20°C (70°F) and none of the ventilation stages are activated, the air inlet varies between the minimum winter position and the minimum summer position.

**When temperature reaches 20°C (70°F) (stage 1).** The ECS-5M's first fan begins to operate, the air inlet opens at 23% and varies to 30% as the fan's speed increases. (In fig. 4, the ECS-5M's first fan is in continual ventilation, " - - - " is displayed at position 3 and the air inlet varies between the minimum position (summer, winter), and the end position for the first stage).

**When the temperature reaches 22°C (74°F) (stage 2).** The ECS-5M's second fan begins to operate, the air inlet opens at 37% and varies to 44% at the same time as the fan's speed accelerates.

**When the temperature reaches 25°C (78°F) (stage 3).** The ECS-4M's first fan begins to operate, the air inlet opens at 51% and varies to 58% at the same time as the fan's speed accelerates.

**When the temperature reaches 27°C (82°F) (stage 4).** The ECS-4M's second fan begins to operate, the air inlet opens at 65% and varies to 72% at the same time as the fan's speed accelerates.

**When the temperature reaches 28°C (84°F)(stage 5).** The ECS-5M's third fan begins to operate, the air inlet opens at 79%.

**When the temperature reaches 29°C (86°F) (stage 6).**  
The ECS-5M's fourth fan begins to operate, the air inlet opens at 86%.

**When the temperature reaches 30°C (88°F) (stage 7).**  
The ECS-4M' third fan begins to operate, the air inlet opens at 93%.

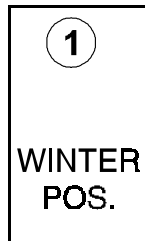
**When the temperature reaches 31°C (90°F) (stage 8).**  
The ECS-4M's fourth fan begins to operate, the air inlet opens at 100%.

The DIP-1 displays 3 horizontal stripes “- - -” to position 9 (primary and secondary functions) because the fifth ventilation stage is not available on the units.

Refer to the examples on the bottom of the next pages for more details on this installation.

## PRIMARY FUNCTIONS

### MINIMUM WINTER POSITION



The **minimum winter position** allows to determine a minimum position for winter at the air inlet, when temperature is below the main set point (on the first or second unit), according to the outside temperature (if the DIP-1/115 temperature probe is located outside. The winter temperature value is adjusted to position (1) in secondary function.

**Adjusting the minimum winter position:**

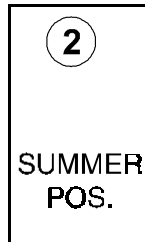
- rotate the Selector dial to position (1),
- rotate the Adjustor dial counter clockwise to decrease the minimum winter position, and clockwise to increase it.

The minimum winter position is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Note: If the summer minimum position is smaller than the winter minimum position then, the winter position won't be considered. The DIP-1/115 will use the summer minimum position instead.**

**Example: The minimum winter position is set to 10%. When the outside temperature is below 20°F and none of the ventilation stages are activated or unit 1 stage 1 is in (continuous) minimum ventilation, the air inlet opens at 10%.**

## MINIMUM SUMMER POSITION



The minimum summer position allows to set a minimum position for summer at the air inlet, when temperature is below the main set point (on the first or second unit), according to the outside temperature (if the DIP-1/115 temperature probe is located outside). The summer temperature value is adjusted to position (2) in secondary function.

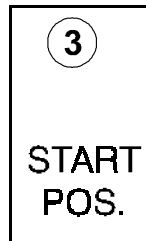
### **Adjusting the minimum summer position:**

- rotate the Selector dial to position (2),
- rotate the Adjustor dial counter clockwise to decrease the minimum summer position, and clockwise to increase it.

The minimum summer position is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The minimum summer position is set to 23%. When the outside temperature is higher than 70°F, and none of the ventilation stages are activated or unit 1 stage 1 is in (continuous) minimum ventilation, the air inlet opens at 23%.**

## START POSITION FOR THE FIRST STAGE (UNIT 1)



The start position for the first stage (unit 1) sets the air inlet position when the first stage (unit 1) begins to operate at minimum speed.

### Adjusting the start position for the first stage (unit 1):

- rotate the Selector dial to position (3)
- rotate the Adjustor dial counterclockwise to decrease the start position for the first stage (unit 1), and clockwise to increase it.

The start position for the first stage (unit 1) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Note :** If the ECS's first stage runs with the timer (in continue ventilation when the temperature is lower than the main set point), it is not possible to adjust this position. "- -" is displayed, the air inlet varies between the summer or winter position and the end position for the first stage (unit 1).

**Example:** As shown on p. 19, the ECS-5M first stage runs in continue ventilation (when temperature is lower than the main set point), it's not possible to adjust this position. "- -" is displayed and the air inlet position varies between the minimum (winter, summer) position and the end position for the first stage (unit 1).

## END POSITION FOR THE FIRST STAGE (UNIT 1)

4

END  
POS.

The end position for the first stage (unit 1) sets the air inlet position when the first stage (unit 1) runs at maximum speed.

The air inlet varies proportionately between the start and the end position at the same time the fan accelerates.

### **Adjusting the end position for the first stage (unit 1):**

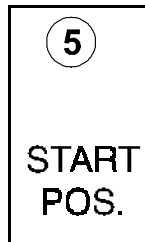
- rotate the Selector dial to position (4),
- rotate the Adjustor dial counterclockwise to decrease the end position for the first stage (unit 1), and clockwise to increase it.

The end position for the first stage (unit 1) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The end position for the first stage (unit 1) is set to 30%. When the first stage (unit 1) runs at maximum speed the air inlet opens at 30%.**



## START POSITION FOR THE SECOND STAGE (UNIT 1)



The start position for the second stage (unit 1) sets the air inlet position when the second stage (unit 1) begins to operate at minimum speed.

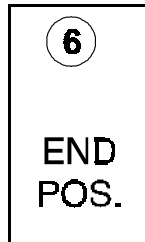
### **Adjusting the start position for the second stage (unit 1):**

- rotate the Selector dial to position (5),
- rotate the Adjustor dial counterclockwise to decrease the start position for the second stage (unit 1), and clockwise to increase it.

The start position for the second stage (unit 1) is displayed on the DIP-1/115, and is adjusted in opening percentage.

**Example: The start position for the first stage (unit 1) is set to 37%. When the second stage (unit 1) begins to operate, the air inlet opens at 37%.**

## END POSITION FOR THE SECOND STAGE (UNIT 1)



The end position for the second stage (unit 1) sets the air inlet position when the second stage (unit 1) runs at maximum speed.

The air inlet varies proportionally between the start and the end position at the same time the fan accelerates.

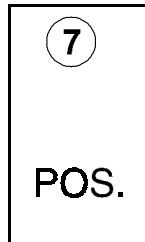
### **Adjusting the end position for the second stage (unit 1):**

- rotate the Selector dial to position (6)
- rotate the Adjustor dial counterclockwise to decrease the end position for the second stage, and clockwise to increase it.

The end position for the first stage (unit 1) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The end position for the second stage (unit 1) is set to 44%. When the second stage runs at maximum speed, the air inlet opens at 44%.**

## POSITION FOR THE THIRD STAGE (UNIT 1)



The position for the third stage (unit 1) sets the air inlet position when the third stage (unit 1) begins to operate.

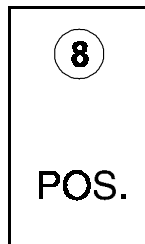
### Adjusting the position for the third stage (unit 1):

- rotate the Selector dial to position (7),
- rotate the Adjustor dial counterclockwise to decrease the end position for the third stage (unit 1), and clockwise to increase it.

The position for the third stage (unit 1) is displayed on the DIP-1/115 is adjusted in opening percentage (0-100%).

**Example: The position for the third stage is set to 79%. When the third stage (unit 1) begins to operate the air inlet opens at 79%.**

## POSITION FOR THE FOURTH STAGE (UNIT 1)



The position for the fourth stage (unit 1) sets the air inlet position when the fourth stage (unit 1) begins to operate.

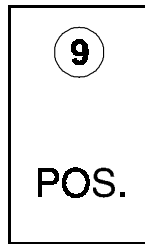
### Adjusting the position for the fourth stage (unit 1):

- rotate the Selector dial to position (8),
- rotate the Adjustor dial counterclockwise to decrease the position for the fourth stage (unit 1), and clockwise to increase it.

The position for the fourth stage is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The position for the fourth stage (unit 1) is set to 86%. When the fourth stage (unit 1) begins to operate, the air inlet opens at 86%.**

## POSITION FOR THE FIFTH STAGE (UNIT 1)



The position for the fifth stage (unit 1) sets the air inlet position when the fifth stage (unit 1) begins to operate.

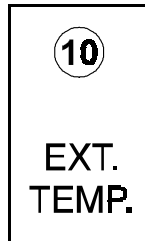
### Adjusting the position for the fifth stage (unit 1):

- rotate the Selector dial to position (9),
- rotate the Adjustor dial counterclockwise to decrease the position for the fifth stage (unit 1),

The position for the fifth stage (unit 1) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: As shown in the example of page 19, this function is not available because the fifth stage on the ECS-5M is in heating mode. The DIP-1/115 displays “---”.**

## OUTSIDE TEMPERATURE DISPLAY



This function displays the exterior temperature.  
**Do not expose temperature probe to sunlight!**

The exterior temperature is displayed to the nearest 0.1 degree from a minimum display of -3.5°F (-19.0°C) to a maximum display of 99.5°F (39.5°C). If the exterior temperature is lower than -3.5°F **LO** is displayed. If the temperature is higher than 99.5°F **HI** is displayed.

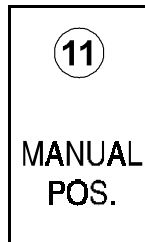
**Viewing the exterior temperature:**

- rotate the Selector dial to position (10)

The exterior temperature is displayed on the DIP-1/115.

**When the actuator moves, the value of the outside temperature is not updated.**

## MANUAL POSITION



This function allows an air inlet manual position. AUT on the display indicates that the DIP-1/115 is in automatic mode. If a value between 0 and 100 is entered the air inlet opens at this position. When the manual mode is activated, the air inlet stays at this position even if a stage is activated. The third LED on the display lights to indicate that the air inlet is manually positioned.

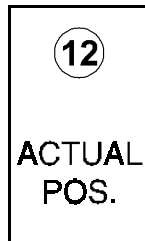
### Adjusting the manual position:

- rotate the Selector dial to position (11),
- rotate Adjustor dial counterclockwise to decrease the manual position, and clockwise to increase it.

The manual position is displayed on the DIP-1/115 and is adjusted in opening percentage (AUT, LO, 0-100%, HI).

**Example:** As shown on page 19, the manual position is set on AUT to allow automatic positioning of the air inlet. The LO position allows the recording of the minimum inlet opening. The HI position allows the recording of the maximum opening.

## ACTUAL POSITION DISPLAY



This function displays the actual position of the air inlet. The Selector dial should normally be left in this position.

**Viewing the actual position:**

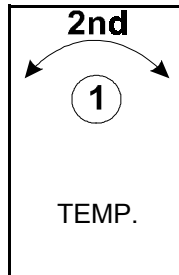
- rotate the Selector dial to position (12)

The actual position is displayed on the DIP-1/115 in an opening percentage (0-100%).

**Note: If ER 5 is displayed at position 12, the value shown in percentage will be replaced by a value between 0-255 where 0 means the potentiometer minimum value and 255 the maximum value. See page 47 and 49 for more details on error 5.**



## WINTER TEMPERATURE



This function sets the temperature for winter, which is adjusted in 0.5 degree increments from a minimum setting of -3.5°F (-19.0°C) to a maximum setting of 99.5°F (39.5°C). When the exterior temperature is between the winter and summer temperature, and none of the ventilation stages are activated, the air inlet varies proportionally between the Summer minimum position and the Winter minimum position.

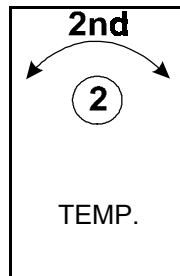
### Setting the winter position:

- set the Selector to position (12)
- rapidly rotate the Adjustor dial back and forth to enter secondary function mode,
- set the Selector dial to position (1),
- rotate the Adjustor dial counterclockwise to decrease the winter position, and clockwise to increase it.

The winter temperature is displayed on the DIP-1/115.

**Example: The minimum winter position set by primary function (1) is adjusted to 10%, and the winter temperature is set to 20°F. When the exterior temperature reaches 20°F and none of the ventilation stages are activated, the air inlet opens at 10%.**

## SUMMER TEMPERATURE



This function sets a temperature for summer. The summer temperature is adjusted in 0.5 degree increments from a minimum setting of -3.5°F (-19.0°C) to a maximum setting of 99.5°F (39.5°C). When the exterior temperature is between the winter and summer temperature, and none of the ventilation is activated, the air inlet varies proportionally between the Summer minimum position and the Winter minimum position.

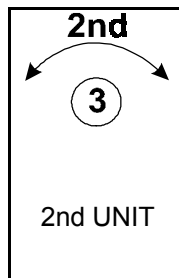
### Adjusting the summer position:

- 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 summer position, and clockwise to increase it.

The summer position is displayed on the DIP-1/115.

**Example: The minimum summer position set by primary function (2) is adjusted to 23%, and the summer temperature is set to 70°F. When the exterior temperature reaches 70°F and none of the ventilation stages are activated, the air inlet opens at 23%.**

## START POSITION FOR THE FIRST STAGE (UNIT 2)



The start position for the first stage (unit 2) sets the air inlet position when the first stage (unit 2) begins to operate at minimum speed.

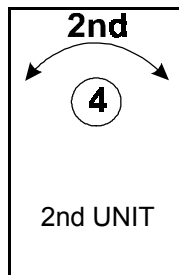
### Adjusting the start position for the first stage (unit 2):

- 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 start position for the first stage (unit 2), and clockwise to increase it.

The start position for the first stage (unit 2) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The start position for the first stage (unit 2) is set to 51%. When the first stage begins to operate at minimum speed, the air inlet opens at 51%.**

## END POSITION FOR THE FIRST STAGE (UNIT 2)



The end position for the first stage (unit 2) sets the air inlet position when the first stage (unit 2) runs at maximum speed.

The air inlet varies proportionally between the start position and the end position as the fan speed increases .

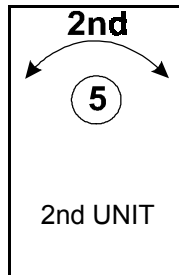
### Adjusting the end position for the first stage (unit 2):

- 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 end position for the first stage, and clockwise to increase it.

The end position for the second stage (unit 2) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The end position for the second stage (unit 2) is set to 58%. When the second stage runs at maximum speed, the air inlet opens at 58%.**

## START POSITION FOR THE SECOND STAGE (UNIT 2)



The start position for the second stage (unit 2) sets the air inlet position when the second stage (unit 2) begins to operate at minimum speed.

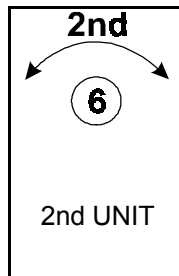
### Adjusting the start position for the second stage (unit 2):

- set the Selector dial to position (12),
- rapidly rotate the Adjustor dial back and forth to enter secondary function mode,
- set the Selector to position (5),
- rotate the Adjustor dial counterclockwise to decrease the start position for the second stage (unit 2), and clockwise to increase it.

The start position for the second stage (unit 2) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The start position for the second stage (unit 2) is set to 65%. When the second stage begins to operate at minimum speed, the air inlet opens at 65%.**

## END POSITION FOR THE SECOND STAGE (UNIT 2)



The end position for the second stage (unit 2) sets the air inlet position when second stage (unit 2) runs at maximum speed.

The air inlet varies proportionally between the start and the end position at the same time the fan accelerates.

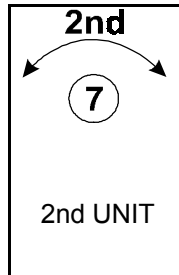
### Adjusting the end position for the second stage (unit 2):

- 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 (6),
- rotate the Adjustor dial counterclockwise to decrease the end position for the second stage (unit 2), and clockwise to increase it.

The end position for the second stage (unit 2) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The end position for the second stage (unit 2) is set to 72%. When the second stage (unit 2) runs at maximum speed the air inlet opens at 72%.**

## POSITION FOR THE THIRD STAGE (UNIT 2)



The position for the third stage (unit 2) sets the air inlet position when the third stage begins to operate.

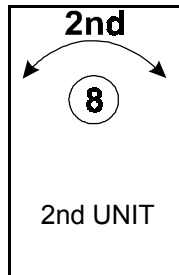
### Adjusting the position for the third stage (unit 2):

- rotate the Selector dial to position (12),
- rapidly rotate the Adjustor dial back and forth to enter secondary mode,
- rotate the Selector dial to position (7),
- rotate the Adjustor counterclockwise to decrease the position for the third stage, and clockwise to increase it.

The position for the third stage (unit 2) is displayed on the DIP-1/115, and is adjusted in opening percentage (0-100%).

**Example: The position for the third stage (unit 2) is set to 93%. When the third stage (unit 2) begins to operate, the air inlet opens at 93%.**

## THE POSITION FOR THE FOURTH STAGE (UNIT 2)



The position for the fourth stage (unit 2) sets the air inlet position when the fourth stage begins to operate.

### Adjusting the position for the fourth stage (unit 2):

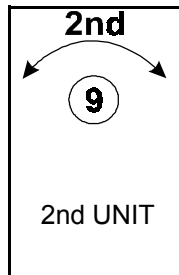
- rotate the Selector dial to position (12),
- rapidly rotate the Adjustor dial back and forth to enter secondary function mode,
- rotate the Selector dial to position (8),
- rotate the Adjustor dial counterclockwise to decrease the position for the fourth stage, and clockwise to increase it.

The position for the fourth stage (unit 2) is displayed on the DIP-1/115, and is adjusted in opening percentage (0 - 100%).

**Example: The position for the fourth stage (unit 2) is set to 100%. When the fourth stage begins to operate, the air inlet opens at 100%.**



## POSITION FOR THE FIFTH STAGE (UNIT 2)



The position for the fifth stage (unit 2) sets the air inlet position when the fifth stage begins to operate.

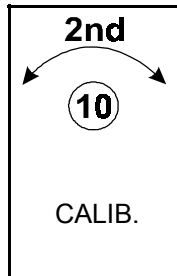
### Adjusting the position for the fifth stage (unit 2):

- 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 (9),
- rotate the Adjustor dial counterclockwise to decrease the position for fifth stage, and clockwise to increase it.

The position for the fifth stage (unit 2) is displayed on the DIP-1/115 and is adjusted in opening percentage.

**Example: As shown at page 19, this function is not available because the fifth stage on the ECS-4M is not available. The DIP-1/115 displays “---”.**

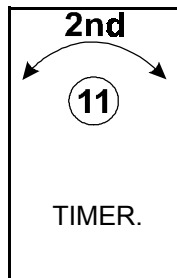
## **AUTOCALIBRATION**



Autocalibration on the DIP-1/115 is an optional function used to calibrate the air inlet with the help of a special static pressure probe called "Autocal".

For more details on the Autocalibration, refer to the "Autocal" probe's instruction manual.

## TIMER



This function allows to limit the opening time. It works exclusively when the air inlet is in opening mode.

The timer can be programmed from 0 to 60 seconds, within a set period of 4 min. 15 sec. (When positioned at 0, the timer is deactivated.) For example, if the timer is set at 10 sec., the inlet will open for 10 sec., and then stop for 4 min. 05 sec. It will then reactivate itself to reach the position set by the DIP-1/115.

If the air inlet reaches the set position before the timer goes off, it will stop at that position and the timer will restart at the next inlet opening request. In closing mode, the inlet doesn't wait for the timer.

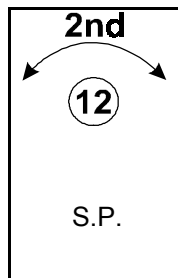
If communication is interrupted, the curtain remains in its actual position.

### Adjusting the Timer

- 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 timer value, and clockwise to increase it.

The timer value (0 - 60 seconds) is displayed on the DIP-1/115.

## STATIC PRESSURE DISPLAY



This function displays the static pressure level of the room when the automatic calibration is in progress. Static pressure "Autocal" probe required.

Static pressure is displayed in 0.01" H<sub>2</sub>O increments from a minimum display of -0.20" H<sub>2</sub>O to a maximum display of 0.20" H<sub>2</sub>O. If a static pressure level lower than -0.20" H<sub>2</sub>O is sensed, **LO** is displayed. On the other hand, if a static pressure level higher than 0.20" H<sub>2</sub>O is sensed, **HI** is displayed.

### Displaying the static pressure level:

- rotate the Selector dial to position (12),
- rapidly rotate the Adjustor dial back and forth to enter secondary function mode.

The static pressure level is displayed on the DIP-1/115.

**Note: When the automatic calibration is not in process, the unit displays "F2".**

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# APPENDIX



## **ERROR CODES**

The error codes are use to let you know what is wrong with the installation or the operation of the DIP-1/115.

- ER1** Unit 1 is not properly connected. Alarm activated.
- ER2** Unit 2 is not properly connected. Alarm activated.
- ER3** The actuator is not working correctly. (Alarm activated)
- ER4** Actuator runs in reverse. (Alarm activated)
- ER5** Bad recording of the high and low actuator position.

See the TROUBLESHOOTING on next page for more information on these codes.





## TROUBLESHOOTING

SYMPTOM	CAUSE and REMEDY
Display is blank	<ul style="list-style-type: none"> <li>– Verify that the DIP-1 is connected to power source.</li> <li>– Verify that the 10 pin flat cable between the main board and the faceplate board is connected.</li> </ul>
“ER 1” is displayed	<ul style="list-style-type: none"> <li>– Unit 1 is disconnected. Verify that the cable between the DIP-1/115 and the unit 1 is connected.</li> </ul>
“ER 2” is displayed	<ul style="list-style-type: none"> <li>– Unit 2 is disconnected. Verify that the cable between the DIP-1/115 and the unit 2 is connected.</li> </ul>
“ER 3” is displayed	<ul style="list-style-type: none"> <li>– There is a faulty connection between the DIP-1/115 and the actuator. If the actuator runs in reverse, switch terminals 1 and 2 on the DIP-1/115.</li> <li>– If the DIP-1/115 displays the opposite value (wide opened air inlet), change polarity on the actuator. Refer to wiring diagram (<b>page 12 note 2</b>).</li> <li>– When this error is detected, you will see the potentiometer value at position 12. The value 250 means that the actuator is at its maximum value while 0 means the minimum value.</li> <li>– If the value is always between 250-255 and the actuator is moving, the DIP-1/115 reads an open circuit, check the wiring and the jumpers (<b>page 13, fig.3</b>). The value is supposed to increase when the inlet is opening and decrease when the inlet is closing.</li> <li>– There is a wrong connection between the DIP-1/115 and the actuator. If the air inlet is open, when it is suppose to be close, inverse the wires from the DIP-1/115's terminal block 1 and 2.</li> </ul>
“ER 5” is displayed	<ul style="list-style-type: none"> <li>– The actuator's travel is too short. Increase the travel.</li> </ul>

## SPECIFICATIONS

DESCRIPTION	VALUE
<b>INPUT POWER</b>	<ul style="list-style-type: none"><li>- 10W max</li><li>- 115VAC ±15%</li><li>- 50 / 60 Hz</li><li>- Fuse : 125mA, 5X20mm.</li></ul>
<b>ACTUATOR INPUT POWER</b>	<ul style="list-style-type: none"><li>- Fuse : T4.00A 250VAC</li><li>- 115 VAC</li></ul>
<b>Alarm ( dry contact )</b>	<ul style="list-style-type: none"><li>- 1 A @ 30 VDC</li></ul>

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

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

Weight: 3.5 pounds (1.59Kg)

Dimension: 8.35"x4.60"x7.87" (212x117x200mm)

### **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 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, 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.

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version 016