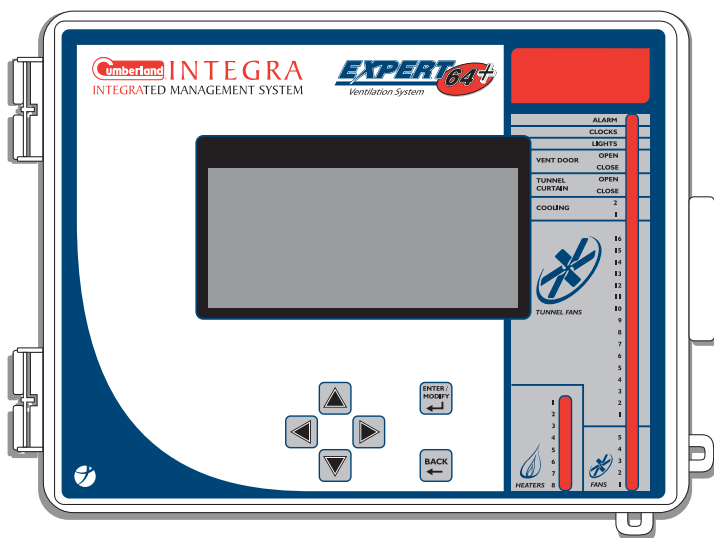


EXPERT 64+

Temperature Controller

User's manual



WARNINGS

The warranty can be void if this product is used in a manner not specified by the manufacturer.

Every effort has been made to ensure that this manual is complete, accurate and up-to-date. The information contained in it is however subject to change without notice due to further developments.

TABLE OF CONTENTS

1.	INTRODUCTION	6
1.1.	Precautions	6
1.2.	Symbols of the Manual	6
1.3.	Controller's Overview	7
1.4.	Main Features of the Controller	7
2.	MOUNTING INSTRUCTIONS	8
2.1.	Installing the Controller on the Wall	8
2.2.	Connections	8
2.2.1.	Controller's Main Wiring	8
2.2.2.	Alarm Connection	8
2.2.3.	Sensor Inputs	9
2.2.4.	0-10V Output Connection	9
3.	USER INTERFACE	9
3.1.	Location of the Controls	9
3.2.	How to Select & Modify the Parameters	10
3.3.	Status LEDs	10
4.	CONTROLLER SETUP	11
4.1.	Time & Date	11
4.2.	Password	11
4.3.	Controller Programs	12
4.3.1.	Selecting a Program	12
4.3.2.	Copy/Paste Programs	12
4.4.	Installation Setup	13
4.5.	Probes	14
4.5.1.	Activating the probe inputs	14
4.5.2.	Measuring Units	15
4.5.3.	Probe Assignment	15
4.5.4.	Probes & Water Meter Calibration	16
4.6.	Relative Humidity (RH) Control	17
4.6.1.	Activating the RH Compensation Functions	18
4.6.2.	RH Compensation Parameters	19
4.7.	Relay Assignment	20
4.7.1.	Principle of Operation	20
4.7.2.	Making the Assignment	21

4.8.	Alarms.....	22
4.8.1.	Alarm Log.....	22
4.8.2.	Alarm Conditions.....	22
4.8.2.1.	Temperature Alarms	23
4.8.2.2.	Empty Zone Temperature Alarms.....	24
4.8.2.3.	Water Spill Alarm	24
4.8.2.4.	Static pressure Alarms	24
4.8.3.	Setting the Alarm Limits	25
4.8.4.	Critical Temperature Ramp	26
4.9.	Clean Mode & Empty Zones	27
4.10.	Controller's Version.....	28
4.11.	Test Mode.....	28
5.	TEMPERATURE SETTINGS.....	29
5.1.	House Set Points.....	29
5.1.1.	Principle of Operation.....	29
5.1.2.	Settings	29
5.2.	Set Point Ramp.....	30
5.3.	Seasonal Temperatures.....	31
6.	VENTILATION SETTINGS.....	32
6.1.	Minimum Ventilation.....	32
6.1.1.	Principle of Operation.....	32
6.1.2.	Min Ventilation Ramp.....	33
6.1.2.1.	Min Vent. Night Ramp.....	34
6.1.2.2.	Night Start Time.....	34
6.1.3.	Minimum Ventilation Fan/Tunnel Fan Groups...	35
6.1.4.	Fan Cycling.....	35
6.2.	Fan & Tunnel Fan Groups.....	36
6.2.1.	Principle of Operation.....	36
6.2.2.	Settings	37
6.2.3.	Timer-based Relays.....	37
6.2.4.	Fan Group Shutoff in Transitional Ventilation ..	37
6.3.	Tunnel Ventilation	38
6.3.1.	Transition between Sidewall and Tunnel Ventila- tion.....	38
6.3.2.	Endwall Curtain.....	39
6.3.2.1.	Principle of Operation.....	39
6.3.2.2.	Curtain Settings	41

6.4.	Vent Doors.....	43
6.4.1.	Principle of Operation.....	43
6.4.2.	Sidewall Vent Settings.....	44
6.4.3.	Attic Vent Compensation.....	45
6.5.	Cooling Outputs.....	47
6.6.	Stir Fans.....	49
7.	HEATING.....	50
8.	LIGHTS.....	51
9.	CLOCK OUTPUTS.....	54
10.	MONITORING FUNCTIONS.....	55
10.1.	Current Conditions.....	55
10.2.	Individual Temperature Probe Readings.....	55
10.3.	History.....	56
10.4.	Monitoring the Animal Age & Number.....	57
11.	TECHNICAL SPECIFICATIONS.....	59
12.	TRANSFER MENU.....	60
12.1.	Screen Contrast.....	60
12.2.	Communication Speed.....	60
12.3.	Update/Backup Process.....	60
14.	INSTALLATION REPORT.....	63
ANNEX 1:	CORE CARD.....	71
15.	INDEX.....	72

1. INTRODUCTION

1.1. Precautions



WARNING: Read and save these instructions!

Safety may be jeopardized if the equipment is used in a manner not specified by the manufacturer. Carefully read and keep the following instructions for future reference.

We strongly recommend installing supplementary natural ventilation as well as a backup thermostat on at least one cooling stage.

Although fuses at the input and outputs of the controller protect its circuits in case of an overload or over-voltage, we recommend installing an additional protection device on the controller's supply circuit.

The room temperature where the controller is located must always remain between 32°F and 104°F (0°C to 40°C). Indoor use only!

To avoid exposing the controller to harmful gases or excessive humidity, it is preferable to install it in a corridor.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not spray water on the controller! In order to clean the control, wipe it with a damp cloth.



Before servicing or cleaning unit, switch power off at service panel and lock the switch disconnecting means to prevent power from being switched accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

1.2. Symbols of the Manual



Warning. Read the following text carefully; it contains important information which, if ignored, may cause the controller to operate improperly.



High Voltage. Hazard of electrical shock. Read the message and follow the instructions carefully.



Pay attention. The following text contains very useful information.



Both direct and alternating current (AC/DC).



Direct current (DC).



Alternating current (AC).



Earth Ground Terminal
Primarily used for functional earth terminals which are generally associated with test and measurement circuits. These terminals are not for safety earthing purposes but provide an earth reference point.

For Customer Use: Enter below the serial number located on the side of the alarm system and keep this information for future reference.

Model: EXPERT 64+

Serial number: _____

Date installed: _____

1.3. Controller's Overview

The EXPERT 64+ is an electronic device used for environmental control in livestock buildings. It allows the user to maintain a specified target temperature by controlling the operation of ventilation and heating equipment. The controller can operate the following inputs & outputs:

OUTPUTS :

- 8 heating stages;
- 5 fan outputs;
- 16 tunnel fan outputs;
- 6 cooling outputs;
- 12 clock outputs;
- 1 tunnel curtain output;
- 1 sidewall vent;
- 1 attic vent;
- 2 0-10V outputs to run common light programs using LD-7000 light dimmer modules.
- 1 Stir fan output.

INPUTS:

- 8 inside temperature probes;
- 1 outside temperature probe;
- 1 humidity sensor;
- 1 static pressure sensor;
- 2 water meters;



Refer to the end of this manual to connect the sensors and loads.

1.4. Main Features of the Controller

Very large LCD display — An LCD display provides an efficient interface for displaying, monitoring and adjusting parameter values.

5 Controller programs — The controller allows using 5 different programs to control the room temperature. It is thus possible to activate a specific program, that uses particular temperature settings, in accordance with the animal age for instance.

Status LEDs — Pilot lights that indicate the status of the controller outputs are located on the faceplate of the controller. These LEDs allow monitoring the system's operation without having to enter the building.

Minimum ventilation cycle — When ventilation is not required to reduce the house temperature, the fan outputs can run either continuously or intermittently to reduce the humidity level and supply oxygen to the room.

Recuperation of the warm air in the attic — In order to make energy savings, the controller can extract the warm air from the attic and send it back into the room.

Set point & minimum ventilation ramp — The controller can automatically change the temperature set point and the minimum ventilation level with time as the animals are growing up.

Probe readings recorded for past days — Minimum and maximum readings of the static pressure and humidity probes are recorded for the current day and for the past 75 days. The minimum and maximum readings of each individual temperature probe is recorded for the current day and for the past 7 days.

Water monitoring — 2 pulse inputs are provided to monitor the water consumption for the current day and the past 75 days.

Light programs — Up to 10 light programs can be used.

Alarm management — Alarms are provided for high-low temperatures, defective probes and other system functions.

Humidity Control — The control offers many ways to compensate for high or low humidity levels.

9 independent probe temperature inputs — Up to 8 inside temperature probes and 1 outside temperature probe can be connected to the controller in order to obtain a more accurate reading of the average house temperature and a faster reaction time.

Static pressure control — A static pressure input is provided to control static pressure level by opening and closing the vent doors.

Password protection — A password feature is used to restrict access to some of the controller setup functions.

Backup battery — A backup battery allows the unit to keep time in case of a power failure.

Overload and overvoltage protection — Resettable fuses are provided at low-voltage inputs and outputs of the controller to protect its circuitry in the case of an overload or overvoltage.

Computer control — The controller can be connected to a computer, thus making it possible to centralize the management of information and diversify control strategies.

Test mode — This mode allows you to simulate temperature changes and verify the controller's performance.

2. MOUNTING INSTRUCTIONS

2.1. Installing the Controller on the Wall

Open the latch and lift the cover. Remove the black caps located on each of the four mounting holes. Mount the enclosure on the wall using four screws. Be sure the electrical knockouts are at the bottom of the enclosure in order to prevent water from entering the controller. Insert the screws in the mounting holes and tighten. Fasten the four black caps provided with the controller onto the four mounting holes. The enclosure must be mounted in a location that will allow the cover to be completely opened right up against the wall.

2.2. Connections

2.2.1. Controller's Main Wiring

Refer to the wiring diagram enclosed with this user's manual to connect the controller. Use the electrical knockouts provided at the bottom of the enclosure. Do not make additional holes in the enclosure, particularly on the side of the enclosure when using a computer communications module.



All wiring must be done by an authorized electrician and must comply with applicable codes, laws and regulations. Make sure power is off before doing any wiring to avoid electrical shocks and equipment damage.

2.2.2. Alarm Connection

There are two types of alarms on the market. One type activates when current is cut off at its input; the other type of alarm activates when current is supplied at its input. For an alarm of the first type, use the NC terminal as shown on the wiring diagram. For an alarm of the second type, use the NO terminal.

2.2.3. Sensor Inputs

Sensors operate at low voltage and are isolated from the supply. Make sure that sensor cables remain isolated from all high voltage sources. In particular, do not route the sensor cables through the same electrical knockout as other cables. Do not connect the shield from the sensor cable to a terminal or a ground.

Extending a sensor: Each sensor can be extended up to 500 feet (150 meters).

To extend a sensor: Use a shielded cable of outside diameter between 0.245 and 0.260 in (6.22 and 6.60 mm) (the cable dimensions should not be under 18 AWG) to ensure the cable entry is liquid tight. **Do not ground the shielding.**

It is preferable to solder the cable joint to ensure a proper contact between the two cables.



Do not run sensor cables next to other power cables. When crossing over other cables, cross at 90°.

Defective sensors: An alarm is generated when a defective sensor is detected. Defective sensors are identified in the “Alarm Log” menu. Refer to section 4.8 for further information on the alarms.

2.2.4. 0-10V Output Connection

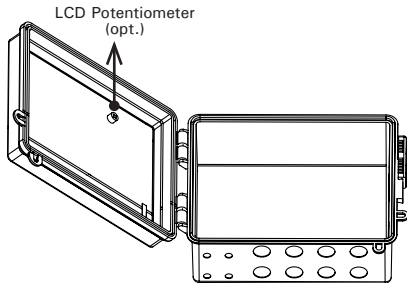
It is recommended to use a 18 to 22 AWG wire to connect the devices to the 0-10V outputs. This type of output can be used to connect various devices such as lights.

3. USER INTERFACE

3.1. Location of the Controls

Main LCD Screen — The large LCD screen is used to display the various parameters and menus. The *Current Conditions* menu is automatically selected after 4 minutes of inactivity.

Contrast — Open the front cover of the controller to access the potentiometer to adjust the screen contrast. If no potentiometer is located behind the front panel, the contrast must then be changed directly into the transfer menu (see chapter 12).



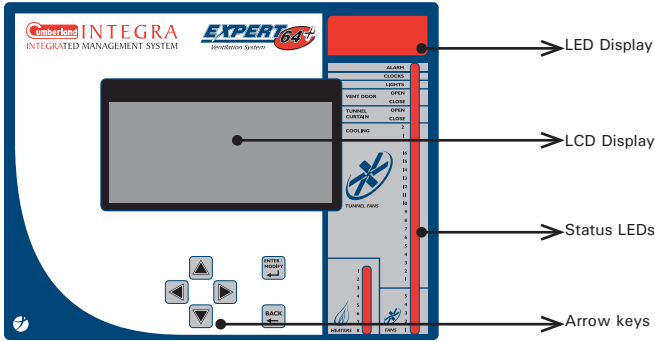
LED display — This screen shows the average room temperature and/or the static pressure level.

Status LEDs — The status pilot lights shows the current status of the stages and outputs of the controller. Refer to section 3.3 for further information about these LEDs.

Arrow keys — Use these buttons to select an item displayed in the main screen and to change the value of a parameter.

Enter/Modify button — Press this key to access a menu on screen or to enter the editing mode (refer to section 3.2 for further information about this mode).

Back — Press BACK to return to the previous menu.



3.2. How to Select & Modify the Parameters

1. Use the arrow keys to select the desired parameter. The message “Change : Press Modify” is shown at the bottom of the display. This means that the selected parameter can be edited.
2. Press the “Enter/Modify” button to access

the editing mode. The parameter then flashes on the display.

3. Use the up and down-arrow keys to change the value of the parameter.
4. Press the “Enter/Modify” button once again to validate the new value and to exit the editing mode.

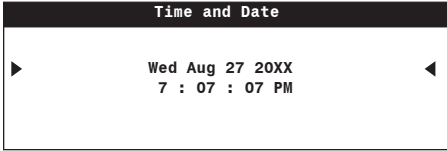
3.3. Status LEDs

LED		MEANING
ALARM		Turns on when an alarm is active. Flashes when an alarm condition occurred and was re-established by itself.
CLOCKS		Turns on when a clock output is active
LIGHTS		Turns on when the light output is active
VENT DOORS	OPEN	Turns on when a vent door is opening (sidewall and/or attic vent)
	CLOSE	Turns on when a vent door is closing (sidewall and/or attic vent)
TUNNEL CURTAIN	OPEN	Turns on when the tunnel curtain is opening
	CLOSE	Turns on when the tunnel curtain is closing
COOLING	2	Turns on when cooling output 4, 5 or 6 is active
	1	Turns on when cooling output 1,2 or 3 is active
TUNNEL FANS 1-16		Turns on when tunnel fan group 1-16 is active
FANS 1-16		Turns on when fan group 1-16 is active
HEATERS 1-8		Flashes when one step of the heating output is operating (regular or high fire step). Turns on when both steps of the heating output are operating (regular and high fire steps).

4. CONTROLLER SETUP

4.1. Time & Date

- 1. Select:
 - » 12. Setup
 - » 8. Time and Date



- 2. Press the *Enter/Modify* button then use the up and down-arrow keys to set the current day of the week.
- 3. Press the *Enter/Modify* button to step to the next item then use the up and down-arrow keys to set the selected item.
- 4. Proceed in similar fashion to set the whole time and date.

4.2. Password

This function allows identifying 2 different types of users. The password is made up of 4 digits and it is used to restrict access to certain functions of the controller. When a correct password is entered, the current user is identified.

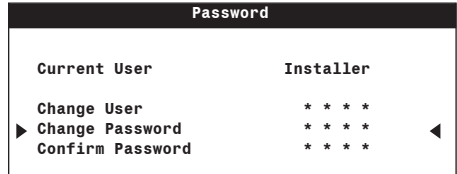
Installer Password (default = 0-6-1-0)

The installer mode gives full access to all the controller functions. The installer password can be modified as explained below.

User Password (default = 1-1-1-1 & 2-2-2-2)

The user mode gives access to the basic functions of the controller. The controller automatically returns to the user mode after 15 minutes of inactivity. The user passwords cannot be modified.

- 1. Select:
 - » 12. Setup
 - » 4. Password



Entering a password: Press the *Enter/Modify* button then use the up and down-arrow keys to enter the first digit of the password. Press the *Enter/Modify* button once again to step to the next digit.

Enter the 4 digits of the password then press the *Enter/Modify* button once again to validate. The user is then identified. The message "Invalid password" is displayed if a wrong password is entered.

2. Changing the installer password: The installer password must first be entered as shown above to be modified. The message "Change Password" is displayed when the current user is identified as the Installer. The new installer password can then be entered.

3. Confirming the new installer password:

Once the new installer password is entered, the message “*Confirm Password*” is displayed. Enter the new password once again to confirm the password. Press the *Enter/Modify* button at the end to validate.

4.3. Controller Programs

Program definition: Programs are an assembly of settings (temperature settings, relay assignment, probe assignment, etc.) that can be enabled at different moment of the breeding process. In all, the controller can use 5 different programs.

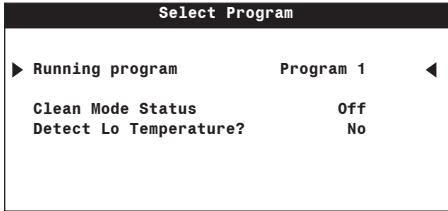


Make sure the right program is selected before adjusting any parameter.

4.3.1. Selecting a Program

1. Select:

- » 10. Select Program



2. Set the following parameters:

Running program — Select the program that must be used by the controller and then press the *Enter/Modify* key to validate.

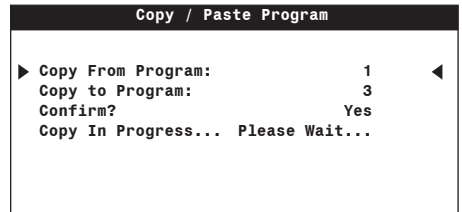
4.3.2. Copy/Paste Programs

Use the copy-paste function to duplicate all parameter settings associated to a program onto another program. This avoids repeating the same programming sequence several times.

1. Select:

- » 12. Controller Setup
- » 5. Copy/Paste Programs*

** This menu is only accessible from the installer mode (sec. 4.2).*



2. Set the following parameters:


Copy From Program — Select the source program. The one that will be duplicated.

Copy to Program — Select the target program. The one on which the copied program will be pasted.

3. Once a different source and target programs are selected, the message “*Confirm?*” is displayed. Select “*Yes*” to start the program duplication. The message “*Copy in progress*” is displayed. Wait until the data transfer is over.

4.4. Installation Setup

The following section shows how to customize the controller for your particular application. It shows how to enable and set the outputs of your controller. Normally, this setup needs to be done only once.

 **Hint:** A worksheet is available at the end of this manual to write down your Installation Setup parameters.

1. Select:

- » 12. Setup
- » 4. Installation*

* This menu is only accessible from the installer mode (sec. 4.2).

2. Set the following parameters:

Number of Programs — The controller can use several temperature programs. Enable the desired number of programs (1 to 5 programs)
**This parameter is common to all programs of the controller.*

Number of Temperature Probes — Select the number of inside temperature probes that are connected to the controller (1 to 8 probes).
**This parameter is common to all programs of the controller.*

Number of Heaters — Enable the proper number of heating outputs (0 to 8 outputs).
**Refer to the “Hi Fire” option below to increase the number of heating outputs.*

Number of Fans — Enable the proper number of fan groups (1 to 5 groups).

Number of Tunnel Fans — Enable the proper number of tunnel fan groups (from 0 to 16 groups).

Use Stir Fans ? — Select “Yes” to use the stir fan output.

Installation	
▶ Number of Programs	3 ◀
Number of Probes	8
Number of Heaters	4
Number of Fans	3
Number of Tunnel Fans	8
Use Stir Fans ?	Yes
Number of Cooling	6
Number of Clock	2
Number of Light Programs	2
Clock Mode	Start/Stop
Use Heater Lo / Hi Fire?	Yes
Use Day / Night OnTime?	Yes
Number of Vent Doors?	2
Use Attic Probe ?	Yes
Use Tunnel Curtain?	Yes
Curtain Control	SP
Number of relays	32
Monitor Breaker Temperature?	Yes
Show On Digit Display	T° / SP
Exit: Press Back Change: Press Modify	
Press ▲▼ to select an item	

Number of Cooling — Enable the proper number of cooling outputs (0 to 6 outputs).

Number of Clocks — Enable the proper number of clock outputs. Adjustable from 0 to 12 outputs.

Number of Light Programs — Enable the proper number of light programs (0 to 10 programs).
**This parameter is common to all programs of the controller.*

Clock Outputs’ Operation Mode — The clock mode allows stopping a clock output at a certain time of the day or after a certain run time. Select “Start/Stop” to specify the time at which each cycle starts and stops or select “Start/Run” to specify the running time of each cycle. Note that the “Start/Run” option allows stopping cycles with more precision since this mode allows adjusting the seconds. Refer to chapter 9 for further information about the clock outputs. **This parameter is common to all programs of the controller.*

Use Heater Lo/Hi Fire? — Select “Yes” to activate the heating outputs’ Lo & Hi fire option. This function allows doubling the number of heating outputs.

Use Day / Night On Time? — Select “Yes” to use different minimum ventilation parameters at night. **This parameter is common to all programs of the controller.*

Number of Vent Door? — Enable the proper number of vent door outputs (0 to 2 vent doors). ** This parameter is available if the static pressure sensor is enabled (sec. 4.5.1).*

Use attic T° probe ? — Select “Yes” if a temperature sensor is present in the attic. ** This parameter is accessible if 2 vent doors are enabled above.*

Use Tunnel Curtain? — Select “Yes” to enable the tunnel curtain output.

Curtain Control — Select whether the curtain is controlled by the static pressure (SP) or by the average house temperature. **This parameter is available if the tunnel curtain is activated above. In addition, the static pressure control can only be used if the static pressure sensor is activated (sec. 4.5.1).*

of Relays — Select the number of relays required (32, 40, 48, 56 or 64 relays. **This parameter is common to all programs of the controller.*

Monitor the Breaker Temperature? — Select “Yes” to monitor the temperature of the main breaker. When this function is enabled, the controller sounds an alarm if the breaker’s temperature gets too high.

Shown on Digit Display — This is the information that is displayed on the red LED display on the control panel. Choose the information to be displayed: average house temperature (T°), static pressure level (SP) or an alternating display between the average temperature and the static pressure level (T°/SP). **The static pressure level can only be displayed if the static pressure sensor is activated (sec. 4.5.1). This parameter is common to all programs of the controller.*

4.5. Probes

4.5.1. Activating the probe inputs

Follow these steps to enable or disable the probe inputs.

1. Select:

- » 12. Setup
- » 4. Installation*

* This menu is only accessible from the installer mode (sec. 4.2).

Optional Probes	
► Use Relative Humidity?	Yes ◀
Number of Water Meters	2
Use Outdoor Temperature?	Yes
Use Static Pressure?	Yes

2. Activate the desired probes:

- Humidity probe
- Water meters (0 to 2 meters)
- Outside temperature probe
- Static pressure probe

** These settings are common to all programs of the controller.*

4.5.2. Measuring Units

1. Select:
 - » 12. Setup
 - » 2. Units

Optional Probes	
▶ Time Mode	AM/PM ◀
Temperature	°F
Water	gal
Static Pressure	"WC

2. Select the desired measuring units:
 - Time display: AM/PM or 24 h;
 - Temperature display: Celsius (°C) or Fahrenheit (°F);
 - Water: liters or gallons;
 - Static pressure: Inches of water ("WC) or Pascals (Pa).

** These settings are common to all programs of the controller.*

4.5.3. Probe Assignment

Principle of Operation: This section explain how to select temperature probes that are used to measure the room temperature and how to assign temperature probes that are used to control/monitor the outputs of the controller.

House Temperature: Most cooling outputs of the controller operate according to the average temperature in the room. The user must choose what temperature probes are used to measure this room temperature.

Tunnel Fans (Tunnel Probe Set): The selection of probes that is used to measure the room temperature can be changed in tunnel ventilation to compensate for changes in airflow patterns that can distort the room temperature. If the second probe set is enabled in the Installation Setup (sec. 4.4), you must assign temperature probes to this second probe set.

Heating Outputs: Each regular heating output and each Hi Fire heating output operates according to the average temperature of its assigned probes.

Empty Zones: A heating output that exclusively uses probes that are not assigned to the average room temperature is automatically considered as being in an empty zone (sec. 4.9).

Cooling Outputs: In sidewall ventilation, cooling outputs operate according to the average house temperature; in tunnel ventilation, they operate according to the average temperature measured by user-defined probes.

Attic Vent: The controller automatically increases the "On Time" portion of the minimum ventilation timer as the attic temperature departs from its set point. Refer to section 6.4.3 for further information about this feature.

Main Breaker :A probe can be used to monitor the temperature of the main breaker so that the controller can sound an alarm if the breaker's temperature gets too high. Note that the breaker's probe selection is common to all programs.



A template is available at the end of this manual to write down your selection of sensors.

1. Select
 - » **9. Advanced Settings**
 - » **11. Probe Assignment***

* This menu is only accessible from the installer mode (sec. 4.2).

House Temperature Probe Assignment							
1 ---	2 ---	3 ---	4 ---	5 ---	6 ---	7 ---	8 ---

2. Select the desired assignment menu:

House Temperature;
Tunnel Fans;
Heaters;
Coolings
Attic
Main Breaker.

3. Assign the desired temperature probes to the selected output: select "√" to assign a probe or select "- -" for probes that are not assigned to the output.

4.5.4. Probes & Water Meter Calibration

You can slightly adjust the reading of each probe input in order to obtain accurate and uniform readings from all probes. In addition, if a water meter is used, you must calibrate its water flow rate.

1. Select:
 - » **9. Advanced Settings**
 - » **12. Probe Calibrations***

* Only accessible from the installer mode (s.4.2).

Probe Calibrations	
RH Probe Offset	0 %
▶ SP Probe Offset	.00 "WC ◀
Water Meter 1 Calibration	1 gal/p
Water Meter 2 Calibration	1 gal/p
Out Tem. Probe Offset	0.0 °F
Temp. Probe 1 Offset	0.0 °F
Temp. Probe 2 Offset	0.0 °F
Temp. Probe 3 Offset	0.0 °F

2. Adjust the reading of the probes (if required).

Relative Humidity Probe — The reading of the humidity sensor can adjusted of $\pm 3\%$.

Static Pressure (SP) Probe — The reading of the static pressure probe can adjusted of ± 0.030 "WC (± 7 Pa).

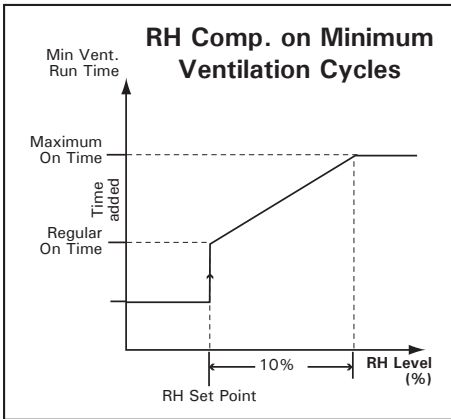
Water Meters — Set the water flow per pulse of each water meter. Adjustable from 1 to 100 gallons (or liters) per pulse.

Temperature Probe Offsets — The reading of the inside and outside temperature sensors can adjusted of $\pm 3^{\circ}$ F ($\pm 1.7^{\circ}$ C).

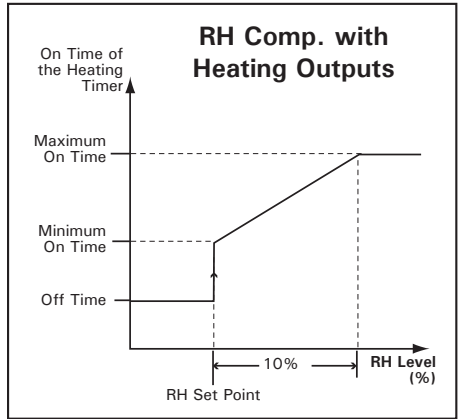
4.6. Relative Humidity (RH) Control

The controller offers different ways to compensate for high and low relative humidity (RH) levels in the barn. This section shows how to enable the desired RH compensation functions.

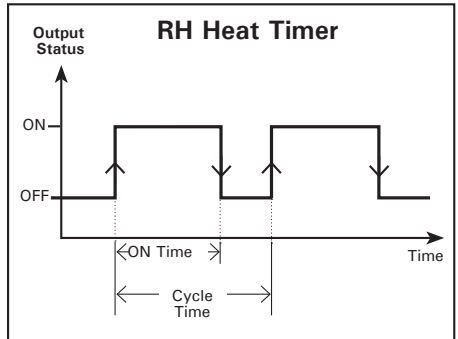
1. RH Compensation on the Min Ventilation Run Time: The humidity level can be decreased by increasing the fans' running time (On Time) within the minimum ventilation cycles. The fans' running time increases gradually as the house's humidity level exceeds the humidity set point. The entire compensated running time is reached when the humidity level exceeds the RH set point by 10%.



2. RH Compensation with the Heating Outputs: The controller can compensate for high humidity levels by activating the heaters in timer mode. As the RH level increases, the controller increases the "On Time" portion of the heating timer to compensate for the change. The maximum compensated heating "On Time" is reached when the RH level is 10% above the RH Set Point.



The RH heat timer is composed of an "On Time" and of a "Cycle Time". The heaters run during the "On Time" and then stop until the end of the "Cycle Time". The "On Time" portion of this cycle increases as the RH level increases.



3. RH Compensation with the Cooling Outputs

- **High RH compensation with the mist cooling output:** the controller can disable the mist output if the RH level gets higher than the “*Mist Shutoff*” limit.
- **Low RH compensation with mist outputs:** To compensate for low RH levels, the controller can activate the misting output in timer mode. The misting output starts when RH levels drops below the “*Low RH Set Point*”.

4.6.1. Activating the RH Compensation Functions

1. Select:
 - » 12. Setup
 - » 3. RH Compensation*

* *This menu is accessible if the humidity probe is activated.*

Relative Humidity Compensation	
▶ Minimum ventilation?	Yes ◀
Heaters ?	Yes
Use Mist Shutoff?	Yes
Mist on Low R. Humidity?	Yes

2. Set the following parameters:

Minimum Ventilation? — Select “Yes” to enable the RH compensation on the minimum ventilation run time.

Heaters? — Select “Yes” to activate the heating outputs to compensate for hi humidity levels.

Mist Shutoff? — Select “Yes” to stop the cooling outputs when the humidity level is too high. **This parameter is accessible if a cooling output is enabled (sec. 4.4).*

Mist on Low R. Humidity? — Select “Yes” to activate the cooling outputs, according to a timer, when the humidity level is too low. **This parameter is accessible if a cooling output is enabled (sec. 4.4).*

4.6.2. RH Compensation Parameters

1. Select

- » 9. Advanced Settings
- » 10. Relative Humidity Compensation

* This menu is accessible if the humidity probe is enabled.

RH Compensation Settings	
▶ Relative Humidity Compensation	
Add Min Vent sec	60 sec
RH Setpoint	65 %
Heater Compensation	
Minimum On Time	15 sec
Maximum On Time	45 sec
Cycle Time	300 sec
Mist Shutoff	85 %
Mist On Low % Relative Humidity	
Low Setpoint	30 %
On Time	0:30(m:s)
Off Time	2:00(m:s)
Exit: Press Back Change: Press Modify	
Press ▲▼ to select an item	

2. Set the following parameters:

Add Min Vent sec — Time that is added to the fans’ running time, within the minimum ventilation cycles, when the relative humidity exceeds the RH Set Point by 10%. Adjustable from 15 to 900 seconds in increments of 15 seconds. Select “Off” to deactivate this function. **This parameter is accessible if the RH compensation on the minimum ventilation is activated.*

RH Set Point — This is the humidity level above which high RH compensation functions start. Adjustable from 20 to 99% of humidity (select *Off* to disable all high RH comp functions). **This parameter is accessible if the RH compensation on heaters or on the minimum ventilation is activated.*

Heater compensation

The timer used by heating outputs is made of an “On Time” and of a “Cycle Time”. Heating outputs run during the “On Time” then stop until the end of the “Cycle Time”. The “On Time” portion of this cycle increases as RH levels increase.

Minimum & Maximum On Times — Set the minimum and maximum “On Times” of the heating timer. The minimum “On Time” starts being used when indoor humidity levels reach the RH set point; the maximum “On Time” is used when humidity levels are 10% above the RH set point. ** This parameter is accessible if RH compensation with heating outputs is enabled in section 4.6.*

Cycle Time: — Set the “Cycle Time” of the heating timer. **This parameter is accessible if RH compensation with heating outputs is enabled.*

Mist Shutoff — Set the humidity level above which the cooling outputs stop running. **This parameter is accessible if the mist shutoff compensation function is enabled.*

Lo Set Point — Set the humidity level below which misting units start running in timer mode or select “Off” to disable this function. **This parameter is accessible if the mist on low RH compensation function is enabled.*

On/Off Times — Set the “On Time” and the “Off Time” of the misting timer.

4.7. Relay Assignment

4.7.1. Principle of Operation

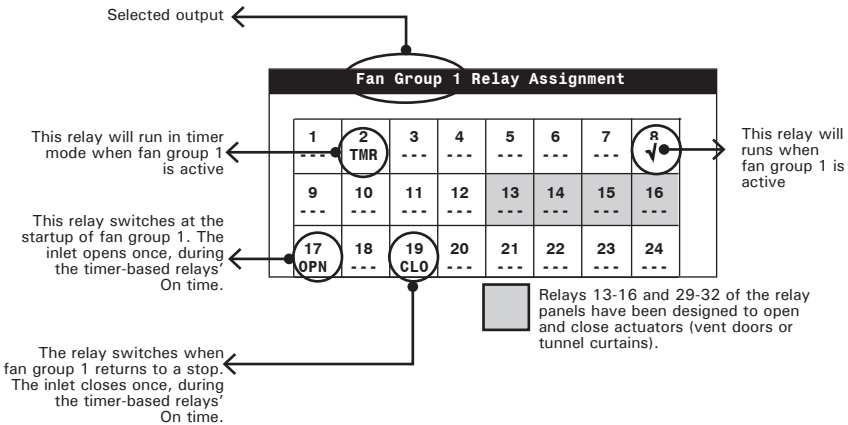
Relay Panels : The controller can activate up to 64 On/Off relays; these relays are located in external relay boxes. Up to two RP-32 relay panels can be connected to the controller. Refer to the wiring diagram enclosed with this manual to connect relay panels to the controller.

Vent Door & Tunnel Curtain Relays : Relays 13-14, 15-16, 29-30 and 31-32 the relay panels have specially been designed to open/close the vent doors and the tunnel curtain. It is strongly recommend using these relays for this specific purpose: this prevents activating both the OPEN and CLOSE relays, by inadvertence, at the same time.

Fan & Tunnel Fan Relays :


- **Timer-based relays:** Fan groups and tunnel fan groups can activate relays that operate in timer mode. These relays allow activating cooling devices such as mist units while a specific fan/tunnel fan group is running. Select "TMR" on a relay to use this function.


- **Open/close relays:** Relays can be used to slightly open an air inlet at the start-up of a fan/tunnel group and to close it when the fan/tunnel fan group returns to a stop. The inlet opens only once at the start-up of the chosen fan/tunnel fan group and closes only once when the group is disabled. The inlet's running time corresponds to the timer-based relay's On Time. Select "OPN" to assign an opening relay or "CLO" to assign a closing relay on a fan/tunnel fan group.



4.7.2. Making the Assignment

You must assign On/Off relays to each output of the controller. Use provided output stickers to identify the function of each relay on the faceplate of the controller.

 **Worksheet are available the end of this manual to write down your relay assignment settings.**

 **Relays must be assigned separately for each program in use.**

1. Select:

- » 12. Setup
- » 7. Relay Assignment*
- » Select desired output**

* Only accessible from the installer mode (s.4.2).

**Only the outputs that are enabled in the Setup menu are available (sec. 4.4).

2. Choose the proper relay then select one of the following options:

- √ : The relay is assigned to the output;
- - - : The relay is not assigned to the output;
- TMR** : The load connected to the relay will run in timer mode (available for fan/tunnel fan groups only);
- OPN** : To assign an opening relay on a fan/tunnel fan group;
- CLO** : To assign an closing relay on a fan/tunnel fan group.

Proceed in similar fashion to assign the relays of each output in use (heaters, fan groups, tunnel fan groups, cooling outputs, tunnel curtain, vent doors, clock outputs, backup relay, low pressure alarm relay, lights, and stir fans).

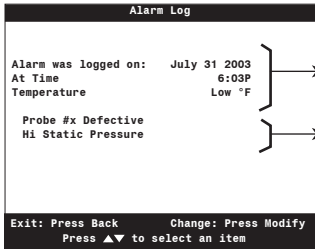
4.8. Alarms

4.8.1. Alarm Log

When an alarm occurs, the alarm led is turned on and the alarm is recorded in memory along with the time and date.

1. Select:

» **11. Alarm Log**



*Details about
the selected
alarm*

*Alarm
conditions*

The date and the time at which the selected alarm condition occurred are displayed at the top of the screen.

4.8.2. Alarm Conditions

The table below shows the possible alarm conditions. This section describes how the alarms are set off. Refer to section 4.8.3 to set the alarm limits.

Alarm Conditions
Low House Temperature
High House Temperature
Low Static Pressure
High Static Pressure
Defective Temperature Probe
Defective Outside Temperature Probe
Defective Static Pressure Probe
Defective Humidity Probe
High Breaker Temperature
Water Meter 1 Spill
Water Meter 2 Spill
Communication error between the controller and the relay panels.
The potentiometer is defective.
A feeder has been running continuously on a too long period of time.

Another alarm situation occurs when power to the controller fails. In this case, the alarm relay is activated. When the alarm relay is activated, the normally open contact (—●—) closes.

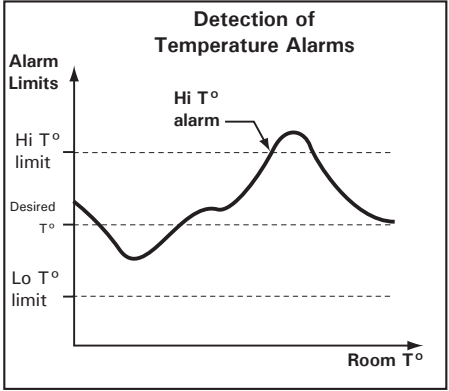
Adjust the Backup Thermostat Warning

Each time the house set point varies of 4°F (2.2°C), the message “!!! Adjust Backup Thermostats !!!” prompts on screen. Select the Current Condition menu to clear this warning message once backup thermostats have properly been adjusted (sec. 10.1).

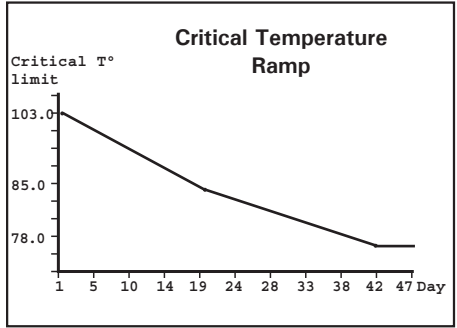
4.8.2.1. Temperature Alarms

The diagram below shows how temperature alarms are detected.

When the average room temperature exceeds the high temperature alarm setting, a high temperature alarm is set off. When the average room temperature decreases below the low temperature alarm setting, a low temperature alarm is set off. Although these settings are entered by the user as absolute values, they are defined based on the room set point. They are thus automatically adjusted if the set point changes.



The situation is slightly different when the outside temperature is greater than the room set point. In this case, the outside temperature becomes the reference point (instead of using the set point as a the reference). This means an alarm is set off when the room temperature reaches *Outside Temperature + High Alarm Offset* (the offset being the difference between the high alarm temperature setting and the set point). A third parameter, called the *Critical Temperature*, is defined to continue monitoring the indoor temperature for high temperatures. When the indoor temperature reaches the critical high temperature (defined as an absolute value), an alarm is set off.



Critical high temperature ramp: The controller can automatically change the critical temperature alarm limit over time with a three-step ramp. Each step specifies a day number and a critical temperature alarm limit for that day (the day number refers to the animal age). Once all 3 steps are defined and the ramping function is activated, the controller changes the critical alarm limit in a linear fashion between consecutive steps of the ramp. When the last step is reached, the controller maintains the critical alarm limit for that day until a new batch starts.

Main Breaker Temperature Alarm: The controller can also monitor the temperature of the main breaker and sound an alarm if this temperature exceeds a user-defined limit. Refer to section 4.8.3 to set the breaker's high temperature limit.

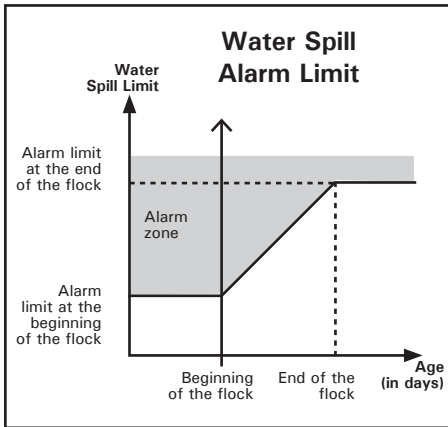
4.8.2.2. Empty Zone Temperature Alarms

An alarm can be set off if the house temperature is too low while the controller is in clean mode. Refer to section 4.9 for further information about the clean mode. The low temperature alarm limit is relative to the empty zone's set point, which means that the alarm limit is adjusted consequently when a change in the empty zone set point occurs.

4.8.2.3. Water Spill Alarm

A water spill alarm is set off when the water consumption is too high. This limit can be adjusted from 0 to 10,000 gallons or liters per 15 minutes and must be set separately for both water meters.

The controller can automatically adjust the water spill limit of each water meter over time as the animals are growing. The water spill alarm limit changes in a linear fashion between two user-defined values: the maximum consumption that is allowed at the beginning of the flock (day -5) and at the end of the flock. The following graph sums up the situation.



4.8.2.4. Static pressure Alarms

The controller can activate an alarm when the static pressure level decreases below the low pressure limit or if it exceeds the high pressure limit. However, the alarm condition must be maintained over a certain delay before the alarm sets off.

- **Lo static pressure alarm:** When a low pressure alarm occurs, the alarm relay and the low pressure alarm relay switch. The low pressure relay can be used to activate additional fans for instance Refer to section 4.7 to assign that type of relay.

Low Static Pressure Alarm in Minimum Ventilation: In minimum ventilation, a low pressure alarm sets off if a low pressure condition is maintained over the alarm detection delay while fans are running. The alarm condition time accumulates during the fans' On Time only and is not taken into account while fans are not running (Off Time).

- **HI Static Pressure Alarm:** When a high static pressure alarm occurs, the alarm relay switches and the air inlets (curtain & vent doors) start opening continuously until the pressure level goes back in the normal pressure range.

4.8.3. Setting the Alarm Limits

1. Select:

- » 9. Advanced Settings
- » 8. Alarms

2. Set the following parameters:

Alarm Settings	
Temperature Alarms	
Empty Zone	32.0 °F
Low Alarm	60.0 °F
High Alarm	90.0 °F
High Tunnel Alarm	95.0 °F
High Breaker Alarm	100.0 °F
Critical Alarm	103.0 °F
Water Spill Limit	
Start Flock Meter 1	5 gal
Start Flock Meter 2	5 gal
End Flock Meter 1	25 gal
End Flock Meter 2	25 gal
End Flock Age	35 days
Static Pressure Alarms	
Low Alarm	.00 °WC
High Alarm	.10 °WC
Low Tunnel Alarm	.05 °WC
High Tunnel Alarm	-.15 °WC
Exit: Press Back Change: Press Modify	
Press ▲▼ to select an item	

Empty zone — Temperature below which an alarm sets off in an empty zone. Adjustable from -40°F to 120°F (-40°C to 148.9°C).

Low Temperature Alarm — House temperature below which an alarm sets off. Adjustable from 0.5 to 20°F (0.3 to 11.1°C) below the house set point temperature.

High Temperature Alarm — House temperature over which an alarm sets off while tunnel ventilation is disabled. Adjustable from 0.5 to 20°F (0.3 to 11.1°C) above the house set point.

High Temperature Alarm in Tunnel Ventilation — House temperature over which an alarm sets off while the tunnel ventilation is enabled. Adjustable from 0.5 to 20°F (0.3 to 11.1°C) above the house set point.

High Breaker Alarm* — If the temperature of the main breaker is monitored by a probe, set the probe temperature over which a breaker temperature alarm must be set off. * *Accessible if the breaker's monitoring function is enabled in section 4.4.*

Critical Temperature Alarm* — Absolute maximum house temperature over which the critical temperature alarm is set off. Adjustable from 0.5 above the house set point to 120°F (48.9°C). Note that this alarm limit cannot be modified if the critical alarm ramp function is active. Refer to the following section to disable the ramp function (if necessary). * *This parameter is available if an outside temperature sensor is enabled.*

• WATER METER ALARMS:

Water Spill Limit - Start Flock Meter 1-2 — Maximum allowable water consumption per 15 minutes at the beginning of the flock. Set this parameter separately for each water meter. Adjustable from 0 to 10,000 gallons or liters / 15 minutes. **This parameter is accessible if a water meter is enabled (sec. 4.5.1).*

Water Spill Limit - End Flock Meter 1-2 — Maximum allowable water consumption per 15 minutes at the end of the flock. Set this parameter separately for each water meter. Adjustable from 0 to 10,000 gallons or liters / 15 minutes. **This parameter is accessible if a water meter is enabled (sec. 4.5.1).*

End Flock Age — Day at which the flock ends. The water spill limit for that day is maintained until the beginning of a new flock (see previous graphic). This parameter is common to both water meters. **This parameter is accessible if a water meter is enabled (sec. 4.5.1).*

• **STATIC PRESSURE (SP) ALARMS:** **These parameters are accessible if the static pressure is enabled (sec. 4.5.1).*


Low SP Alarm limit — This parameter ranges from 0.01"WC below the Hi SP limit to 0.00"WC.


High SP Alarm Limit — This parameter ranges from 0.01"WC above the Lo SP limit to 0.40"WC.

Low SP Alarm Limit in Tunnel Ventilation — This parameter ranges from 0.01"WC below the Hi SP limit to 0.00"WC. **High SP Alarm Limit in Tunnel Ventilation** — This parameter ranges from 0.01"WC above the Lo SP limit to 0.40"WC.

Delay — The SP alarm is set off if the alarm condition is maintained during this delay. It ranges from 0 to 15 minutes in increments of 15 seconds.

4.8.4. Critical Temperature Ramp

 **Ramp steps can only be modified while the ramp function is disabled.**

 **The critical temperature ramp function is common to all programs of the controller.**

1. Select:
 - » **9. Advanced Settings**
 - » **9. Critical Alarm Ramping***

* *This menu is accessible if an outside temperature sensor is enabled.*

Critical Alarm Ramping	
Critical Temp.	102.0°F
day 0	103.0°F
day 25	85.0°F
day 55	78.0°F
Ramping Status:	Off

2. Set the following parameters:

(Refer to the previous section to get further information on these parameters)

Day Number — Set the day number for each step. This day refers to the animal age and can be adjusted from -5 to 450 days. Negative values are used to prepare the house before the arrival of the animals.

Critical High Temperature — Set the critical alarm temperature associated with each step.

Ramping Status — Select "Yes" to activate the critical alarm ramp. Once it is enabled, the critical alarm limit becomes automatically adjusted between consecutive steps of the ramp. For this reason the critical alarm limit and ramping steps cannot be modified manually while the ramp is enabled.

4.9. Clean Mode & Empty Zones

Empty Zone:

An empty zone is an unused part of the house. It is defined by the temperature probes that are only assigned to heating outputs thus excluded from the average house temperature. No ventilation is provided in this type of zone. The heating outputs are only used to provide a minimum heat level in the unused sections of the house.

The empty zone heaters operate according to their start and stop temperatures. These temperatures are related to the *Desired Empty Zone Temperature*. This means that if the *Desired Empty Zone Temperature* changes, the heaters' start/stop temperatures will be adjusted consequently. Refer to section 5.1.2 to set the *Desired Empty Zone Temperature*.

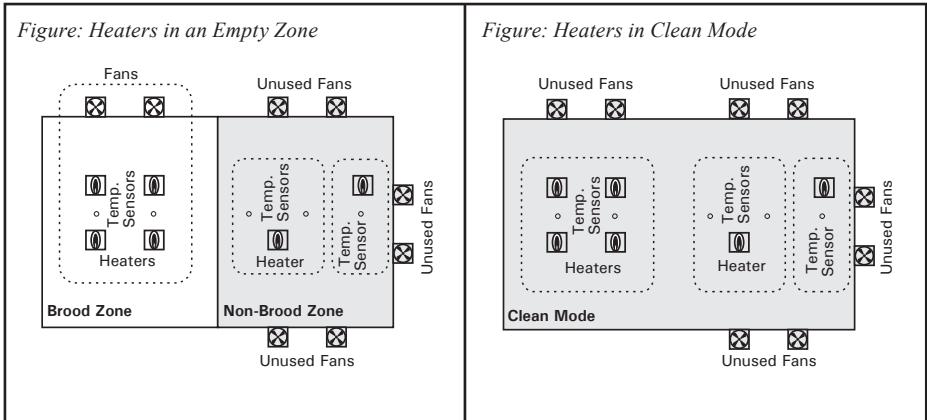
In addition, an alarm is set off whenever the temperature in an empty zone decreases below a user-defined limit (*Empty Zone's Low Alarm Limit*). Refer to section 4.8 to set this alarm limit.

Clean Mode:

When this mode is activated, the whole house is considered as being empty. All the controller functions become disabled except for the heating outputs. The heating outputs are used to provide a minimum heat level in the empty house.

In clean mode, the heaters operate according to the empty zone settings, i.e. the heaters' start and stop temperature are automatically decreased and become based on the *Empty Zone Set Point* instead of being based on the *House Set Point*. Refer to section 5.1.2 to set the *Empty Zone Set Point*.

The empty zones' low alarm limit is optional within the clean mode. Refer to section 4.8 to set this limit or to section 4.9.2 to deactivate this alarm condition.



1. Select

» 10. Select Program

Select Program	
▶ Running program	Program 1 ◀
Clean Mode Status	On
Detect Lo Temperature?	No

2. Set the following parameters:

Clean Mode Status — Select “Yes” to activate the clean mode. Note that all the controller functions are stopped when the clean mode is active (except for the heating outputs).

Detect Lo Temperature — Select “Yes” for an alarm to be activated when the house temperature decreases below the Empty Zone Alarm Limit while the controller is in clean mode.

4.10. Controller’s Version

The version menu gives the version number of the program used by the controller. This piece of information is useful to get technical support.

1. Select

» 12. Setup

» 10. Version

EXPERT 64+	
▶	◀
SETTINGS	V X.X
PROGRAM	V X.Xx

4.11. Test Mode

The test mode is used to simulate changes in the ambient temperature and verify the controller’s performance. When the test is enabled, all outputs of the controller operate according to the simulated temperature. The test automatically ends after 15 minutes of inactivity or if the user deactivates it manually.

1. Select

» 12. Setup

» 11. Test Mode

Test Mode	
▶ Test Mode Status	Off ◀
Temperature	80.0 °F
Static Pressure	.00 ”WC
Running Program	Program 1

2. Set the following parameters:

Test Mode Status — Select “Yes” to activate the test mode.

Temperature — Set the simulated house temperature. **This parameter can only be changed if the test mode status is enabled above.*

Static Pressure / Running Program — The static pressure level and current program in use are displayed as readings for information purpose only. They cannot be modified.

5. TEMPERATURE SETTINGS

5.1. House Set Points

5.1.1. Principle of Operation

The house set point is the target temperature in the room. It is used as the reference temperature for the activation / deactivation of the controller's output and is used as a reference for the temperature alarms.

In addition, a temperature ramp can be enabled to obtain an automatic adjustment of the house set point over a given period of time. Consequently, the house set point is always adapted to the animals' needs as they grow.

EMPTY ZONE SET POINT:

The *Empty Zone Set Point* is the target room temperature in the empty zones; the heating units located in that type of zone operate according to this temperature. The empty zone set point also becomes the target temperature in the whole house while the controller is in clean mode. Refer to section 4.9.1 for further information about the empty zones & the clean mode.

5.1.2. Settings

1. Select:

» 4. House Set Point



The house set point can only be modified while the ramp is disabled (sec. 5.2).

Set Point	
▶ House Set Point	78.0°F ◀
Empty Zone Temp.	35.0°F

2. Set the following parameters:

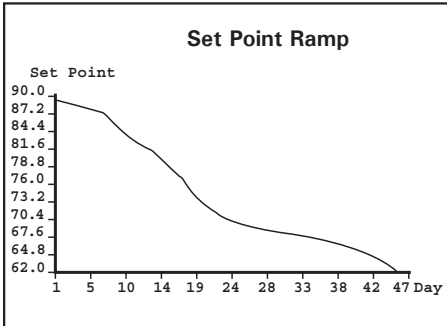
House Set Point — This parameter ranges from -40°F to 100 °F (-40.0°C to 37.8°C).

Empty Zone Set Point — Set the target temperature used in the non-brood zones. It ranges from -40°F to 100 °F (-40.0°C to 37.8°C).

5.2. Set Point Ramp

The temperature ramp function allows an automatic adjustment of the house set point over time, in accordance with the animals needs.


The house set point changes using 10 steps. Each step specifies a day number and a target temperature for that day. These steps refer to the animal age. Once all steps are defined, the ramping function must be activated. The controller then starts changing the house set point every hour in a linear fashion between consecutive steps of the ramp. When the last step is reached, the house set point for that day is maintained until the end of the flock.



NOTE: Certain restrictions apply to reduce the risk of errors:

- The highest possible day number is 450.
- Decreasing day numbers is not allowed.
- All ten steps must be specified. If you don't need ten different steps, repeat the last temperature for each unnecessary step.

1. Select:
 - » 9. Advanced Settings
 - » 1. House Temperature Ramping

 *The ramp steps can only be modified while the ramp is disabled (sec. 5.2).*

House Temperature Ramping	
House Temp.	70.0°F
day -5	78.0°F
day 0	75.0°F
day 5	70.0°F
day 10	65.0°F
day 15	63.0°F
day 20	61.0°F
day 25	60.0°F
day 30	60.0°F
day 35	60.0°F
day 40	60.0°F
Ramping Status:	Off
Exit: Press Back Change: Press Modify Press ▲▼ to select an item	

2. Set the following parameters:

(Refer to the previous section to get further information on these parameters)

Day numbers — Set the day at which each step starts. The day number refers to the animal age. It is adjustable from -5 to 450 days. Negative values are used to prepare the house before letting the animals enter. **This parameter can only be modified while the ramp is disabled.*

Temperature — Assign a temperature set point to each step of the ramp. **This parameter can only be modified while the ramp is disabled.*

Status — Select “Yes” to activate the ramp. Once the ramp is on, the controller automatically adjusts the set point automatically between consecutive points of the ramp; for this reason, ramp steps cannot be modified while the ramp is running.

5.3. Seasonal Temperatures

The following steps allows to indicate at which temperature the summer and winter static pressure set points start being used. This function is available if an outside temperature sensor is activated (sec. 4.5.1).

1. Select:

- » **6. Inlet Settings**
 - » **4. Outside Temp. Settings**
-

Outside Temp. Settings	
► Outside temp. in winter	5.0 °F ◀
Outside temp. in summer	5.0 °F

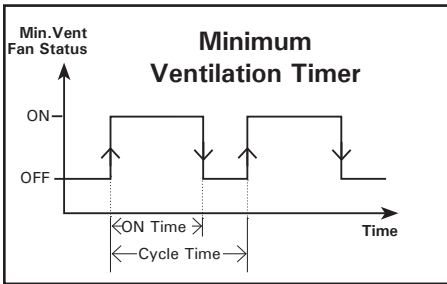
6. VENTILATION SETTINGS

6.1. Minimum Ventilation


6.1.1. Principle of Operation

Definition: Minimum ventilation cycles are activated when the room temperature is lower than the start temperature of the first fan/tunnel fan group. Running the fans even though ventilation is not required for reducing the room temperature is useful to reduce humidity levels and supply oxygen to the room. It also prevents the fans from freezing in winter.

Minimum Ventilation Timer: The minimum ventilation timer is composed of an “On Time” and of a “Cycle Time”. The fans run during the “On Time” and then stop until the end of the “Cycle Time”. This timer is common to all programs of the controller.



 *Minimum ventilation parameters are common to all programs of the controller.*

 *The controller can extract the warm air from the attic by increasing the operating time of the fans in minimum ventilation. Refer to section 6.4.3 for further information about this feature.*

1. Select:

» **5. Minimum Ventilation Timer**

Minimum Ventilation Timer	
▶ On Time	1:30 (m:s) ◀
Cycle Time	5:00 (m:s)

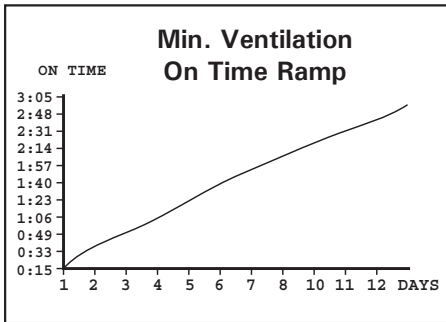
2. Set the following parameters:

On Time — The fans’ operation time, within the minimum ventilation cycles, can be adjusted from 0 to 5 minutes. **The On Time can only be modified if the ramping function is disabled*

Cycle Time — The minimum ventilation’s cycle time can be adjusted from 0 to 99 minutes and must be set to a greater value than the On Time.

6.1.2. Min Ventilation Ramp

Minimum Ventilation Ramping: The controller can automatically adjust the “On Time” portion of the minimum ventilation timer with time. The minimum ventilation ramp is composed of 10 steps and each step associates an “On Time” with an animal age. Once the ramp is enabled, the controller changes “On Time” portion of the minimum ventilation cycles every hour in a linear fashion between consecutive steps of the ramp. When it reaches the last step, the controller keeps using the last “On Time” associated with that day.



NOTE: Certain restrictions apply to reduce the risk of errors:

- The highest possible day number is 450.
- Decreasing day numbers is not allowed.
- All ten steps must be specified. If you don't need 10 different steps, repeat the last ON Time for each unnecessary step.

Night Ramp : The minimum ventilation ramp can be set differently for nighttime minimum ventilation. The user must then specify the time at which the night settings start being used.

1. Select:

- » 9. Advanced Settings
- » 2. Minimum Ventilation Ramping

Minimum ventilation ramping	
On Time	1:30 (m:s)
day -5	0:15 (m:s)
day 0	0:30 (m:s)
day 5	0:45 (m:s)
day 10	1:00 (m:s)
day 15	1:15 (m:s)
day 20	1:30 (m:s)
day 25	1:45 (m:s)
day 30	2:00 (m:s)
day 35	2:15 (m:s)
day 40	2:30 (m:s)
Ramping Status:	Off

Exit: Press Back Change: Press Modify
Press ▲▼ to select an item

2. Set the following parameters:

Day numbers — Set the day at which each step starts. The day number refers to the animal age and it is adjustable from -5 to 450 days. Negative values are used to prepare the house before letting the animals enter. **This parameter can only be modified while the ramp is disabled.*

On Time — Assign a minimum ventilation “On Time” to each step of the ramp. **This parameter can only be modified while the ramp is disabled.*

Status — Select “On” to activate the ramp. Once the ramp is on, the controller automatically adjusts the “On Time” of minimum ventilation cycles between consecutive points of the ramp; for this reason, ramp steps cannot be modified while the ramp is running.

6.1.2.1. Min Vent. Night Ramp

1. Select
 - » 9. Advanced Settings
 - » 5. Night Time Settings *
 - » 1. On Time Ramping

* This menu is accessible if the “Night’s On Time” option is enabled (sec. 4.4).

Night On Time Ramping	
On Time	1:30 (m:s)
day -5	0:15 (m:s)
day 0	0:30 (m:s)
day 5	0:45 (m:s)
day 10	1:00 (m:s)
day 15	1:15 (m:s)
day 20	1:30 (m:s)
day 25	1:45 (m:s)
day 30	2:00 (m:s)
day 35	2:15 (m:s)
day 40	2:30 (m:s)
Ramping Status:	Off

Exit: Press Back Change: Press Modify
Press ▲▼ to select an item

2. Set the following parameters:

Day numbers — Set the day at which each step starts. The day number refers to the animal age and it is adjustable from -5 to 450 days. Negative values are used to prepare the house before letting the animals enter. **This parameter can only be modified while the ramp is disabled.*

On Time — Assign a minimum ventilation “On Time” to each step of the night ramp. **This parameter can only be modified while the ramp is disabled.*

Status — Select “On” to activate the night ramp. Once the ramp is on, the controller automatically adjusts the “On Time” of minimum ventilation cycles between consecutive points of the ramp; for this reason, ramp steps cannot be modified while the ramp is running.

6.1.2.2. Night Start Time

The day and night start times only need to be defined if the night’s minimum ventilation ramping function is used by the controller.


1. Select:
 - » 9. Advanced Settings
 - » 5. Night Time Settings *
 - » 2. Day/Night Time

* This menu is accessible if the “Night’s On Time” option is enabled (sec. 4.4).

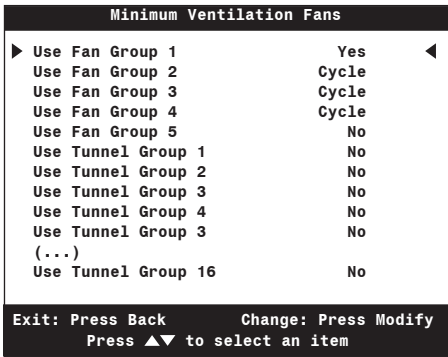
Day / Night Time	
Day Starts At	7:30 A
Night Starts At	8:00 P

2. Set the time at which the day and night start.

**6.1.3. Minimum Ventilation Fan/
Tunnel Fan Groups**

 *A template is available at the end of this manual to write down the fan selection for each program.*

1. Select:
 - » **9. Advanced Settings**
 - » **3. Minimum Ventilation Fans**



















2. Select the fan/tunnel fan groups are used in minimum ventilation:

- Select “Yes” to use the current fan group during the minimum ventilation cycles.
- Select “Cycle” to use the fan group in a cyclical way to ensure minimum ventilation.
- Select “No” if you do not want the fan group to be activated during the minimum ventilation cycles.

6.1.4. Fan Cycling

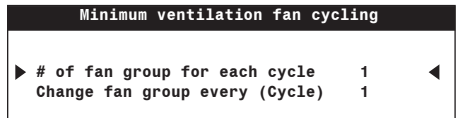
In minimum ventilation, the controller can make a rotation of the fans selection between consecutive cycles. This rotation allows running the fan motors evenly and regularly. In order to use fan cycling, you must specify how many fans must be activated simultaneously and specify after how many cycles they must switch.

Here is an example of fan cycling with 4 fans. In this example 2 fans are used simultaneously and a switch is made every 3 cycles:

	Fan 1	Fan 2	Fan 3	Fan 4
1 st step: 3 cycles	 ON	 ON	 OFF	 OFF
2 nd step: 3 cycles	 OFF	 ON	 ON	 OFF
3 rd step: 3 cycles	 OFF	 OFF	 ON	 ON
4 th step: 3 cycles	 ON	 OFF	 OFF	 ON

1. Select:
 - » **9. Advanced Settings**
 - » **4. Min Ventilation Fan Cycling**

2. Set the following parameters:



of fan group for each cycle — Select the number of fan groups that are activated simultaneously within each minimum ventilation cycle.

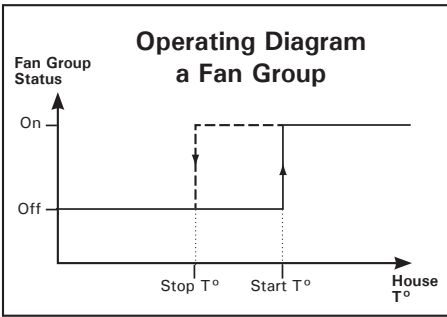
Change fan group every (x Cycle) — Select the frequency at which the fan groups switch. This frequency corresponds to a number of cycles that is performed before switching to the next fan groups (from 1 to 1,000 cycles).

6.2. Fan & Tunnel Fan Groups

6.2.1. Principle of Operation

Definition:

Fan & tunnel fan groups : a fan group is a combination of relays that are simultaneously activated according to the average house temperature. These relays are used to activate cooling devices such as fans, tunnel fans or mist units.



Principle of Operation:

The operation of fan & tunnel fan groups is totally flexible: the user defines the temperature at which each group starts/stops without any restriction. The groups can overlap each other, this means that when a new fan/tunnel fan group starts, the relays of the previous group **are not** deactivated.

The start and stop temperatures of fan & tunnel fan groups are related to the house set point. This means that when the house set point changes, the start and stop temperature of every fan & tunnel fan groups is adjusted consequently.

! *Make sure that fans & tunnel fan groups that are overlapping each other do not share common relays.*

Timer-based Relays for Cooling Devices:

Fan & Tunnel Fan Groups can activate relays that operate in timer mode. This is useful to activate mist units that follow the ventilation's progression. The timer composed of an On Time and an Off time. Refer to section

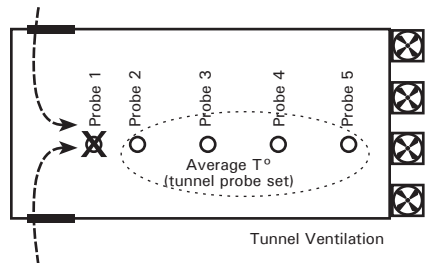
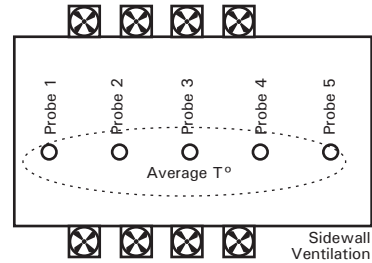
4.7.2 to enable timer-based relays on fan & tunnel fan groups.

Minimum Ventilation's Fan & Tunnel Fan Groups: Refer to section 6.1.

Fan Group Shutoff in Transitional Ventilation: The controller allows disabling fan groups at the start-up of each tunnel fan group.

Tunnel Probe Set: The probe selection that is used to determine the average house temperature can be changed when the control enters in tunnel ventilation mode. This way, the temperature probes that are located near the curtain's entry point can be removed from the average house temperature calculation.

The tunnel probe set starts being used at the start-up of a user-defined tunnel fan group. The average temperature then becomes measured by these probes. Refer to section 4.5.3 to assign tunnel probes and refer to section 6.3.2.2 to select the tunnel fan group at which the tunnel probe set starts being used.



6.2.2. Settings

1. Select:
 - » **8. ON / OFF Temperature**
 - » **(3. or 4.) Fan / Tunnel Fan Group**
2. Set the following parameters:

Fan Groups ON / OFF Temp.				
▶	House Set Point		70.0 °F	◀
	Fan 1 ON		72.0 °F	
	OFF		71.0 °F	
	Fan 2 ON		74.0 °F	
	OFF		72.0 °F	

Start & Stop Temperatures — Set the start and stop temperatures of each fan/tunnel fan group. It is suggested to leave a gap of at least 0.5°F (0.3°C) between the start-up of each group.

6.2.3. Timer-based Relays

1. Select
 - » **12. Setup**
 - » **7. Relay assignment***
 - » **(11. or 12.) Fan / Tunnel Fan**
 - » **Timer Settings**

** This menu is accessible from the installer mode only (sec. 4.2).*

Fan Group Timer Settings				
▶	Group 1 On Time		0:15 (m:s)	◀
	Off Time		5:00 (m:s)	
	Group 2 On Time		0:15 (m:s)	
	Off Time		5:00 (m:s)	
	Group 3 On Time		0:15 (m:s)	

2. Set the On and Off times of the fan/tunnel fan groups' timer-based relays. Refer to the previous section to get further information on this function.

6.2.4. Fan Group Shutoff in Transitional Ventilation

1. Select:
 - » **9. Advanced Settings**
 - » **6. Fan group shut off**
 - » **Select the desired tunnel fan group**

Fan group shutoff in tunnel 1							
1	2	3	4	5			
---	---	---	---	---			

2. Select which fan group needs to be disabled when the selected tunnel fan group starts up. In the example beside, the activation of Tunnel Fan Group 1 causes the deactivation of Fan Group 2.



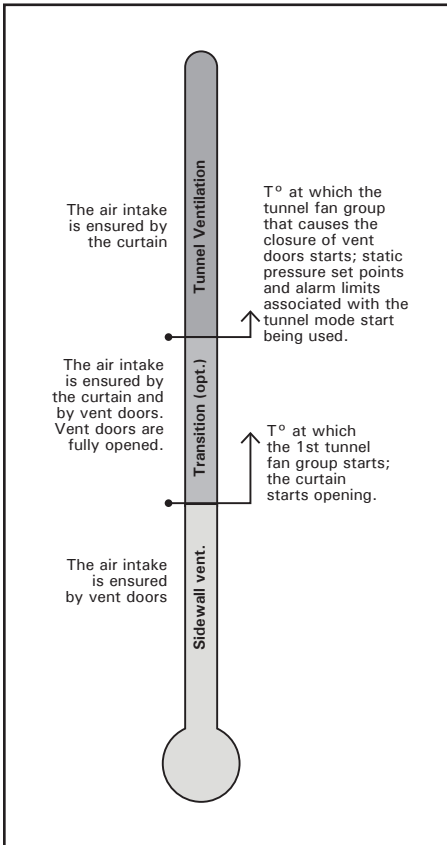
A worksheet is available at the end of this manual to write down your fan shutoff parameters.

6.3. Tunnel Ventilation

6.3.1. Transition between Sidewall and Tunnel Ventilation

The transition from sidewall to tunnel ventilation creates a smooth passage from one ventilation mode to the other. During the transition, the controller can open the curtain and activate some tunnel fan groups while regular fan groups are used. Meanwhile, vent doors open continuously until they reach their maximum opening.

The transition ends when the room temperature reaches the start temperature of the tunnel fan group that causes the closure of vent doors; the tunnel ventilation mode is fully used at that moment and the controller starts using the tunnel ventilation's static pressure set points and alarm limits.



6.3.2. Endwall Curtain

6.3.2.1. Principle of Operation

An endwall curtain controls the air intake in tunnel ventilation. The operation of this curtain can either be based on the average house temperature or it can be related to the static pressure level. Refer to the section 4.4 to choose the proper operating mode.

• CURTAIN: BASED ON THE TEMPERATURE

Tunnel Ventilation Start-up:

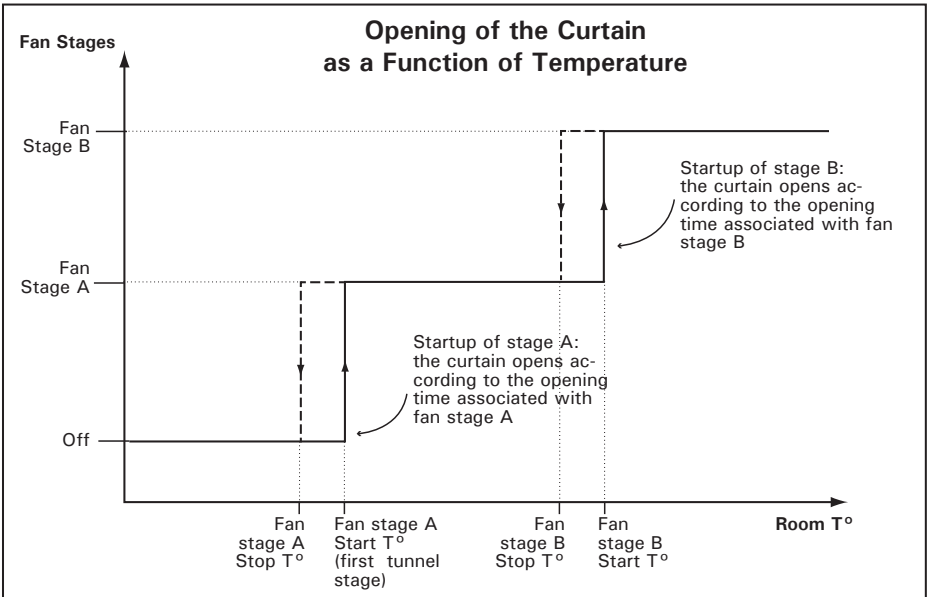
The activation of tunnel ventilation is linked with the start-up of a user-defined tunnel fan group. When the start temperature of this group is reached, the curtain opens during to the opening time associated with the group. When half of the opening time has elapsed or after a 120 second delay (whichever is shorter) the tunnel fan group is activated. The activation of every consecutive tunnel fan group causes the curtain to open further according to the opening time associated to each group.

Minimum Age: The minimum age is used to prevent tunnel ventilation from being used when the animals are too young. The user defines the age above which the tunnel ventilation mode can start. The curtain does not open when animals are beneath this age.

Minimum Outside Temperature: It is possible to define an outside temperature below which the tunnel curtain remains closed. This prevents opening the curtain when it is too cold outside. This feature is optional and can only be used if an outside temperature probe is connected to the controller.

Opening Times: An opening time of the curtain is associated with the start-up of each tunnel fan group. When the start temperature of a tunnel fan group is reached, the curtain opens according to the opening time that is associated with that group.

Curtain is Fully Opened (100% opened) at: When the start temperature of this fan stage is reached, the curtain fully opens and remains opened until the temperature decreases to the tunnel fan group's stop temperature.



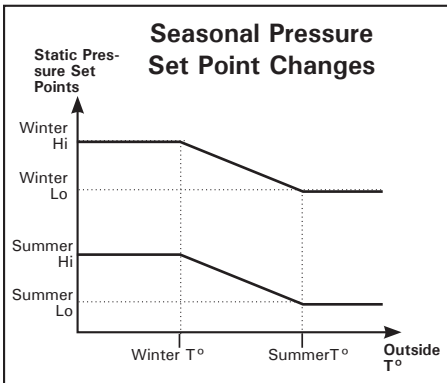
• CURTAIN: BASED ON THE STATIC PRESSURE LEVEL

Start-up of Tunnel Ventilation:

The activation of tunnel ventilation linked with the start-up of a user-defined tunnel fan group. When the room temperature reaches the start temperature of this group, the curtain starts being adjusted according to the static pressure level: it opens when the static pressure level exceeds the high pressure set point or closes when the pressure level decreases below the low pressure set point.

* Seasonal Pressure Set Points:

High and low pressure set points can automatically be adjusted according to the outside temperature. Using higher pressure set points during winter allows reducing the cold air intake: the pressure level must be greater before the curtain can start opening. In summer, the pressure set points are decreased so that the curtain can open and close with fewer restrictions.



The pressure set points are automatically adjusted according to the outside temperature. The following graphic illustrates how they are calculated. Seasonal changes are signalled by user-defined outside temperatures (sec. 5.3).

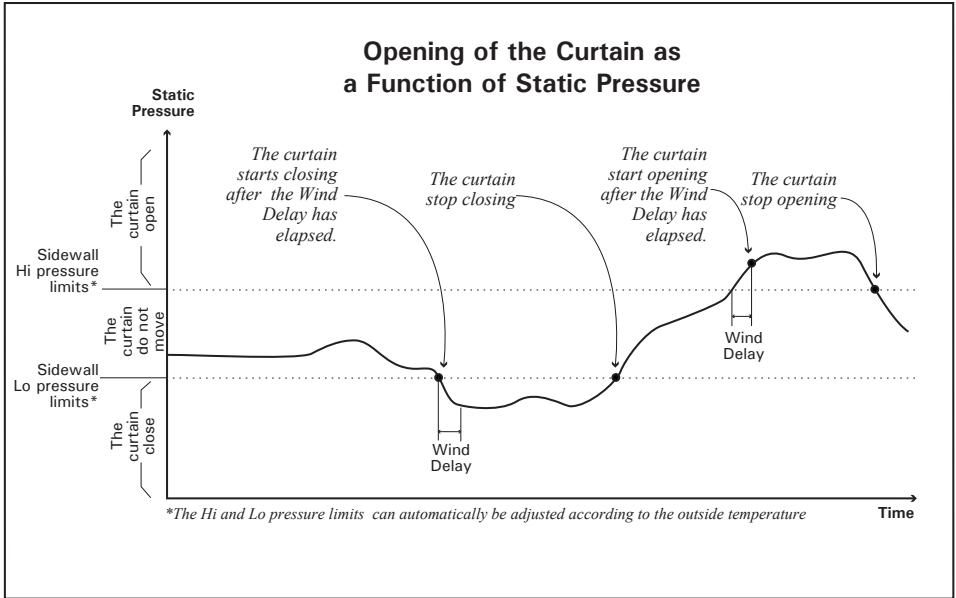
Minimum Outside Temperature: The tunnel ventilation mode can be disabled when the outside temperature is too cold. This feature is optional and can only be used if an outside temperature sensor is connected to the controller.

Minimum Age: The minimum age is used to prevent tunnel ventilation from being used when the animals are too young. The user defines the age above which the tunnel ventilation mode can start. The tunnel curtain will never open until this age is reached.

Pre-Openings: Pre-opening delays are used to open the curtain by a certain amount of time before starting tunnel fan groups. The first pre-opening delay is performed at the start-up of tunnel ventilation (i.e., when the tunnel fan group which activates the tunnel ventilation mode starts). The other pre-opening delay is performed when tunnel ventilation fully starts (at the end of the transition between lateral and tunnel ventilation). Note that all tunnel fan groups are disabled while a pre-opening delay is ongoing.

Wind Effect Delay: When the pressure level exceeds the high or low static pressure set points, the tunnel curtain starts opening or closing continuously right after the wind delay is elapsed. The high or low pressure condition must be maintained over this delay for the curtain to start moving. This avoids opening or closing the curtain when a wind draft causes fleeting variations in the pressure level.

Closing Vent Doors: Vent doors start closing at the start-up of a user-defined tunnel fan group. Tunnel ventilation is fully enabled and the controller starts using the static pressure set points at that moment.



6.3.2.2. Curtain Settings

1. Select:

- » **6. Inlet Settings**
- » **3. Tunnel Curtain**

2. Set the following parameters:

(Refer to the previous section to get further information on these parameters)

Minimum Outside Temperature — This is the outside temperature below which the tunnel curtain remains closed. Adjustable from 0.1 to 100°F (-17.7 to 37.8°C). Select “Off” to deactivate this function. **Available if an outside temperature probe is enabled (sec. 4.5.1)*

Minimum Age — This is the animal age below which the tunnel curtain remains closed. Adjustable from 1 to 450 days.

Curtain Starts Opening at Tunnel Fan Group #x — The tunnel curtain starts opening at the start-up of this tunnel fan group.


SETTINGS – FOR A CURTAIN BASED ON THE TEMPERATURE

Tunnel Curtain Settings	
▶ Minimum outside temp.	50.0 °F ◀
Minimum age	1 days
Curtain starts opening at tunnel Fan Group	3
Close Vent Doors at Tunnel	6
Curtain is fully opened at Tunnel Fan Group:	6
Tunnel Open Times	
Tunnel Fan 1	0:30 (m:s)
Tunnel Fan 2	0:30 (m:s)
Tunnel Fan 3	0:30 (m:s)
Tunnel Fan 4	0:30 (m:s)
Tunnel Fan 5	0:30 (m:s)
Tunnel Probe at Tunnel:	4
Exit: Press Back Change: Press Modify Press ▲▼ to select an item	

Close Vent Doors at Tunnel — The vent doors fully close at the start-up of the chosen tunnel fan group. **This parameter is accessible if vent doors are enabled (sec. 4.4).*

Curtain is Fully Opened at Tunnel Fan Group # — The curtain fully opens at the start-up of this tunnel fan group.

Curtain's Opening Times — Associate an opening time to the start-up of each tunnel fan group. The opening time can be adjusted from 0 to 15 minutes.

 **If some tunnel fan groups are programmed to start running BEFORE tunnel ventilation starts, set their curtain's opening time to 0m:0s.**

Tunnel Probes at Tunnel — The average house temperature becomes based on the average reading of the tunnel probes at the start-up of the chosen tunnel fan group.

SETTINGS – FOR A CURTAIN BASED ON THE STATIC PRESSURE

Tunnel Curtain Settings	
▶ Minimum outside temp.	50.0 °F ◀
Minimum age	1 days
Curtain starts opening at tunnel Fan Group	3
PreOpening	45 sec
Wind Effect Delay	0:30 (m:s)
PreOpening #2 at Tunnel	15 sec
Close VentDoor at tunnel:	6
Pressure Set Point:	
Summer Low	.04 "WC
Summer High	.07 "WC
Winter Low	.04 "WC
Winter High	.07 "WC
Tunnel Probe at Tunnel:	4
Exit: Press Back Change: Press Modify Press ▲▼ to select an item	

Pre-opening Delay — Set the time that is required to pre-open the curtain before activating the tunnel fans. Adjustable from 0 to 120 seconds.

Wind Effect Delay — Set the wind effect delay to the desired value.

Pre-opening #2 at Tunnel — The opening of the curtain can be increased when the transition from lateral and tunnel ventilation is over (i.e. when the Close Vent Doors at Tunnel parameter is reached). The pre-opening delay can be adjusted from 0 to 120 seconds.

Close Vent Doors at Tunnel — Select the tunnel fan group at which the vent doors must close. This temperature signals the end of the transition from lateral to tunnel ventilation mode.

Low/High Pressure Limits — Set the static pressure level below/above which the tunnel curtain opens and closes. If the outside temperature probe is used, set these limits separately for winter and summer. **Seasonal pressure set points are accessible if the outside temperature probe is enabled (sec. 4.5.1).*

Tunnel Probes at Tunnel — The average house temperature becomes based on the average reading of the tunnel probes at the start-up of the chosen tunnel fan group.

6.4. Vent Doors

6.4.1. Principle of Operation

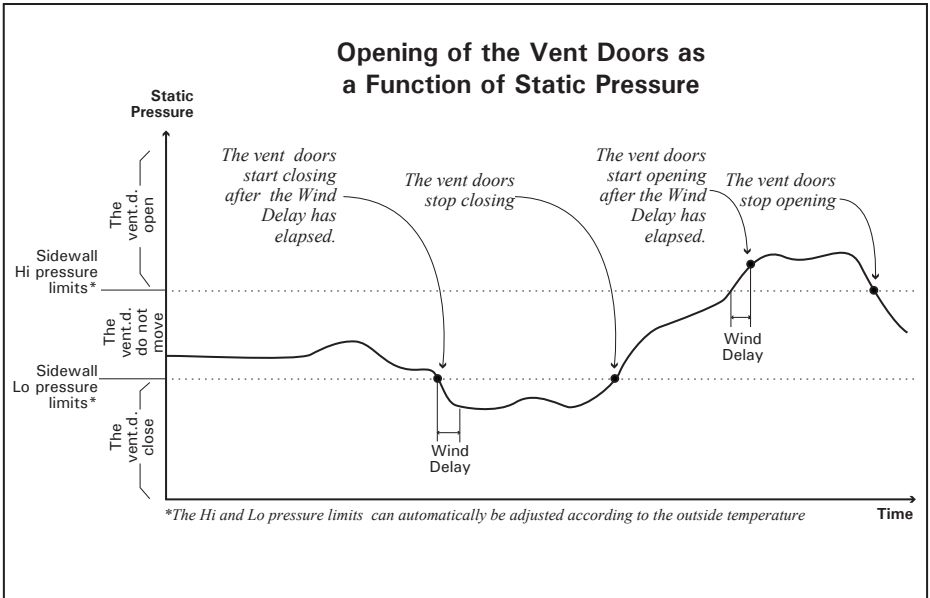
Each vent door output (sidewall or attic vents) moves according to the variations in the static pressure level: it opens when the static pressure level gets above the high pressure set point and closes when pressure gets below the low pressure set point.

Activation of the vents: If the controller uses 1 vent door output, the output is automatically used to control a sidewall vent. The sidewall vent is active as long as the controller is in lateral or minimum ventilation; it closes when the controller enters in tunnel ventilation.

If the controller uses 2 vent outputs, the first output is reserved to control an attic vent and the second output controls a sidewall vent. As long as the temperature in the room is lower than a user-defined stop temperature, the air intake is exclusively provided by the attic vent (sidewall vents remain closed). When the room temperature exceeds the room's stop temperature, the attic vent stops moving and the air intake becomes provided by the sidewall vent. Refer to section 6.4.3 to specify at what moment the attic vent must stop being used.



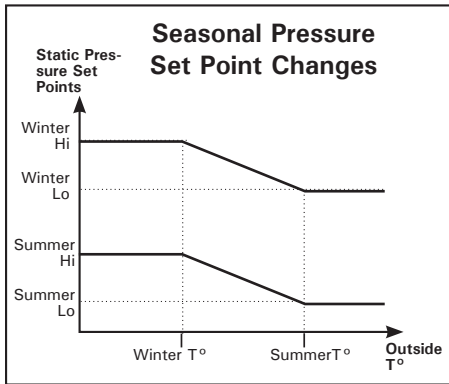
Refer to section 6.4.3 to set the attic vent parameters.



Closing vent doors in tunnel ventilation: Both vent door outputs close when the controller enters in tunnel ventilation. Refer to section 6.3.2.2 to select the tunnel fan output that asks for vent doors to close.

*** Seasonal Pressure Set Points:**

High and low pressure set points can automatically be adjusted according to the outside temperature. Using higher pressure set points during winter allows reducing the cold air intake: the pressure level must be greater before the curtain can start opening. In summer, the pressure set points are decreased so that the curtain can open and close with fewer restrictions.



The pressure set points are automatically adjusted according to the outside temperature. The following graphic illustrates how they are calculated. Seasonal changes are signalled by user-defined outside temperatures (sec. 5.3).

6.4.2. Sidewall Vent Settings

1. Select
 - » 6. Inlet Settings
 - » 2. Sidewall vents*

This menu is available if vent doors are enabled (sec. 4.4).

Sidewall Vent Settings		
Pressure Set Point:		
► Summer Low	.05	“WC” ◀
Summer High	.08	“WC”
Winter Low	.05	“WC”
Winter High	.08	“WC”
Wind Effect Delay	0:30	(m:s)
PreOpening	30	sec

2. Set the following parameters:

Static pressure Set Points:

Low/High Pressure Limits — Set the static pressure level below/above which the sidewall vent opens and closes. If the outside temperature probe is used, set these limits separately for winter and summer. **Seasonal pressure set points are accessible if the outside temperature probe is enabled (sec. 4.5.1).*

Wind Effect Delay — When the pressure level exceeds the high or low pressure set points, the sidewall vent starts opening or closing continuously right after the wind delay has elapsed. The high or low pressure condition must thus be maintained over this delay for the sidewall vent to start moving. This way, the vent will not open or close needlessly when wind drafts are causing fleeting variations in the pressure level. Set the wind effect delay to the desired value.

Pre-opening Delay — Select during how much time the controller must open the sidewall vent before activating minimum ventilation fans. This delay ranges from 0 to 30 seconds.


6.4.3. Attic Vent Compensation

When the EXPERT 64+ operates in minimum ventilation and the attic temperature is warm enough, the controller can extract the warm air from the attic by increasing the operating time of the fans. When this compensation is on, the controller automatically adjusts the “On Time” portion of the minimum ventilation timer as a function of the room temperature.

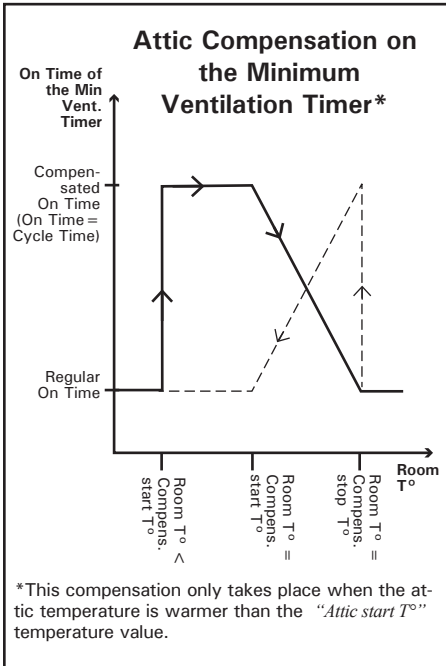
If the room temperature is cooler than the “Attic start comp at” value and the attic temperature is equal or higher than this start-up point, the “On Time” of the minimum ventilation cycle is fully compensated in order to extract a maximum level of heat from the attic (the fans are always on). As the room temperature rises and reaches the compensation’s start-up point, the “On Time” starts decreasing gradually, in a linear fashion, as the room temperature increases. The “On Time” finally stops being compensated when

the room temperature is warm enough and reaches the “Room Stop T°” value. At the end of the compensation, the minimum ventilation “On Time” goes back to its regular value, and the sidewall vent starts being used jointly with the attic vent.

If the room temperature is higher than the cut-off point of the attic compensation and then starts decreasing, the “On Time” becomes fully compensated when the room temperature falls to the attic compensation’s cut-off point “Room Stop T°”. The “On Time” then starts decreasing gradually, in a linear fashion, as the room temperature falls. The “On Time” finally stops being compensated when the room temperature reaches the “Attic start T°” value.

 **The “On Time” can only start decreasing when the “Off Time” portion of the minimum ventilation cycle is long enough to allow pre-opening the attic vent.**

Refer to section 4.5 to enable the attic probe and refer to section 4.7.3 to assign this probe to the desired input of the controller.




Settings

1. Select:

- » 6. Inlet Settings
- » 1. Attic Vents*

This menu is available if 2 vent door outputs are enabled (sec. 4.4).

2. Set the following parameters:

 Refer to section 6.4.1 for further information about the opening parameters of the attic vent.

Attic Vent Settings			
Pressure Set Point:			
▶ Summer Low	.05	"WC	◀
Summer High	.08	"WC	
Winter Low	.05	"WC	
Winter High	.08	"WC	
Wind Effect Delay	0:30	(m:s)	
PreOpening	30	sec	
Close Attic Vents			
According to :	Fan		
at Fan:	3		
Attic Start Temp:	69.0	°F	
Room Stop Temp:	73.0	°F	
Exit: Press Back Change: Press Modify			
Press ▲▼ to select an item			

Static pressure Set Points:

Low/High Pressure Limits — Set the static pressure level below/above which the attic vent opens and closes. If the outside temperature probe is used, set these limits separately for winter and summer. **Seasonal pressure set points are accessible if the outside temperature probe is enabled (sec. 4.5.1).*

Wind Effect Delay — When the pressure level exceeds the high or low pressure set points, the attic vent starts opening or closing continuously right after the wind delay has elapsed. The high or low pressure condition

must thus be maintained over this delay for the attic vent to start moving. This way, the vent will not move needlessly when wind drafts are causing fleeting variations in the pressure level. Set the wind effect delay to the desired value.

Pre-opening Delay — Select during how much time the controller must open the attic vent before activating minimum ventilation fans. This delay ranges from 0 to 30 seconds.

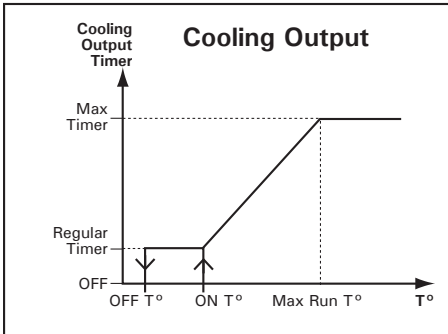
Close Attic Vents at — The first vent door output (attic vent) can be disabled when a specific fan or tunnel fan output starts. Select which fan or tunnel fan asks for attic vents to close or select "-" if you don't want it to close.

 Make sure the air intake is provided by another air inlet before closing attic vent!

Attic Start T° & Room Stop Temperatures — The attic compensation is bounded between 2 points: the "Attic Start T°" in the attic and the "Room Stop T°". Set these 2 temperature limits to the desired values.

6.5. Cooling Outputs

The controller has six cooling outputs that can be used to operate cooling devices such as mist units. The intensity of these outputs increases gradually as the house temperature increases. The following diagram illustrates the cooling outputs' operation.



The cooling output starts operating according to a timer (On Time & Off Time) when its start temperature is reached. The output's timer gradually changes as the temperature increases. It reaches the max timer settings (Max On Time & Max Off Time) when the house temperature reaches the *Maximum Run Temperature*. Start and stop temperatures of cooling outputs are related to the house set point. This means that when the house set point changes, start and stop temperatures are adjusted consequently.

It is also possible to define a time range over which cooling outputs can run. This time range allows deactivating cooling outputs at night for instance.

Reference temperature

In sidewall ventilation, cooling outputs operate according to the average house temperature; in tunnel ventilation, they operate according to the average temperature measured by user-defined probes. Refer to section 4.5.3 to assign these probes.

1. Select
 - » 8. ON / OFF Temperature
 - » 5. Cooling*

This menu is available if cooling outputs are enabled (sec. 4.4).

Cooling Settings	
► House Set Point	74.2 °F ◀
Display Cooling 1	
Off at	88.2 °F
On at	89.2 °F
Max Run At	94.2 °F
On Time	1:00 (m:s)
Off Time	3:00 (m:s)
Max On Time	2:00 (m:s)
Max Off Time	2:00 (m:s)
Start at	6:00 A
Stop at	9:00 P
Exit: Press Back Change: Press Modify	
Press ▲▼ to select an item	

2. Set the following parameters:

House Set Point — Current reading of the house set point. This reading is shown as a reference only, it cannot be modified from here.

Display — Select the desired cooling output. All following parameters are related to the chosen output.

Off Temperature — Set the temperature below which the cooling output stops operating. Adjustable from -40 to 120°F (-40 to 48.9°C) and must be lower than the output's start temperature.

On Temperature — Set the temperature at which the cooling output starts operating using the regular timer. Adjustable from -40 to 120°F (-40 to 48.9°C) and must be greater than the House Set Point.

Maximum Run at — Set the temperature at which the cooling output starts using the maximum timer. Adjustable from -40 to

120°F (-40 to 48.9°C) and must be greater than the output's start temperature.

Max / On Time & Off Time — Set both timers' On and Off times to the desired values. Adjustable from 0 to 30 minutes.

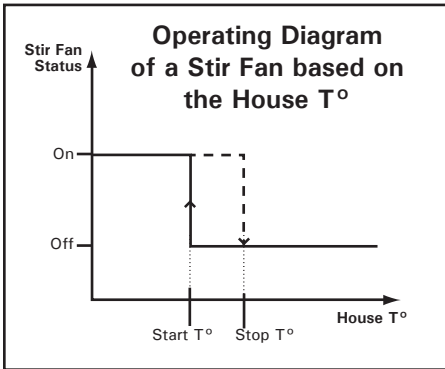
Start / Stop at — The cooling outputs' operation is only effective within this range of time. This allows to deactivate the output during night for instance.

6.6. Stir Fans

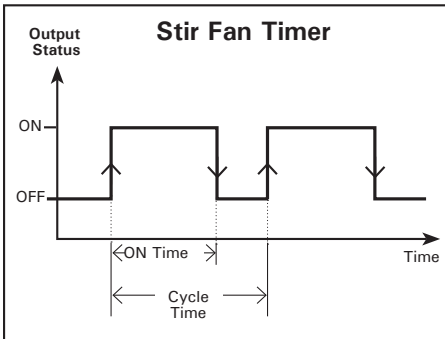
The controller has one stir fan output that can either operate during minimum ventilation cycles or when the room temperature falls below a user-defined limit.

• **Based on the room temperature:**

When they are based on the room temperature, stir fans start running in timer mode when the room temperature falls below their Start Temperature; they return to a stop when the room temperature increases and reaches the output's stop temperature. These Start & Stop Temperatures are related to the house set point which means they are automatically adjusted when changes occur to the set point.



The stir fan timer is composed of an On Time and of a Cycle Time as illustrated.



• **Based on the minimum ventilation:**

When they are based on minimum ventilation, stir fans are activated during every minimum ventilation cycle's Off Time. This ensures a good air circulation when the fans are not running.

1. Select
 - » **8. ON / OFF Temperature**
 - » **2. Stir Fans***

** This menu is accessible if the stir fan output is enabled (sec. 4.4).*

2. Set the following parameters:

Stir Fan Settings	
► Operation based on	Temper. ◀
ON	76.0 °F
OFF	77.0 °F
On Time	0:30 (m:s)
Cycle Time	5:00 (m:s)

Operation based on — Select the proper operating mode of the stir fan output: temperature or minimum ventilation.

ON / OFF Temperatures — Set the start and stop temperatures of the stir fan output.
**Accessible if the stir fans' operation is based on the temperature.*

ON / Cycle Times — Set the On and Off times of the stir fan timer to the desired value.
**Accessible if the stir fans' operation is based on the temperature.*

7. HEATING

The controller can operate up to 16 independent heating outputs. These outputs operate according to their start and stop temperature as illustrated below. The heaters' start/stop temperatures are related to the house set point. This means that if the house set point changes, the start/stop temperatures are adjusted consequently.

Heaters 1-8:

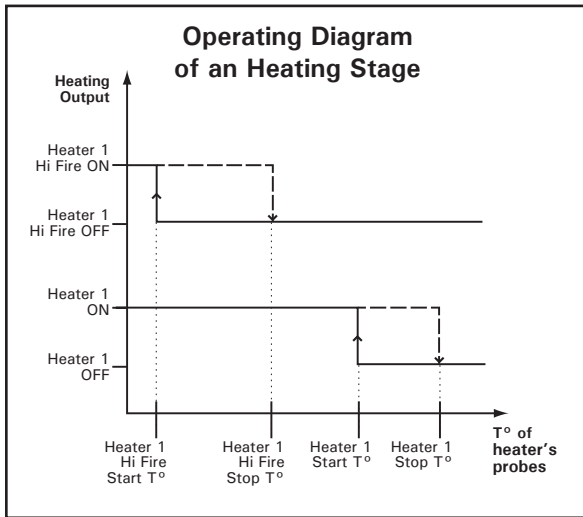
These are the basic heating outputs of the controller. Refer to section 4.4 to activate the heating outputs.

Heaters' Hi Fire:

This option allows to simulate a supplementary heating step for each activated heating output. When enabled, this function doubles the number of activated heating outputs. The heaters' hi fire step operates as all other regular heating outputs: the user defines a start and a stop temperature and assigns relays to each heater's hi fire output. Refer to section 4.4 to activate the heaters' hi fire option.

Empty Zone Heaters:

The message "Empty Zone" is displayed to signal heaters that operate in an empty zone. The empty zone heaters' start and stop temperatures are then related to the empty zone set point. This means that if the empty zone set point changes, the start/stop temperatures are adjusted consequently.



1. Select

- » 8. ON / OFF Temperature
- » 1. Heaters

Heater ON / OFF Temperature		
▶ Heater 1 ◀	ON	76.0 °F
	OFF	77.0 °F
Heater 1 Hi Fire	ON	75.0 °F
	OFF	77.0 °F
(...)		
Heater 8	ON	76.0 °F
	OFF	77.0 °F
Heater 8 Hi Fire	ON	75.0 °F
	OFF	77.0 °F
Exit: Press Back Change: Press Modify		
Press ▲▼ to select an item		

2. Set the following parameters:

Heaters' ON / OFF Temperatures — Set the start and stop temperature of each heating output. The stop temperature must be at least 0.5°F (0.3°C) greater than the start temperature for a given heater.


Hi Fires' ON / OFF Temperatures — Set the start and stop temperatures of each hi fire heating output. The stop temperature must be at least 0.5°F (0.3°C) greater than the start temperature for a given heater. * *Available if the hi fire option is enabled (sec. 4.4).*

Empty Zone Heaters' ON/OFF Temp. — Set the start and stop temperatures of empty zone heaters. The stop temperature must be at least 0.5°F (0.3°C) greater than the start temperature for a given heater. * *This parameter is accessible for the heaters that operate in empty zones (sec. 4.9.1).*

8. LIGHTS

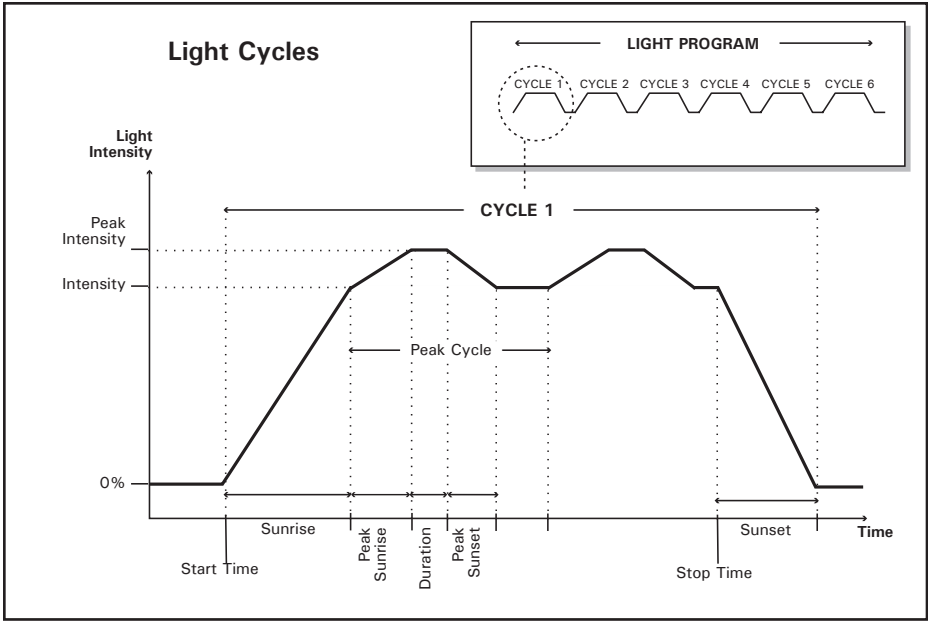
The controller has two 0-10V outputs to control lights; a LD-7000 light dimmer module can be connected to each one of them. Both 0-10V outputs operate the same way and follow the same light programs. Additional lights can also be connected to On/Off relays; these lights turn on whenever 0-10V light outputs are on. Refer to section 4.7 to assign this type of relays.

Light programs: A program consists in 6 light cycles that are performed daily. The same light program is repeated every day up until another light program replaces it. Up to 10 light programs can be used. Refer to section 4.4 to enable them.

 **The light programs are common to all of programs of the controller.**

Cycles: Each light programs can contain up to 6 cycles. These cycles are used to change the light intensity within a program.

Light Peak: Light peaks are marked increases in the light intensity that are used to stimulate the animals. When they are used, light peaks start immediately following the sunrise at the beginning of the cycle. They are then performed at regular intervals within the cycle.



1. Select

- » **7. Light Settings**
- » **x. Select a light program***

This menu is accessible if light programs are enabled (sec. 4.4).

Light Settings	
► Day	days ◀
Lights on 24 hours?	No
Minimum intensity	20 %
Sunrise	2 min
Sunset	2 min
Number of cycles	1
Display Settings	Cycle 1
Start Time	12:00A
Stop Time	12:00A
Standard Intensity	80 %
Use light peaks?	Yes
Peak Cycle	0:15 (h:m)
Peak Duration	1 min
Peak Intensity	100 %
Peak Sunrise	2 min
Peak Sunset	2 min
Exit: Press Back Change: Press Modify	
Press ▲▼ to select an item	

2. Set the following parameters:

Day — This is the day at which the selected program starts. It can be set from -5 to 450 days. Negative day values are used to prepare the house before letting the animals enter the building.

Lights on 24 Hours — Select "Yes" for lights to stay lit all day long; select "No" to use light cycles.

Maximum Intensity — If the "lights on 24 hours" option is enabled above, set the maximum light intensity to the desired value. **Accessible if the "Lights on 24 hours" option is enabled above.*

Minimum Intensity — Set the light intensity that is used when light cycles are off. Adjustable from 0% (Off) to 100%. **Accessible if the "lights on 24 hours" option is disabled above.*

Sunrise — When a cycle starts, the light intensity increases from its minimum to its maximum intensity over this delay (see previous graph). Set the sunrise delay to the desired value (from 1 to 60 minutes). **Accessible if the “lights on 24 hours” option is disabled above.*

Sunset — When the stop time of a light cycle is reached, the light intensity gradually decreases from its maximum to its minimum intensity over this delay (see previous graph). Set the sunset delay to the desired value (from 1 to 60 minutes). **Accessible if the “lights on 24 hours” option is disabled above.*

Number of Cycles — Select how many cycles must be performed during the selected light program. Adjustable from 1 to 6 cycles. **Accessible if the “lights on 24 hours” option is disabled above.*

Cycle Selection — Select the desired light cycle. The following parameters are related to this cycle: **Accessible if the “lights on 24 hours” option is disabled above.*

Start Time — Set the time at which the selected cycle starts. Make sure light cycles never overlap each other. **Accessible if the “lights on 24 hours” option is disabled above.*

Stop Time — Set the time at which the light intensity starts decreasing (sunset). **Accessible if the “lights on 24 hours” option is disabled above.*

Standard Intensity — Set the normal light intensity of the light cycle. This parameter ranges from the minimum light intensity to 100%. **Accessible if the “lights on 24 hours” option is disabled above.*

Use Light Peaks? — Select “Yes” to use light peaks or select “No” to disable them.

Peak Cycle — Select how much time is required to perform a light peak cycle (see previous graph). The cycle time must be even or longer than the peak duration + peak sunrise + peak sunset. **Accessible if light peaks are enabled above.*

Peak Duration — Select during how much time the light peak intensity must be maintained (from 1 to 59 minutes). **Accessible if light peaks are enabled above.*

Peak Intensity — Set the light peak intensity to the desired value. It ranges from the “Standard Intensity” parameter value to 100%. **Accessible if light peaks are enabled above.*

Peak Sunrise / Sunset — Select the duration of the peak sunrise and sunset (see previous graph). These parameters range from 1 to 60 minutes. **Accessible if light peaks are enabled above.*

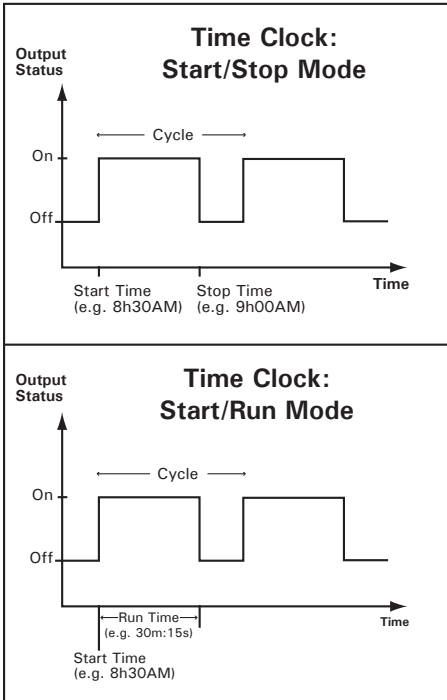


Worksheets are available at the end of this manual to write down your light settings.

9. CLOCK OUTPUTS

The controller has up to 12 clock outputs to operate various devices using a real clock timer. The user specifies the time at which each clock output starts and stops.

A time clock starts when the “On Time” of a time clock cycle is reached; the output either stops after a certain run time or at a certain time of day. The following diagrams show both possibilities:



Note that the “Start/Run” mode allows stopping the outputs with a little more precision since it allows stopping them by the seconds (contrarily to the “Start/Stop” mode which allows stopping them by the minutes). Refer to the Set-up menu in section 4.4 to choose the desired operating mode of the time clocks (“Start/Stop” or “Start/Run”).

1. Select

- » 9. Advanced Settings
- » 7. Clock*

**This menu is accessible if clock outputs are enabled (sec. 4.4).*

Clock Settings

▶	(1) On Time	6:00 A	◀
	Off Time	6:00 A	
	(2) On Time	6:00 A	
	Off Time	6:00 A	

[or]

	(1) On Time	6:00 A
	Run Time Hour	0
	Minutes	0
	Seconds	0
	(2) On Time	6:00 A
	Run Time Hour	0
	Minutes	0
	Seconds	0

Exit: Press Back Change: Press Modify
Press ▲▼ to select an item

2. Set the start & stop times or the start & run times for each activated clock output.

10. MONITORING FUNCTIONS

10.1. Current Conditions

This menu displays the current reading of the controller’s probes. Refer to the installation chapter to activate the different probes and outputs. This menu is automatically selected after 4 minutes of inactivity.

1. Select:

- » 1. Current Conditions

Current Conditions	
► Clear Thermostat Warning?	Yes ◀
Running Program :	Program 1
Animal Age	5 days
House Set Point	70.0 °F
Average House Temperature	68.0 °F
Minimum House Temperature	67.5 °F
Maximum House Temperature	68.5 °F
Outside Temperature	84.2 °F
Relative Humidity	0 %
Min Vent. On Time	1:30 (m:s)
Min Vent. Cycle Time	5:00 (m:s)
Today Water 1 consump.	15 gal
Today Water 2 consump.	15 gal
Exit: Press Back Change: Press Modify	
Press ▲▼ to select an item	

Clear Thermostat Warning ? — Each time a variation of 4°F (2.2°C) is applied on the house set point, the warning message “!!! *Adjust Backup Thermostats !!!*” prompts on screen. Select “Yes” to clear this message once the backup thermostats have properly been adjusted.

10.2. Individual Temperature Probe Readings

This menu gives the current reading of each individual temperature probe as well as the minimum and maximum readings of each probe for the past 7 days. Refer to the installation chapter to activate these probes.

1. Select:

- » 2. History
- » 2. Individual Probe Temp.

Individual Probe Temperature 7 days		
► Display Temperature	Probe 1	◀
	77.0 °F	
Date	Minimum	Maximum
July 19 2004	00:34 74.0	12:34 80.2
July 18 2004	02:19 73.4	19:58 71.3
July 17 2004	01:28 72.0	14:34 82.1
July 16 2004	22:21 72.5	12:12 82.2
July 15 2004	08:34 73.3	12:14 79.3
July 14 2004	01:14 75.1	16:32 79.2
July 13 2004	04:52 73.3	13:28 80.7
July 12 2004	05:39 74.2	15:33 79.2
Exit: Press Back Change: Press Modify		
Press ▲▼ to select an item		

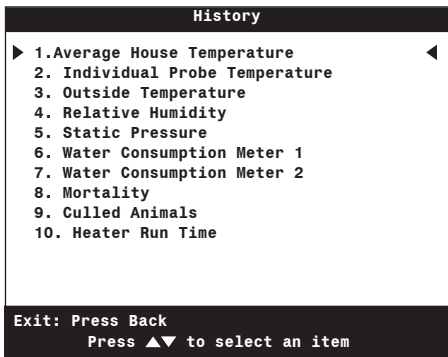
2. Choose the desired probe. The selected probe’s current temperature and history are displayed.

10.3. History

The history menu allows to visualize the evolution of the controller's input readings and other function. The readings are stored every day at midnight and are reset when a new batch starts.

Select:

- » **2. History**
- » **Select the desired history menu**



Average House T° History — The daily min/max readings of the average house temperature are displayed for the past 75 days.

Individual Probe T° — The daily min/max temperature readings of each individual temperature probe are displayed for the past 7 days.

Outside Temperature — The daily minimum and maximum readings of the outside temperature probe are displayed for the past 75 days. **Available if an outside temperature probe is enabled (sec. 4.5.1).*

Relative Humidity — The daily min./ max. readings of the humidity probe are displayed for the past 75 days. **Accessible if the humidity probe is enabled (sec. 4.5.1).*

Static Pressure — The daily minimum and maximum readings of the static pressure probe are displayed for the past 75 days. **Accessible if the static pressure probe is enabled (sec. 4.5.1).*

Water Consumption — The daily water consumption of each water meter is displayed for the past 75 days. The total amount of water that has been consumed since the beginning of the batch is displayed as well. **Accessible if a water meter is enabled (sec. 4.4).*

Mortality — The animals' mortality is displayed daily for the past 75 days. The total number of deaths since the beginning of the batch is displayed as well.

Culled Animals — The number of culled animals is displayed daily for the past 75 days. The total number of culled animals since the beginning of the batch is displayed as well.

Heater Run Time — The daily heaters' run times are displayed individually, for each heating output, for the past 75 days. The total run time of the heating outputs since the beginning of the batch is displayed as well.

10.4. Monitoring the Animal Age & Number


The controller monitors the animal age and number as follows:

Animal Age:

The controller uses the animal age as a reference to determine the steps of the ramping functions. It is also used to for the activation of light programs and of the tunnel ventilation. The animal age can be adjusted from -5 to 450 days. Negative values are used to prepare the house before the animals' arrival.

Number of animals:

The user defines the initial number of animals at the beginning of the batch and enters the number of mortalities and the number of culled animals as they occur. This allows to visualize the exact number of remaining animals and to keep track of the number of dead animal within a batch. The number of mortalities and culled animals is reset when a new batch starts.

 **ALL of histories are reset when a new batch starts.**

1. Select:

» **3. Animal Age & Mortality**

Animal Age & Mortality	
▶ Animal Age	5 days ◀
Initial Count	0
Remaining Count	0
New Mortality	0
New Culled	0
Total Mortality	0
Total Culled	0
Animal loss ratio	0.00%
Start New Batch	
Exit: Press Back	
Press ▲▼ to select an item	

2. Set the following parameters:

Animal Age — Adjustable from -5 to 450 days. Negative day values are used to prepare the house before the animals' arrival. Select "Off" to disable this function.

Initial Count — Enter the total number of animals at the beginning of the batch.

Remaining Count — This is the total number of animals remaining in the house = Initial Count - Total Mortality - Total Culled.

New Mortality — Post up the mortalities as they occur. Once the entered value is validated, the display automatically returns to "0". The value is added to the total mortality number and removed from the remaining count. It is also possible to enter a negative value to rectify the number of mortality.

New Culled — Post up the culled animals as they occurs. Once the entered value is validated, the display automatically returns to "0". The value is added to the Total Culled menu and removed from the remaining count. It is also possible to enter a negative value to rectify the number of culled animals.


Total Mortality — This is the total number of mortalities since the beginning of the batch. This value is displayed as a reading and cannot be modified.

Total Culled — This is the total number culled animals since the beginning of the batch. This value is displayed as a reading and cannot be modified.

Animal Loss — This is the percentage of animal loss since the beginning of the batch. This value is automatically calculated based on the number of mortalities and culled animals; it cannot be modified.

11. TECHNICAL SPECIFICATIONS

Type.....	EXPERT 64+
Main supply fuse F8	1A, fast-blow
Main supply/frequency	115/230 Vac, 50/60Hz
0-10V outputs #1-2	0-10Vdc, 30mA source max.
Precision on 0-10V outputs	±1 %
12Vdc Outputs	12 Vdc ± 10%, regulated, 350 mA max.
Alarm Contact.....	24 Vac or dc max, 0.15 A
Enclosure.....	ABS, moisture and dust-tight.
Operating temperature	32 to 104°F (0 to 40°C)
Storage temperature	5 to122°F (-15 to 50°C)
Ambient relative humidity.....	max. 95%
Relative humidity input	4-20mA
Pressure input	4-20mA
Temperature inputs.....	1K @ 77°F (25°C), NTC

 ***The room temperature where the controller is located must always remain between 32 and 104°F (0 and 40°C).***

12. TRANSFER MENU

(Available soon)

12.1. Screen Contrast

1. Simultaneously press and hold the right and left arrow keys for 5 seconds to display the system menu.
2. Choose **6. Contrast** and press Enter.
3. Set the screen contrast to the desired intensity then press Enter to validate.
4. Simultaneously press and hold the right and left arrow keys for 5 seconds to exit from the system menu.

12.2. Communication Speed

1. Simultaneously press and hold the right and left arrow keys for 5 seconds to display the system menu.
2. Choose **5. Comm Speed** and press Enter.
3. Set the communication speed to the desired value: select the high speed mode if the controller uses the A-BOX communication system or select the low speed if it uses AGNET.
4. Simultaneously press and hold the right and left arrow keys for 5 seconds to exit from the system menu.

12.3. Update/Backup Process

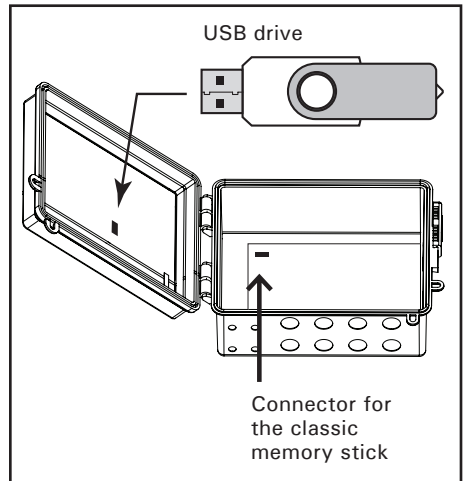
The USB drive allows upgrading the firmware or software of your controller. The USB drive can also be used to make a backup of your controller settings or to copy these settings on another controller of the same type.



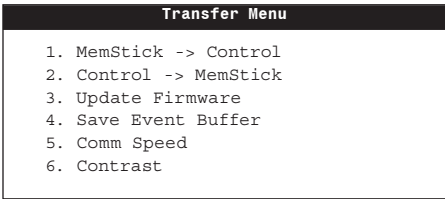
The classic memory stick has been replaced by a USB drive but can still be used in some particular cases.



Turn off power each time you open the controller's enclosure. This prevents accidental exposure to areas of high voltage.




1. Turn off power to the controller.
2. Lift the latches to open the front door of the controller.
3. If a metal plate is located behind the front cover, use a flat head screwdriver to loosen the two locks and lift it.
4. Insert the USB drive in the connector behind the front door.
5. Close the front cover (or plate) and reapply power to the controller.
6. Simultaneously press and hold the right and left arrow keys for 5 seconds to display the transfer menu.
7. Select the desired option:



1. MemStick -> Control

Choose **1. MemStick -> Control** to load a new configuration file into your controller. This transfer will update your controller's software and parameter settings.

When selecting this option, a list of all configuration files located on the card is displayed (*.DMP files). Select the desired file and then press Enter to start the transfer.

 **Note that the controller can only read the files that are located at the root of the USB drive. It cannot access any sub-directory!**

2. Control -> MemStick


Choose **2. Control -> MemStick** to save your controller settings on the USB drive. The saving process will start as soon as you enter this menu.

The controller will create a new CONTROL-**LER~1.DMP** file at the root of the USB drive. If this file name already exists, it will be saved under a different name ("CONTROLLER~2.DMP" for instance). This way, the controller will never erase a file on the card.

3. Update Firmware

Choose **3. Update Firmware** to download a new firmware file into your controller. This process will not affect your parameter settings.

When selecting this option, a list of all firmware files located on the USB drive is displayed (*.PKG files). Select the desired file and then press Enter to start the transfer.

 **Note that the controller can only read the files that are located at the root of the USB drive. It cannot access any sub-directory!**

4. Save Event Buffer

Choose **4. Save Event Buffer** to save the event buffer of the controller on your USB card. The file will have a *.txt extension. (USB card only!)



Simultaneously press and hold the right and left arrow keys for 5 seconds to exit from the system menu.



Remove the USB drive from the connector when the transfer is over!

14. INSTALLATION REPORT

CLIENT

Name: _____

Address: _____

City: _____

Phone: _____

Fax: _____

INSTALLER

Name: _____

Address: _____

City: _____

Phone: _____

Fax: _____

Parameter Settings Worksheet

Parameter	Range	Your setting for program #				
		1	2	3	4	5

1. OPTIONAL PROBES (4.5.1)

Relative humidity probe ?	Yes / No	<i>Common to all programs</i>				
Number of water meters ?	0-2	<i>Common to all programs</i>				
Outside temperature probe?	Yes / No	<i>Common to all programs</i>				
Static pressure probe ?	Yes / No	<i>Common to all programs</i>				

2. MEASURING UNITS (4.5.2)

Time	AM-PM / 24H	<i>Common to all programs</i>				
Temperature	°F / °C	<i>Common to all programs</i>				
Water	Lit / Gal	<i>Common to all programs</i>				
Static pressure	"WC / Pa	<i>Common to all programs</i>				

3. RH COMPENSATION (4.6)

On minimum ventilation ?	Yes / No					
On heaters ?	Yes / No					
Using the mist shutoff ?	Yes / No					
Use mist on low RH ?	Yes / No					

4. INSTALLATION (4.4)

# Programs	___(1 to 5)	<i>Common to all programs</i>				
# Temperature probes	___(1 to 8)	<i>Common to all programs</i>				
# Heaters	___(1 to 8)					
# Fans	___(1 to 5)					
# Tunnel fans	___(0 to 16)					
Use Stir fans ?	__Yes __No					
# Coolings	___(0 to 6)					
# Clocks	___(0 to 12)					
# Light programs	___(0 to 10)	<i>Common to all programs</i>				
Clock Outputs' Mode	Start-Stop / Start/Run	<i>Common to all programs</i>				
Use Heaters' Lo/Hi Fires ?	Yes / No	<i>Common to all programs</i>				
Use Day/Night On time ?	Yes / No	<i>Common to all programs</i>				

Parameter	Range	Your setting for program #				
		1	2	3	4	5
Number of vent doors ?	1-2					
Use attic probe ?	Yes / No					
Use Tunnel curtain ?	Yes / No					
Curtain control ?	T° / SP					
Use tunnel probes at tunnel fan	0-16)					
Number of relays	32, 40, 42, 56, 64 relays	<i>Common to all programs</i>				
Monitor the breaker temperature ?	Yes / No	<i>Common to all programs</i>				
Digit display	Yes / No	<i>Common to all programs</i>				

6.PASSWORD (4.2)

Installer Password	
--------------------	--

Probe Assignment Worksheet

	Program 1								Program 2								Program 3								Program 4								Program 5							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	
Average House T°																																								
Tunnel Fans																																								
Cooling 1																																								
Cooling 2																																								
Cooling 3																																								
Cooling 4																																								
Cooling 5																																								
Cooling 6																																								
Heater 1																																								
Heater 1 Hi Fire																																								
Heater 2																																								
Heater 2 Hi Fire																																								
Heater 3																																								
Heater 3 Hi Fire																																								
Heater 4																																								
Heater 4 Hi Fire																																								
Heater 5																																								
Heater 5 Hi Fire																																								
Heater 6																																								
Heater 6 Hi Fire																																								
Heater 7																																								
Heater 7 Hi Fire																																								
Heater 8																																								
Heater 8 Hi Fire																																								
Attic Probe																																								
Main Breaker																																								

The T° sensor that is used in the attic is common to all programs.

The T° sensor that is used to monitor the main breaker is common to all programs.

Minimum Ventilation Fan Selection (sec. 6.1)

	Program 1			Program 2			Program 3			Program 4			Program 5		
	ON	OFF	CYCLE	ON	OFF	CYCLE	ON	OFF	CYCLE	ON	OFF	CYCLE	ON	OFF	CYCLE
Fan Group 1															
Fan Group 2															
Fan Group 3															
Fan Group 4															
Fan Group 5															
Tunnel Fan Group 1															
Tunnel Fan Group 2															
Tunnel Fan Group 3															
Tunnel Fan Group 4															
Tunnel Fan Group 5															
Tunnel Fan Group 6															
Tunnel Fan Group 7															
Tunnel Fan Group 8															
Tunnel Fan Group 9															
Tunnel Fan Group 10															
Tunnel Fan Group 11															
Tunnel Fan Group 12															
Tunnel Fan Group 13															
Tunnel Fan Group 14															
Tunnel Fan Group 15															
Tunnel Fan Group 16															
# OF GROUPS PER CYCLE															
GROUP SELECTION SWITCHES EVERY ___ CYCLE															

Relay Assignment Worksheet

Rel.	Relay function				
	Prog. 1	Prog. 2	Prog. 3	Prog. 4	Prog. 5
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					

Relay Assignment Worksheet...

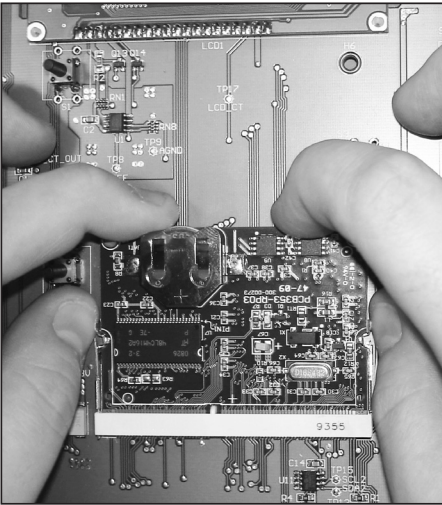
Rel.	Relay function				
	Prog. 1	Prog. 2	Prog. 3	Prog. 4	Prog. 5
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					

ANNEX 1: CORE CARD

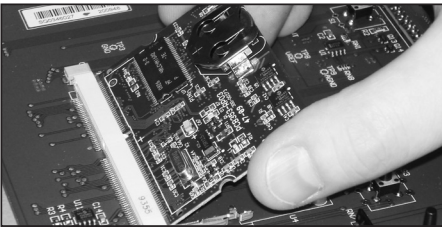
Removing a Core Card:

! *Before proceeding, switch power off at service panel and lock the switch disconnecting means to prevent power from being switched accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.*

1. Use your thumbs to move away the two metal arms that are retaining the card. While doing so, lift the card upwards with your index fingers.



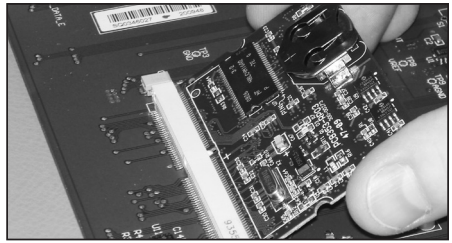
2. Pull the card out of its connector.



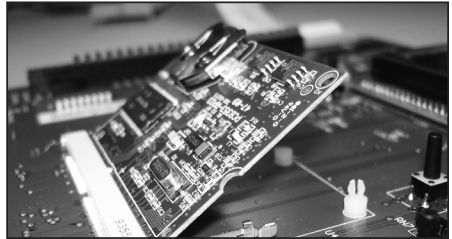
Inserting a Core Card:

! *Before proceeding, switch power off at service panel and lock the switch disconnecting means to prevent power from being switched accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.*

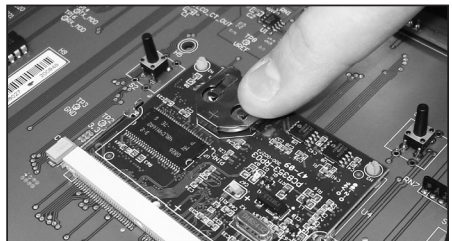
1. Give the card a 45-degree angle before inserting it in the connector.



2. Once it is inserted, the card will stand at the 45-degree position.



3. Push down the card and make it clip to the main board.



15. INDEX**A**

Age see Animals

Alarms 22

Alarm conditions 22

Alarm limits 25

Alarm log 22

Lo pressure alarm

Relay assignment 21

Animals

Culled

Entering culls 57–58

History 56

Information 57

Mortality

Entering new mortalities 57

History 56

Starting a new flock 57

Assignment

Probe assignment

Principle of operation 15–16

Settings 15–16

Relay assignment 21

Attic

Attic T° sensor

Activation 14

Sensor assignment 16

Operation & settings 43, 45

B

Backup box

Relay assignment 21

Backup see Memory card

Backup thermostat

Warning message 22, 55

Birds see Animals

Breaker

Hi temperature alarm limit 25

Probe assignment 15, 16

Temperature monitoring activation 14

Buttons 9

C

Calibration

Probe calibration 16

Water meter's calibration 16

Card

Memory card 60

Clean Mode see also Empty zones

Principle of operation 27

Settings 27

Clock

Setting the time and date 11

Clock outputs

Operation & settings 54

Relay assignment 21

Selecting the number of clock outputs 13

Compensation

Humidity comp. see Relative humidity

Conditions 55

Configuration module see Memory Card

Connections 8, 9

Contrast (LCD screen) 9

Controller

Features 7

Installation setup 13

Location of the controls 9

Mounting instructions 8

Program version 28

Safety backup see Memory card

Technical specifications 59

Cooling

Timer relays on fan groups

see Fan/tunnel fan groups

Cooling outputs

Activation 13

Principle of operation 47

Probe assignment 15, 16

Relay assignment 21

RH Compensation see Relative humidity

Settings 47

Culled animals see Animals

Curtains see Tunnel curtain

Curves see Ramping

D

Date

Setting the time and date 11

Deaths see Animals

Degrees (°C or °F) 15

Display

Status leds 10

E

- Electrical specifications 59
- Empty zones
 - Alarms 24–26
 - Heaters' start/stop T° 51
 - Principle of operation 27
 - Set point 29

F

- Fan / Tunnel fan groups
 - Activation 13
 - Fan cycling in minimum ventilation
 - Principle of operation 35
 - Settings 35
 - Operation 36
 - Relay assignment 21
 - Settings 37
 - Timer relays
 - Activation 21
 - Principle of operation 20, 36
 - Timer settings 37
 - Tunnel probes
 - Activation 42
 - Principle of operation 36
 - Probe selection 15, 16
- Fire see Heaters

G

- Groups see Fan / Tunnel fan groups

H

- Heaters
 - Activation 13
 - Lo/Hi fire
 - Activation 13
 - Operation & Settings 50–51
 - Operation & Settings 50–51
 - Probe assignment 15, 16
 - Relay assignment 21
 - RH compensation see Relative humidity 17
 - Run times 56
- Hi/Lo Fire see Heaters
- History 56
- House set point see Temperatures
- House temperature see T°
- Humidity see Relative humidity

I

- Inputs 7, 13
- Installation
 - Installation setup 13

K

- Keys 9

L

- LCD screen
 - Contrast adjustment 9
 - Location 9
- Leds
 - Led display 14
 - Status leds 9, 10
- Lights
 - Current intensity 55
 - Peaks 51–52
 - Principle of operation 51
 - Relay assignment 21
 - Settings 51–53
- Logs see also History
 - Alarm log 22

M

- Main breaker see Breaker
- Measuring units 13, 15
- Memory card 60
- Minimum ventilation
 - Attic comp. in min vent. 45
 - Current values 55
 - Night ramping
 - Activation 14
 - Settings 34, 35
 - Principle of operation 32
 - Settings 32
- Mists see Cooling
- Mortality see Animals
- Mounting instructions 8

N

- Night settings see Minimum ventilation

O

Outputs

List of outputs 7

Outside temperature see Temperature

P

Password 11

Peaks see Light

Pressure see Static Pressure

Probe

Connection 9

Extension 9

Probes

Calibration 16

Humidity probe see Relative humidity

Outside temperature probe see Temperature

Probe assignment

Principle of operation 15–16

Settings 15–16

Static pressure probe see Static Pressure

Temperature probes

Activation 13

Assignment 15–16

Tunnel probe set

Probe assignment 16

Tunnel probe set see Tunnel

Programs

Activation 13

Copy / paste a program configuration 12

Program selection 12

Program version (controller's) 28

R

Ramping

Critical alarm limit ramp

Principle of operation 23

Settings 26

House Set Point Ramping

Settings 30

Minimum ventilation's On Time ramping

Operation 33

Settings 33

Relative humidity (RH)

Activating the RH probe 14

History 56

RH Compensation

Activation 18

Principle of operation 17–18

Settings 19

RH sensor

Calibration 16

Set point 19

Relays

Number of relays selection 14

Relay assignment 20

Relay panels 20

Timer relays

Activation 21

Principle of operation 20, 36

Settings 37

Room temperature see Temperature

RP-32 14

S

Safety backup see Memory card

Screens (LED & LCD) 9

Seasons

Winter/Summer's temperatures 31

Set point see Temperature

Setup

Installation setup 13

Sidewall vents

see Vent doors

Simulation see Test mode

Static pressure (SP)

Activating the SP probe 14

Current pressure level 55

History 56

Pressure alarms

Lo SP alarm relay 21

Principle of operation 24

Settings 25, 26

SP Probe

Calibration 16

SP units ("WC or Pa) 15

Static pressure limits 42, 44, 46

Stick see Memory card

Stir fans

Activation 13

Operation & settings 49

Summer see Seasons

Symbols

Symbols of the manual 6

T

Technical specifications 59

Temperature

House Temperature

Current average house T° 55

History 56

Probe assignment 15–16, 16

Outside temperature

Activating the outside T° probe 14

Current reading 55

History 56

Seasonal temperature references 31

Set Point

Current set point 55

Operation & settings 29

Temperature alarms

Principle of operation 23

Settings 25

Temperature probes

Current readings 55

History 55

Probe assignment 15–16

Temperature units (°C or °F) 15

Test mode 28

Time

Setting the time and date 11

Time units: AM/PM or 24H 15

Transfer (configuration) 60

Transfer error 61

Tunnel

Tunnel probes

Activation 42

Principle of operation 36

Probe selection 15, 16

Tunnel ventilation

Principle of operation 39–40

Tunnel curtain

Based on the house T°

Activation 14

Principle of operation 39

Settings 41

Based on the pressure level

Principle of operation 40

Settings 41

Static pressure limits 42

Relay assignment 21

Static pressure alarm

Principle of operation 24

Settings 25

Tunnel fans see Fan groups

U

Units 13, 15

V

Vent doors

Activation 14

Principle of operation 43

Relay assignment 21

Settings 43

Static pressure alarm

Principle of operation 24

Settings 25

Static pressure limits 44, 46

Ventilation

Fans see Fans/tunnel fan groups

Min. ventilation see Minimum ventilation

Stir fans see Stir fans

Tunnel ventilation see Tunnel

Version 28

W

Warning message 22, 55

Water meter

Activation 14

Calibration 16

Water consumption

Current reading 55

History 56

Water's measuring units (lit./gal) 15

Water spill alarm 24–26

Winter see Seasons

Wiring 8

