



**LIGHT**



## **Installation / User's Guide**

**ATTENTION ELECTRICIAN**  
SEE WIRING DETAILS ON PAGES A-3 TO A-14 AND  
ADDITIONAL INFORMATION IN SECTION B

WIRING DIAGRAM

**SECTION A**

INSTALLATION GUIDE

**SECTION B**

USER'S GUIDE

**SECTION C**

INDEX / WARRANTY

**SECTION D**

**WIRING DIAGRAM****WARNINGS AND PRECAUTIONS**

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

**WARNINGS AND PRECAUTIONS**

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

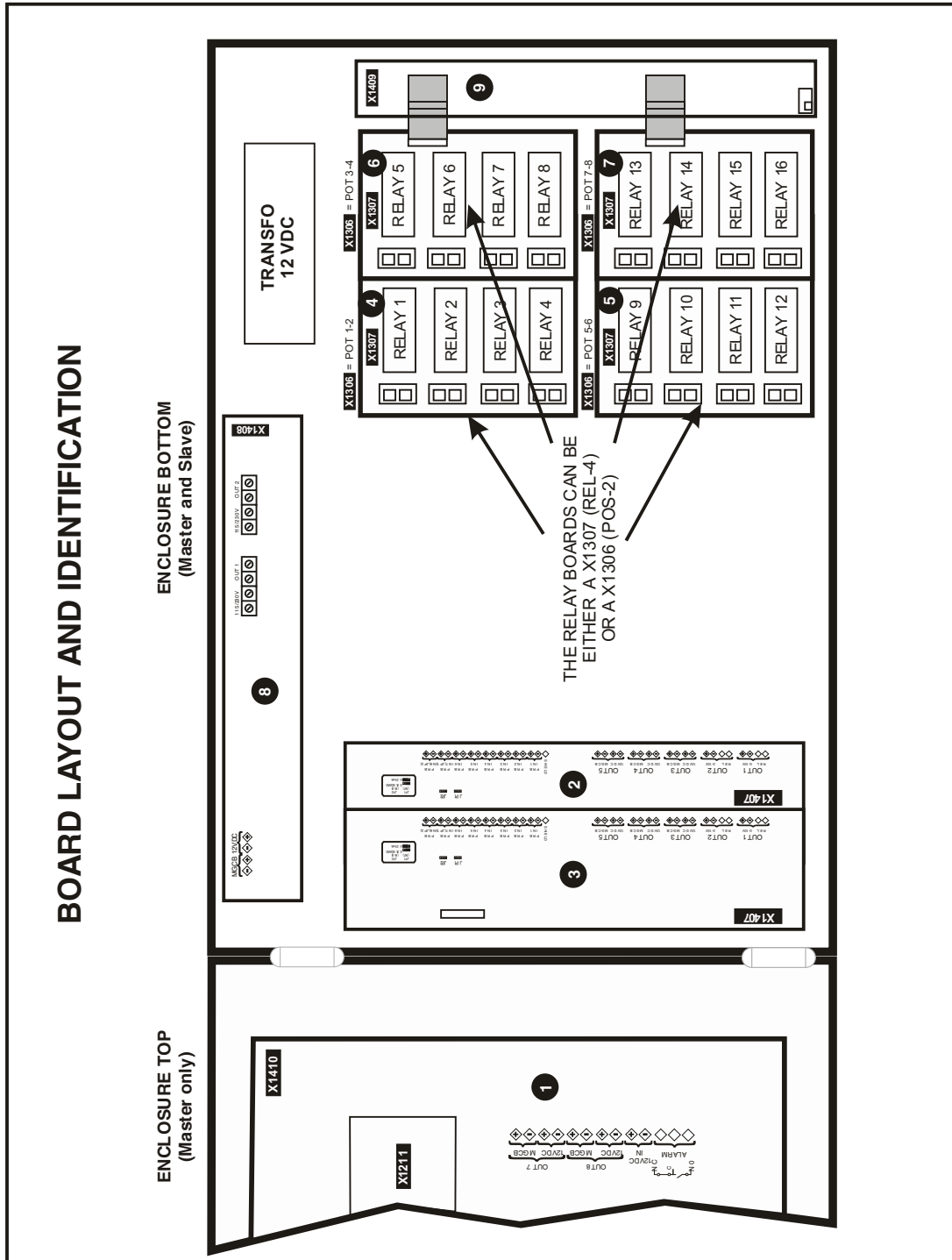
**RECOMMENDATIONS**

The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Furthermore the manufacturer recommends testing all the functions and equipment connected to the controller, including the alarm system and backup devices, after installation, after changes to the installation and every month after that.

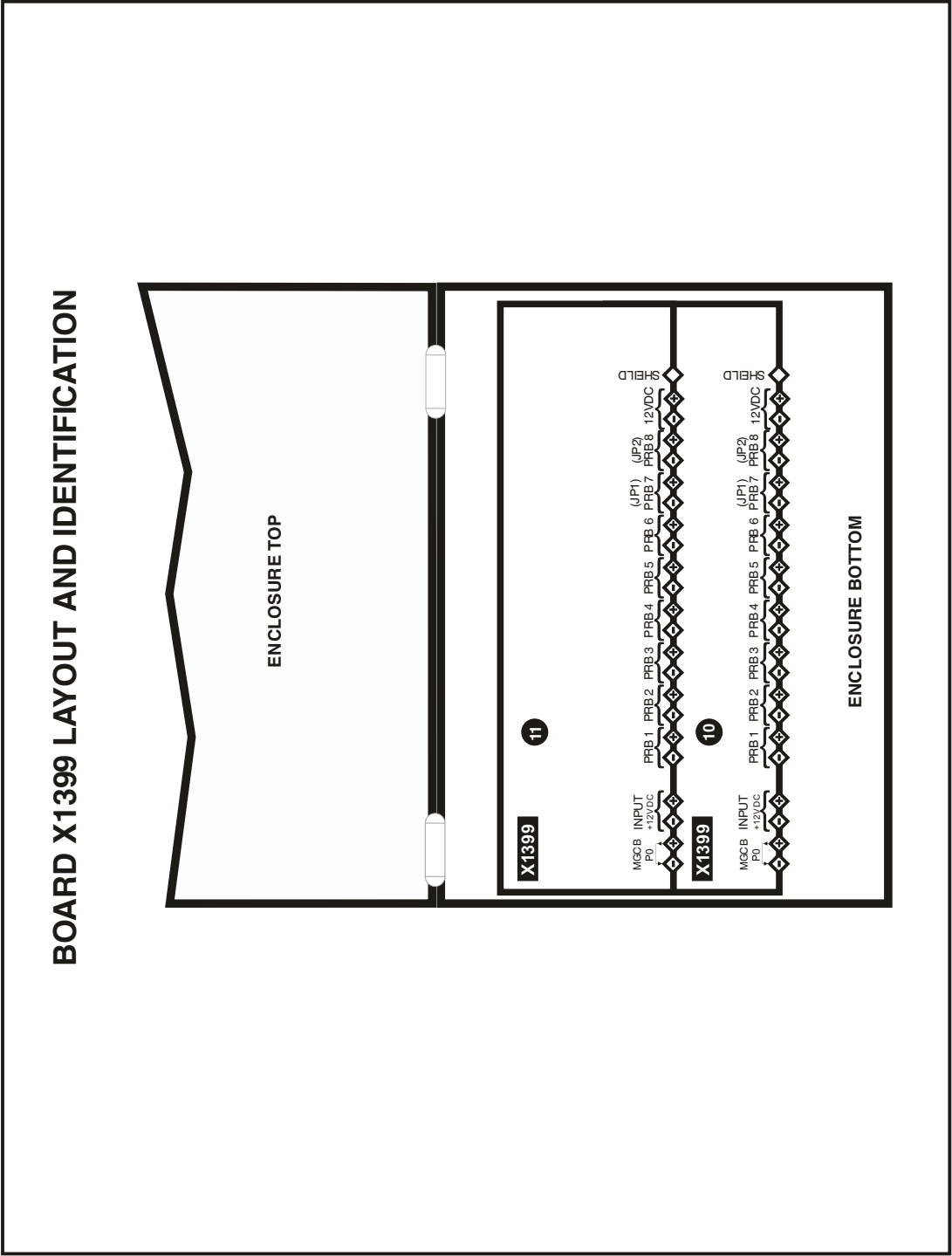
Fuse verification and replacement, as well as the proper setting of control values shall be the responsibility of the owner of this equipment.

# WIRING DIAGRAM SECTION A

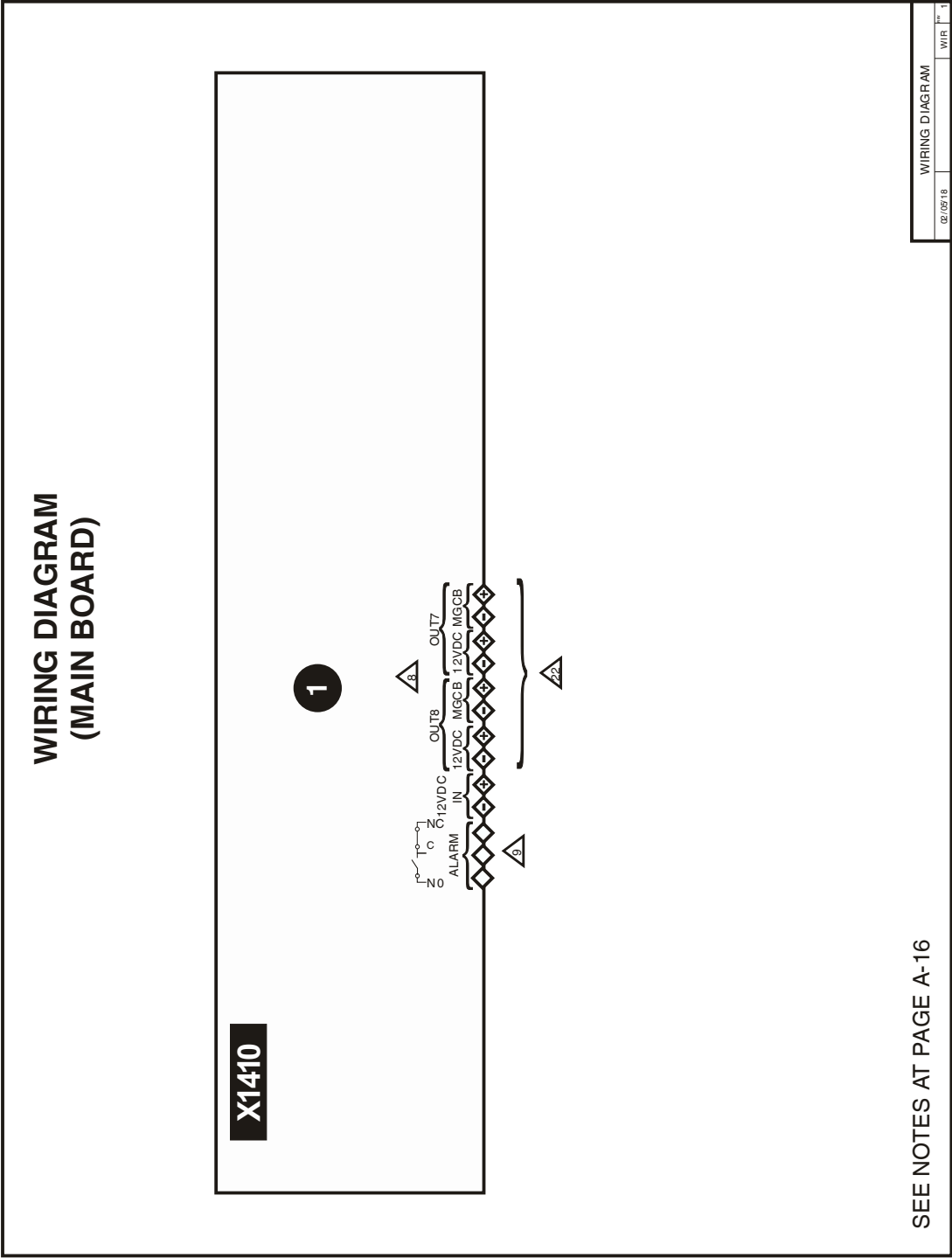
# WIRING DIAGRAM

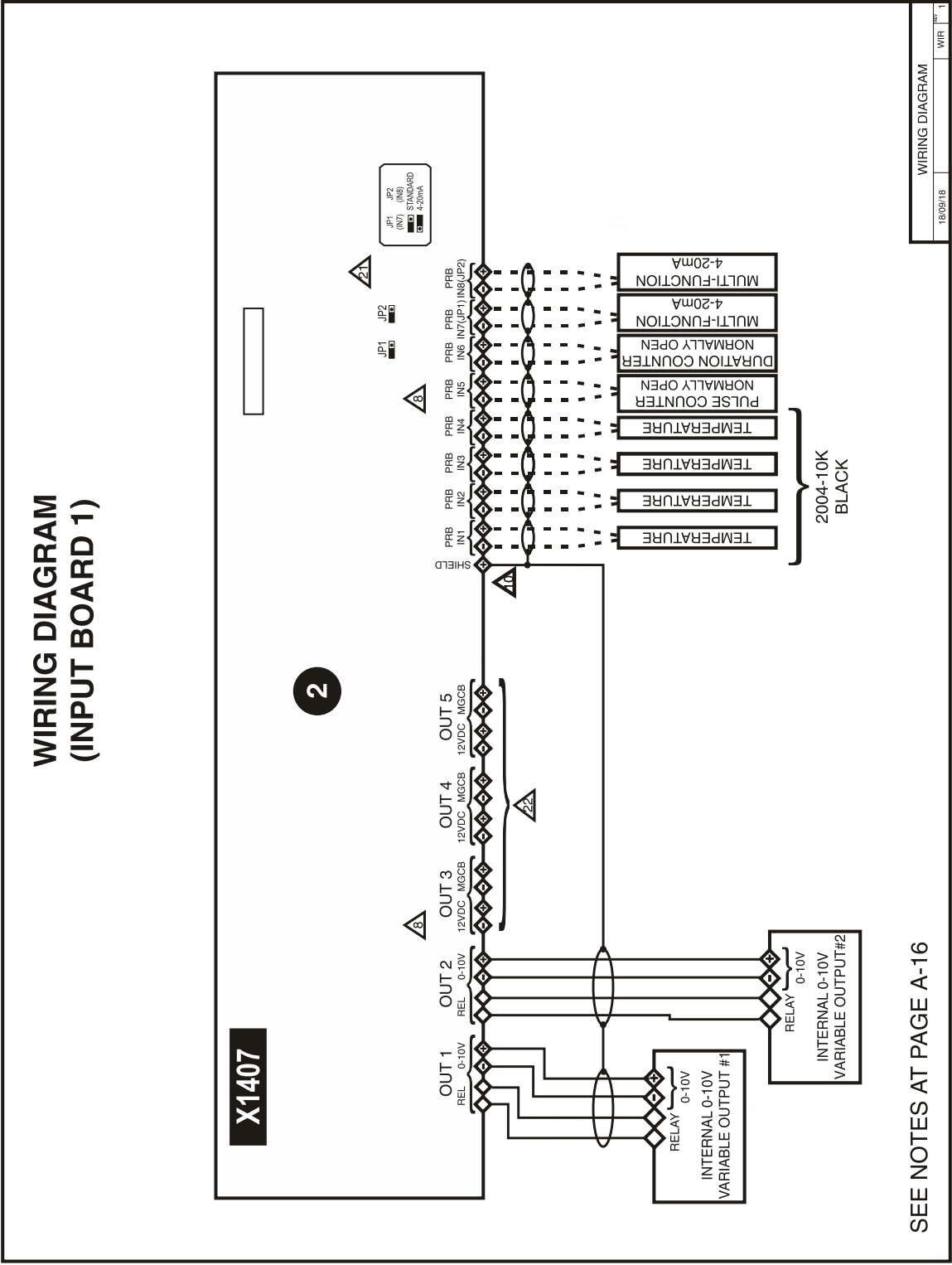


\* Some board might not be present according to your setup.

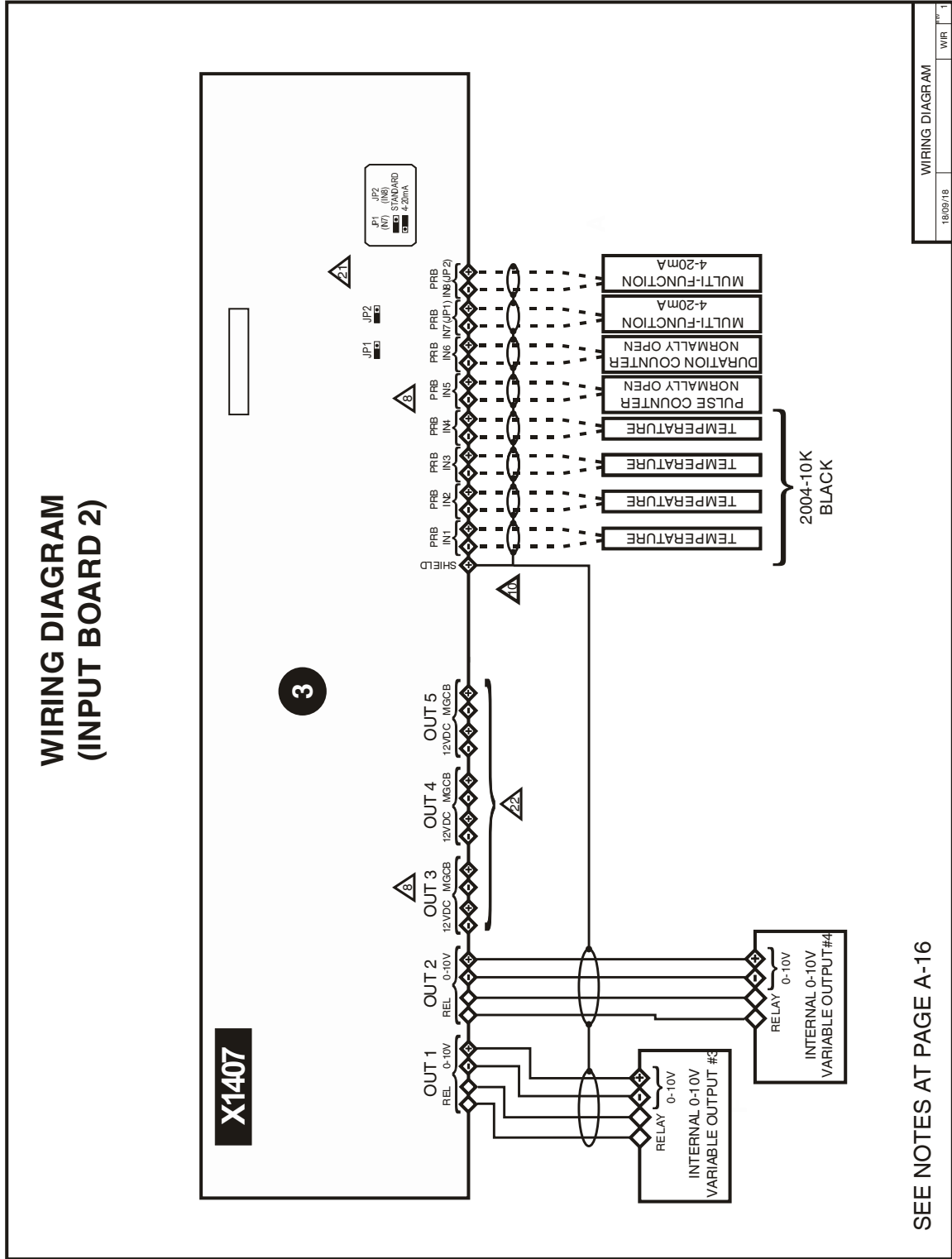


WIRING DIAGRAM





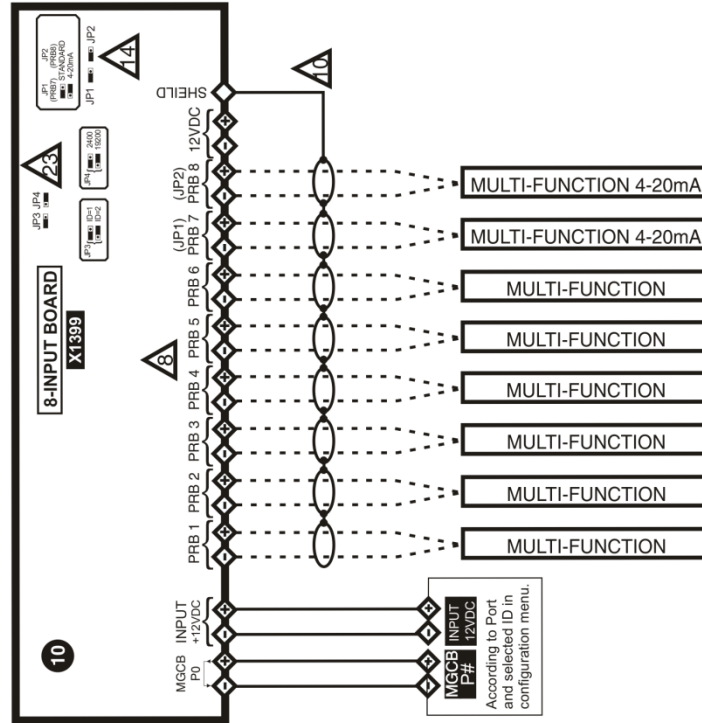
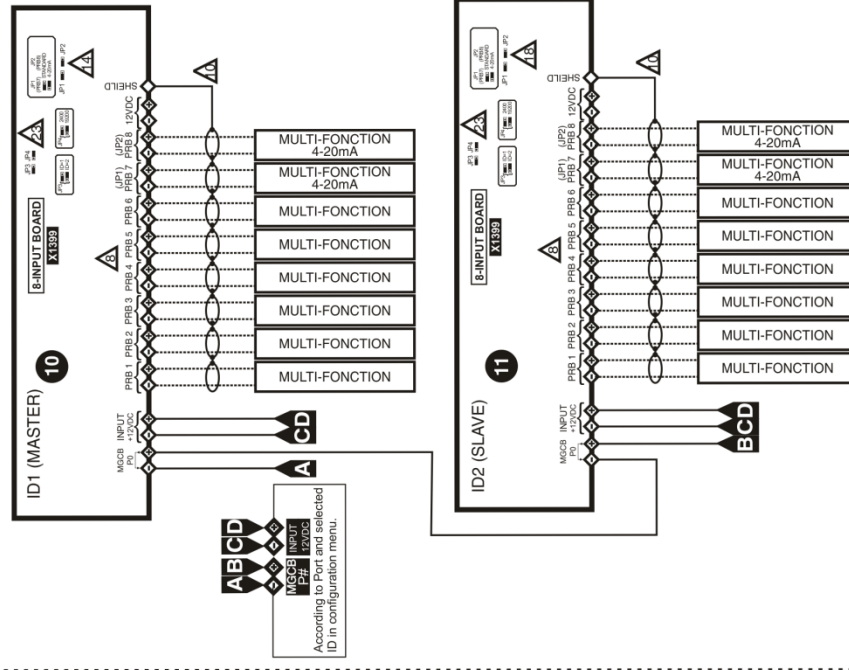
WIRING DIAGRAM





# WIRING DIAGRAM (8-INPUT BOARD)

2 Modules per port



SEE NOTES AT PAGE A-16

WIRING DIAGRAM  
02/05/18  
WIR 1

## WIRING DIAGRAM (HUMIDITY PROBE HUM-3 AND TOGGLE SWITCHES MODULE RP16)



1 module per port

ID2  
(SLAVE)ID1  
(MASTER)

SEE NOTES AT PAGE A-16

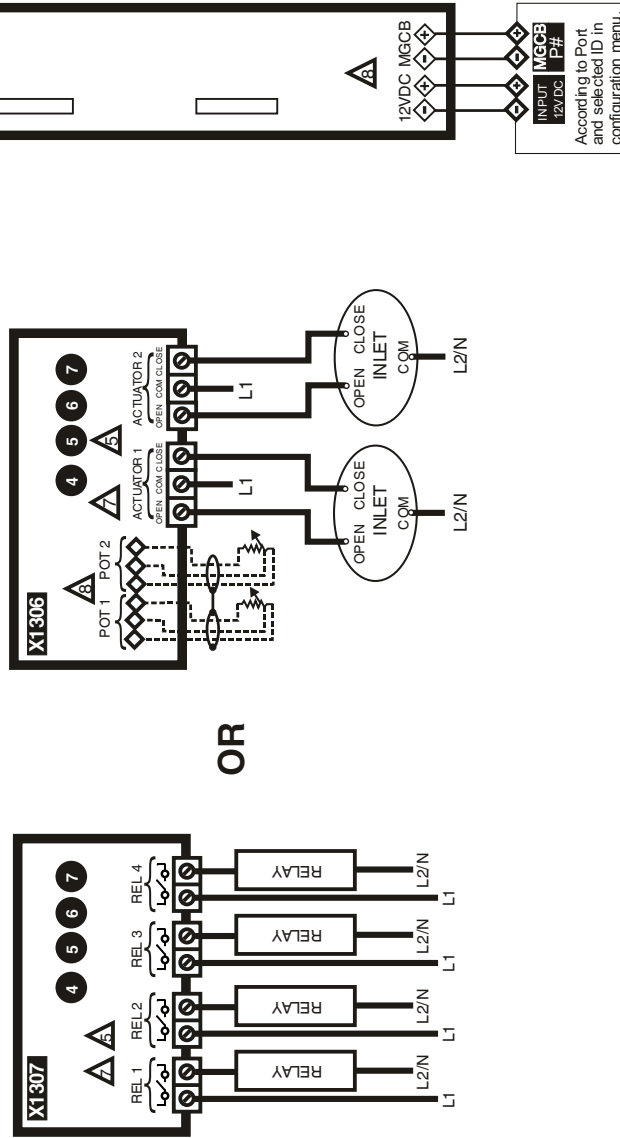
WIRING DIAGRAM		
02/05/18		WIR 1

## SEE NOTES AT PAGE A-16



WIRING DIAGRAM

WIRING DIAGRAM  
(X1409, RELAY BOARD X1307 AIR INLET X1306)



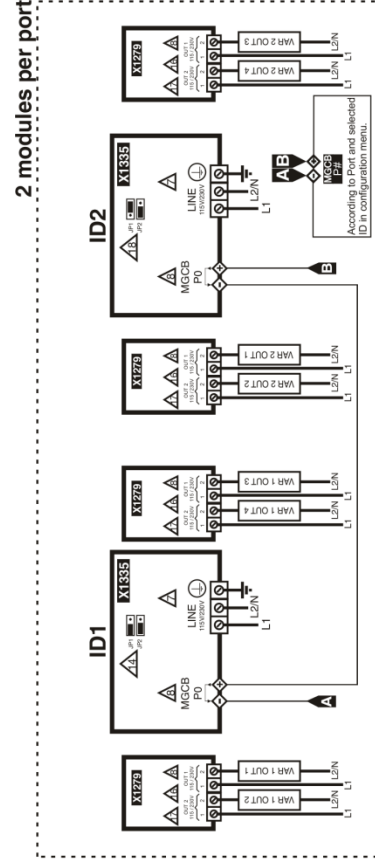
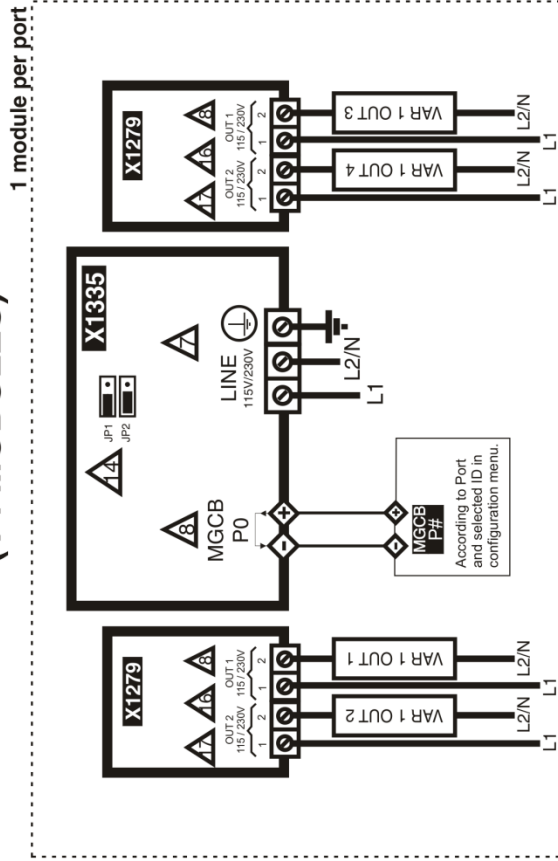
SEE NOTES AT PAGE A-16

## SEE NOTES AT PAGE A-16

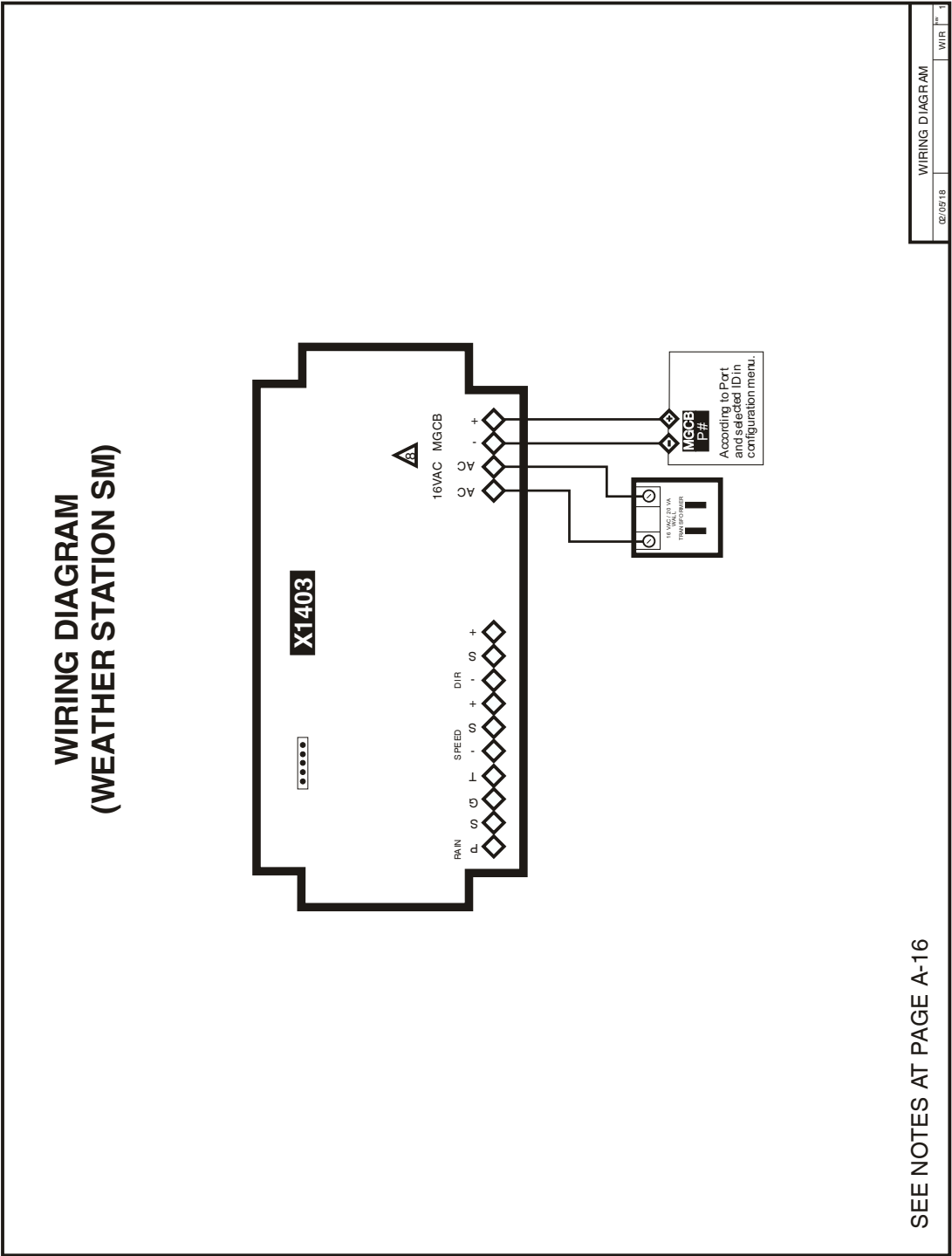


# WIRING DIAGRAM

## WIRING DIAGRAM (V4 MODULES)



SEE NOTES AT PAGE A-16



# WIRING DIAGRAM

## ELECTRICIAN'S NOTES

- 1 ----- (PROBE WIRING) SHIELDED WIRE AWG #22 WITH 16/30 STRANDING, 500ft (150m) MAXIMUM LENGTH (Ex.: DECA 73-310).  
For other probe, refer to specific probe manual for appropriate maximum length and wire size or use AWG #22, 500ft (150m) MAXIMUM LENGTH.
- 2 ——— (COMMUNICATION WIRING) SHIELDED, TWISTED PAIR (8 TWIST/FT). MAX LENGTH FOR 350PF/M CABLE : 500FT (150M). MAX LENGTH FOR 89PF/M CABLE : 820FT (250M).
- 3 ——— HIGH VOLTAGE WIRE INSTALLED ACCORDING TO LOCAL WIRING CODE.
- 4 INSTALL LOW VOLTAGE WIRES (PROBES, COMPUTER LINK OR POTENTIOMETER WIRES) AT LEAST 12 INCHES (30cm) AWAY FROM HIGH VOLTAGE WIRES (120/230VAC, 24VDC). ALWAYS CROSS HIGH AND LOW VOLTAGE WIRES AT A 90-DEGREE ANGLE.
- 5 RELAYS : 10A @250 VAC RESISTIVE, MOTOR 1HP @250 VAC, 1/2HP 120 VAC AT EACH OUTPUT.
- 6 TRIAC : THE CURRENT SHALL NOT EXCEED 8A AT EACH OUTPUT.
- 7 MAXIMUM 2 WIRES OF SAME SIZE PER BLACK TERMINAL, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #22.
- 8 1 WIRE ONLY PER GREEN TERMINAL. USE WIRE CONNECTOR IF YOU WANT TO CONNECT MORE THAN 1 WIRE, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #28.
- 9 CHECK INSTALLATION SECTION FOR ALARM WIRING.
- 10 USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT 1 END AND 1 END ONLY OF THE SHIELD TO THE CONTROL CIRCUIT COMMON END⊕. NEVER LEAVE BOTH ENDS OF THE SHIELD UNCONNECTED. NEVER CONNECT BOTH ENDS OF THE SHIELD TO COMMON⊕. THE USE OF A SHIELD FOR ALL PROBES AND POTENTIOMETERS IS MANDATORY.
- 11 JP1 – JUMPER MUST BE INSTALLED ON PIN 1-2 =ID1.
- 12 VARIABLE BOARDS REQUIRES THE SAME PHASE AND VOLTAGE AS THE POWER SUPPLY.
- 13 THE CURRENT SHALL NOT EXCEED 8A (FAN) OR 10A (LIGHTS) AT EACH OUTPUT (OUT 1-2).
- 14 JP1 – JUMPER MUST BE INSTALLED ON PIN 1-2 = ID-1 AND  
JP2 – JUMPER MUST BE INSTALLED ON PIN 1-2 = 19200bps.
- 15 JP1 – JUMPER MUST BE INSTALLED ON PIN 2-3 = ID-2



16

VARIABLE BOARD (X1279) OF THE ET-V4 MODULE REQUIRES THE SAME PHASE AND VOLTAGE AS THE MODULE MAIN BOARD (X1335).

17

THE CURRENT SHALL NOT EXCEED 10A (FAN) OR 15A (LIGHTS) AT EACH OUTPUT (OUT 1-2).

18

JP1 – JUMPER MUST BE INSTALLED ON PIN 2-3 = ID-2 AND  
JP2 – JUMPER MUST BE INSTALLED ON PIN 1-2 = 19200bps.

19

JP2 – JUMPER MUST BE INSTALLED ON PIN 2-3 = ID-2 AND  
JP3 – JUMPER MUST BE INSTALLED ON PIN 2-3 = 19200bps.

20

JP2 – JUMPER MUST BE INSTALLED ON PIN 1-2 = ID-1 AND  
JP3 – JUMPER MUST BE INSTALLED ON PIN 2-3 = 19200bps.

21

JP1 - JUMPER MUST BE INSTALLED ON PIN 1-2 = STANDARD AND  
JP2 - JUMPER MUST BE INSTALLED ON PIN 1-2 = STANDARD

MODULE AS ADJUSTMENT "PORT ID AND COMMUNICATION" IN THE SETUP MENU,

23

JUMPER JP3 OR JP4 MUST BE SET TO POSITION 2-3 (4-20Ma), OTHERWISE, JUMPER JP3 OR JP4 MUST BE INSTALLED ON POSITION 1-2 (STANDARD).

# INSTALLATION SECTION B

This section will inform the electrician on proper wiring and installation procedures for the controller.

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

### Unpacking

Unpack the controller and inspect contents for damage. Should the contents appear to be damaged, contact your local distributor to return the equipment.

The package should contain the following standard items:

- 1 Controller
- 4 Brackets / 4 Screws
- 1 Installation / User's Guide

### Mounting hardware required

This is the list of the mounting hardware needed, which is not included with the product:

- Shielded two-wire cable, AWG #22 (to extend probes)
- Shielded two-wire twisted pair cable, AWG #22 (used for communication) see electrician note for capacitance selection.
- 4 screws (to hang the unit onto the wall)
- Screwdrivers
- Soldering iron kit or approved sealed connectors
- Drill and hole saw kit

### General installation guidelines

#### Controller

- It is recommended to install the unit in a hallway to limit the controller exposure to noxious gases.
- In order to avoid condensation problems inside the controller, it is recommended to install the controller on an inside wall. If it is not possible, use spacers to have an air gap between the wall and the controller.
- It is required to install the controller right side up with the cable entry holes facing down.
- The enclosure is watertight, but do not spray water or submerge the controller in water. Cover it carefully with plastic when cleaning the room.
- The controller should be installed in easy-access location but away from damaging elements (heat, cold, water, direct sunlight, ...).
- Do not drill the face, the side, the top or the underside of the control.
- Do not install the controller near high-voltage equipment, power supply or transformer.

#### Electrical cables

- All electrical cables must be installed according to local wiring codes.
- All cable shields must be connected to the shield terminal on the cord to which the cable is connected, except for the cable connected to the optional PC interface. The shield is needed to protect the controller and the modules against any electromagnetic interference generated by lightning or nearby operating machinery.
- Never use the shield as a conductor.
- Connect only one end of the shield to the controller.
- Use separate conduits for the low voltage cables (communication and probes) and the high voltage cables. There must be at least 1 foot (30 cm) between low-voltage and high-voltage conduits.
- If a low voltage cable has to cross over a high voltage cable, make this crossing at 90°.
- All cable connections must be soldered or done with approved sealed connectors.
- Probe cables must be 500' (150m) or less.
- Communication cables must be 820' (250m) or less.
- It is prohibited to use overhead cables outside the building.

#### Electrical power

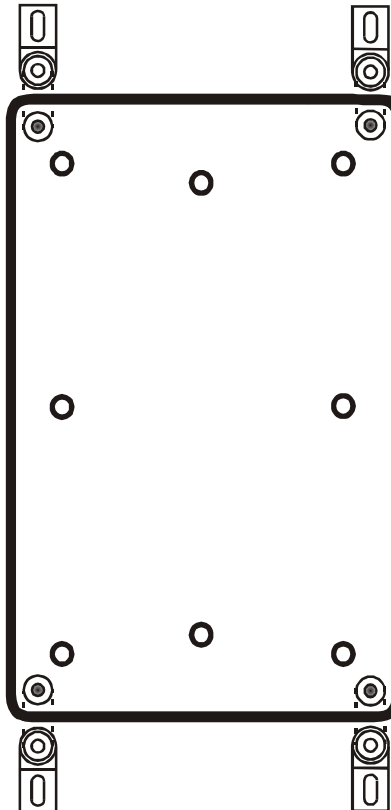
- Protection from electrical surges should be included in the planning of each installation.
- Every module should have a separate breaker to avoid unwanted consequences.
- It is strongly recommended to have a backup power source to ensure life-sustaining conditions in case of power failure (see figure 2).
- It is also strongly recommended to install a backup thermostat system parallel to the controller module output (see figures 3 and 4) to supply sufficient airflow and heating.

- The backup system and alarm must be thoroughly tested and verified as working properly before using the ventilation system.

## Mounting

- The enclosure must be mounted in a location that will allow the cover to be completely opened.
- Fasten the four brackets to the four mounting holes on the back of the enclosure using the four screws provided with the brackets.
- Then mount the enclosure on the wall by inserting screws through the brackets' adjustment slots, into the wall. Make sure to position the enclosure so that all wires extend out of the bottom section of the enclosure.
- The bracket slots serve to adjust the position of the controller.
- Once you have adjusted the controller position, tighten the four mounting screws. (see figure 1).

FIGURE NO. 1 Mounting Position and Devices



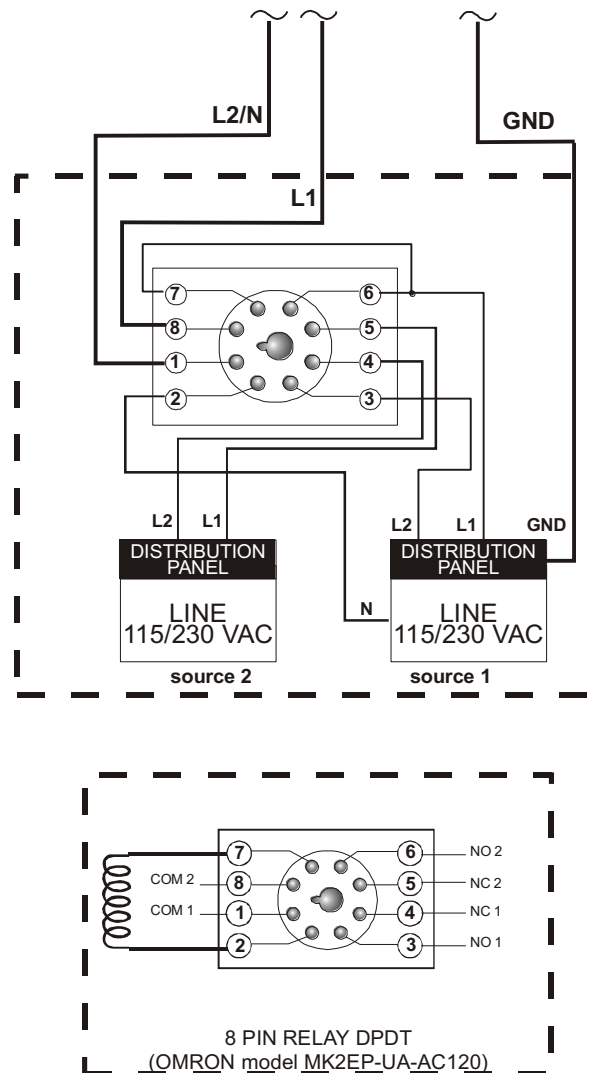
## Connection procedure

### Detailed wiring diagrams

#### Typical Power Backup Wiring

A backup relay (DPDT) is connected to the power source 1 in normal operation but will switch to the power source 2 if source 1 is disabled. The backup relay should be selected to ensure it is able to support the required power load.

FIGURE NO. 2 Typical Power Backup Wiring



Typical Backup Thermostat Wiring

If the controller or a module fails, the backup thermostats will activate the dedicated fan or heater as soon as temperature reaches the set point of the thermostat. The thermostat must be accessible for adjustment and must be set at 3 to 5 degrees above the fan's set point or 3 to 5 degrees under the heater set point.

FIGURE NO. 3 Typical Backup Thermostat Wiring on ON/OFF Stage

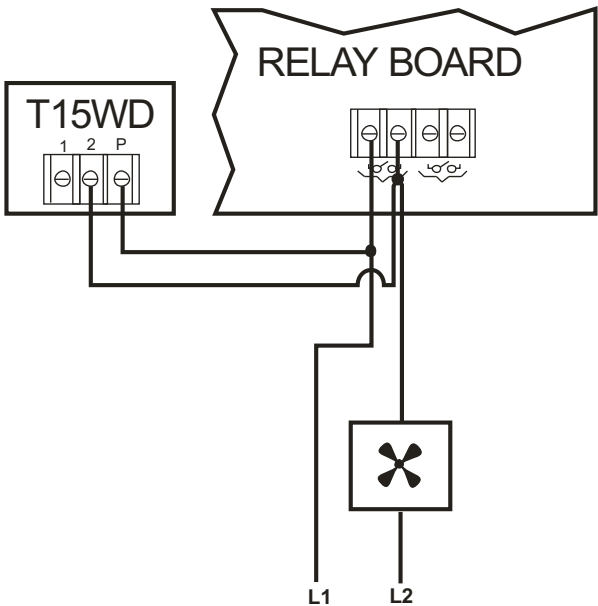
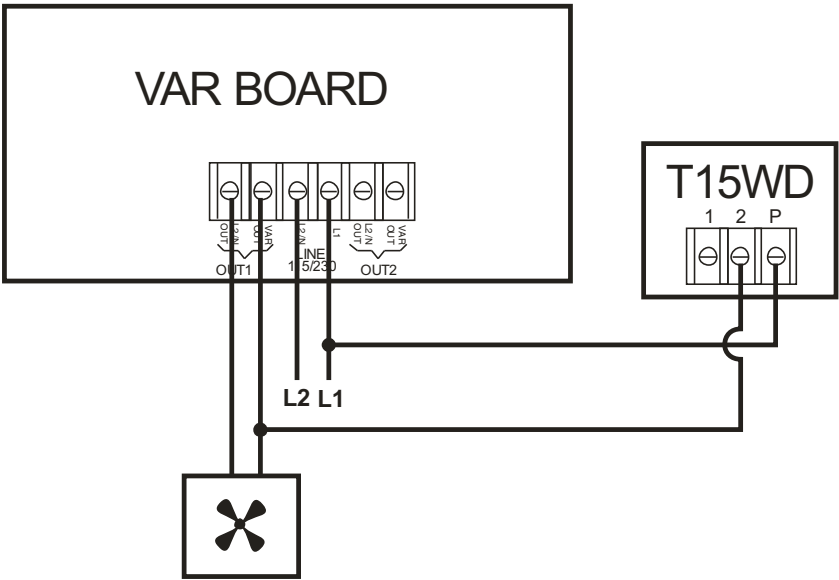


FIGURE NO. 4 Typical Backup Thermostat Wiring on Variable Stage



## INSTALLATION

### Typical Alarm Connection Wiring

The controller provides a normally open and normally closed dry contact to set off an alarm in case low or high temperature condition occurs. Moreover, this same contact can be used to signal a power failure or other malfunctions. It may be connected to an alarm system or directly to a siren and/or auto-dialer.

Make the normally closed (NC) or normally open (NO) connections as indicated in figures 5 and 6.

The relay will activate about 30 seconds after an alarm is triggered.

FIGURE NO. 5 Typical Alarm Connection Wiring

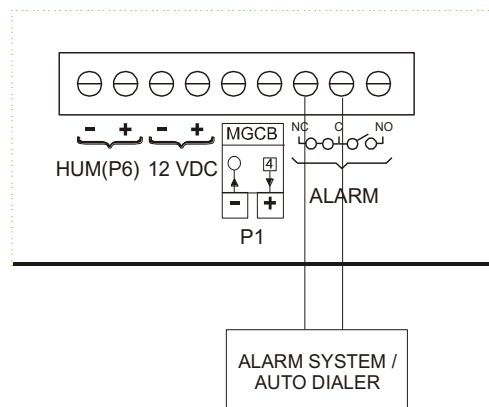
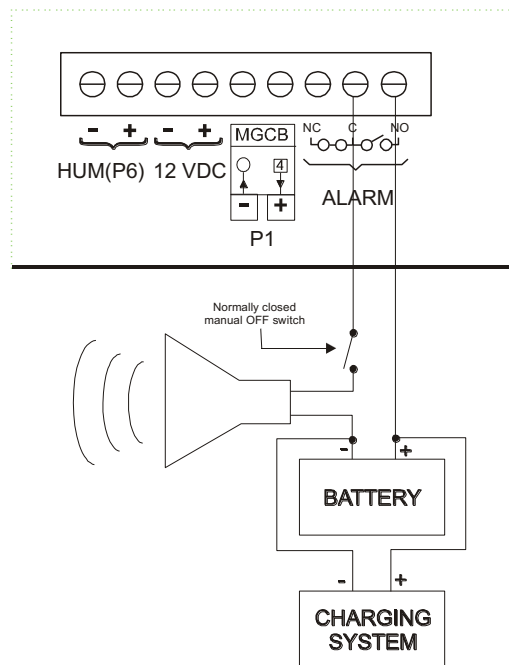


FIGURE NO. 6 Siren Connection Wiring

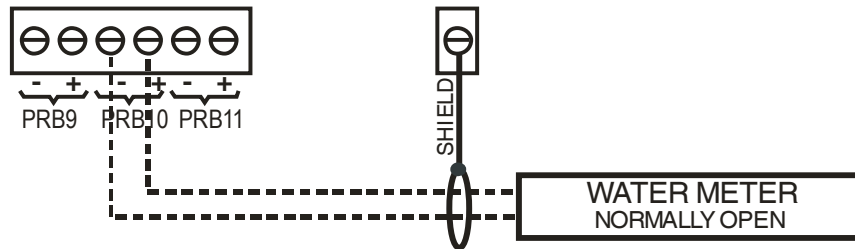




## Typical Water Meter Wiring

This function allows the user to measure the amount of consumed water measured in pulses by the water meter (Example: Kent model C-700 water meter with B-Pulser interface). The water meter interface must have a N.O. contact.

FIGURE NO. 5 Typical Water Meter Wiring



### Powering up procedure

Once the controller is properly mounted on the wall and all modules and sensors are connected to the terminal block, perform the following steps:

#### Verify all connections

Seal all cable entry holes.

#### Hermetically close the controller

Close the front panel and the lower access cover.

#### Put the power on

#### Secure the front panel with a lock

### Controller compatible probes

This is the list of all compatible probes that can be connected with the controller and a short description of their function.

- **Temperature probe 2004-10K (black cap)**

Temperature probe with a temperature range of -58.0 to 140.0 °F (-50.0 to 60.0 °C).

- **Relative humidity probe ET-HUM3**

Relative humidity probe with a measuring range of 0 to 100 RH% (red connector).

### Controller compatible modules

This is the list of all the compatible modules that can be connected with the controller with a short description of their function.

Variable module

- **ET-V4** (4 variable outputs)
- **ET-MS10** (2 0-10volt outputs)

Slave module

- **ET-SL16** (Add up to 16 relays and 4 variable outputs )

Toggle switches module

- **ET-RP16** (16 toggle switches module)

Weather station module

- **ET-SM** (Weather station module)

Computer interface

- **RF-IN2 Communication Module** (Module inserted into the controller for a wireless communication with the computer interface)

## Specifications

<b>CONTROLLER</b>	
Storage temperature	-20°C to 55°C (-4°F to 131°F)
Operating temperature	0°C to 50°C (32°F to 122°F)
Humidity	90% maximum Non-condensing
<b>NORMS</b>	CSA (NRTL/C)
Weight	5.4 kg (12.0 lb)
Size	29.2 cm x 15.2 cm x 17.7 cm (11 ½" x 6" x 7")
Protection index	IP 66
Warranty	2 years
<b>POWER SUPPLY</b>	
Operational voltage range	90 to 250 VAC
Operational frequency range	45 to 65 Hz
Power supply circuit consumption (CPU Board)	65 W maximum
<b>INPUT BOARD (X1407)</b>	
<b>PROBE INPUTS</b>	
Input measuring range	0 Ohm, open circuit 0-5000 mV 0-20 mA (IN 7 and 8)
Maximum frequency for the water meter (50% cycle)	4 Hz
Maximum wire length	150 m (500 feet)
Recommended wires	2 strands, shielded, AWG #22
<b>12 VDC SOURCE (12VDC)</b>	
Maximum current allowed	100 mA
<b>COMMUNICATIONS PORTS (OUT 3 TO OUT 5)</b>	
Maximum wire length (2400 bps)	250 m (820 feet)
Maximum wire length (19200 bps)	2 m (6.5 feet)
Recommended wire	2 strands, twisted pair, low capacity, shielded, AWG #22
<b>0-10V OUTPUT (0-10V OUTPUT 1 AND 0-10V OUTPUT 2)</b>	
Output	0-10Volts, 2% precision
Maximum load	10mA
Maximum wire length	30 m (100 feet)
Recommended wire	2 strands, shielded, AWG #22
Relay	Dry contact, normally open, 1A at 230V
<b>MASTER BOARD (X1410)</b>	
<b>COMMUNICATIONS PORTS (OUT 7 AND OUT 8)</b>	
Maximum wire length (2400 bps)	250 m (820 feet)

## INSTALLATION

Maximum wire length (19200 bps)	2 m (6.5 feet)
Recommended wire	2 strands, twisted pair, low capacity, shielded, AWG #22
<b><i>ALARM RELAY (ALARM)</i></b>	
Maximum current	1 A at 30 VDC
Delay before switching	30 seconds (approximate)
Fuse	1A 250VAC
<b>RELAY/INLET BOARD (X1307 AND X1306)</b>	
<b><i>OUTPUT RELAYS</i></b>	
Maximum Current	1HP @ 240VAC, 1/2HP @ 120VAC 10A@240VAC resistive
Caution Notice	These relays are rated by UL and CSA at 10A or 1HP. However, for outputs requiring frequent activation (ex : minimum ventilation fans working on a timer) it is recommended not to use more than 1/2HP per relay (at 250 VAC)
<b><i>INLET POTENTIOMETER (POT 1 AND POT 2)</i></b>	
Inlet potentiometer	0-10K ohms
Maximum wire length	150 m (500 feet)
Recommended wire	3 strands, shielded, AWG #22
<b>VAR. BOARD (X1408)</b>	
<b><i>TRIAC OUTPUT</i></b>	
Maximum Allowable Current (Fuse value)	10A, 120 / 208 / 240VAC
Recommended maximum current for incandescent lighting	10A, 120 / 208 / 240VAC
Recommended maximum current for fans	8A, 120 / 208 / 240VAC

### Important Notice:

- It is important to have a backup system in case of a system failure.
- Low-voltage and high-voltage wires must be passed through different conduits at least 1 foot (30 cm) apart. If low-voltage and high-voltage conduits must be crossed, the crossing must be at a 90-degree angle.
- All wiring must be made by a certified electrician and conform to local electrical regulations.

# **USER'S GUIDE SECTION C**

## GLOSSARY

Throughout this document, the following terminology is used. All of the terms mentioned below will appear regularly and will be in **Bold** to indicate that the full description is in the glossary.

<b>Target Temperature</b>	This is the temperature goal for the room and it is also the reference temperature for all relative settings. Note that the <b>Target Temperature</b> may be affected by the <b>Ramping Function</b> .
<b>Growth Day</b>	This is the reference day used for <b>Ramping Function</b> . It may be set to OFF, deactivating all <b>Ramping Function</b> . If it is adjusted to a value other than OFF, it will be incremented each day.
<b>Growth Curve</b>	The <b>Growth Curve</b> is composed of value points and day points. It is used for the <b>Ramping Function</b> . When the <b>Growth Day</b> is equal to a given day point, the associated value point will be the value taken by the parameter affected by the <b>Ramping Function</b> .
<b>Ramping Function</b>	The <b>Ramping Function</b> is used to modify a parameter value automatically. When the <b>Ramping Function</b> is activated, the affected parameter will be updated each hour according to its <b>Growth Curve</b> and the <b>Growth Day</b> .
<b>RSP</b>	Relative Set Point: Number of degrees relative to the <b>Target Temperature</b> where a function begins.
<b>Differential</b>	Number of degrees changed before stopping the output. For example, with a <b>Differential</b> of 1.0°F, the control turns on a fan at 70.0°F when temperature increases, but it will shut it off only at 70.0°F - 1.0°F when temperature decreases. The <b>Differential</b> is necessary to avoid oscillations.
<b>Modulation Band</b>	Number of degrees a variable output takes to reach its full intensity.
<b>Zone Temperature</b>	This is the temperature calculated using all probes selected for the zone.
<b>Outside Temperature</b>	This is the temperature read by the outside temperature probe.

## Inputs/Outputs Table

Inputs	Quantity	Outputs	Quantity
Inside Temperature	1 to 16*	Variable Stage	Up to 6*
Humidity	Up to 4*	Variable Stir Fan	Up to 6*
Outside Temperature	Up to 1	On/Off Stir Fan	Up to 6*
Water Meter	Up to 1	On/Off Stage	Up to 10*
Luxmeter	Up to 4	Heater	Up to 6*
Garage Door Opened	Up to 1	Variable Heater	Up to 6*
Garage Door Closed	Up to 1	Sprinkler/Mist	Up to 1*
Bin Scale	Up to 4	Clock	Up to 4*
Static Pressure	Up to 1*	Inflatable Curtain (1-4 blowers)	Up to 8*
Feeder	Up to 1*	Air Inlet	Up to 8*
Feed Auger	Up to 1*	Light	Up to 1*
CO2	Up to 1*	Alarm	1
Ammonia	Up to 1*	Generic Relay	Up to 4*
Poultry Scale	Up to 4	Garage Door Relay	Up to 1*
Recuperator Temperature	Up to 1*	Dusting	Up to 1*
Generic Counter	Up to 4	Feeder	Up to 1*
Energy Counter	Up to 1	Feed Auger	Up to 1*
		Trap Doors	Up to 1*
		On/Off Lights	Up to 4*
		Recuperator Input Polarity	Up to 1*
		Recuperator Output Polarity	Up to 1*
		Recuperator Valve	Up to 10*
		Recuperator Pump	Up to 1*

\*Per zone

## Equipment\*

Quantity	Description
1	Control
Up to 2	Input Board (X1407)
Up to 4	REL-4 (X1307)
Up to 4	POS-2 (X1306)
Up to 2	Variable Board (X1408)
Up to 1	SL16 (Slave with up to 16 relays and 2 variables)
Up to 4	HUM3 (Humidity Probe)
Up to 4	HUM+ Humidity Probe
Up to 1	SM (Weather Station)
Up to 1	MS10 (0-10volts Module)
Up to 2	RP16 (Toggle Switches Module)
Up to 2	MGCB 8 Input Board (X1399)
Up to 2	V4 (Variable Module)
Up to 15	2004-10k Probe

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Up to 16	Lux Meter
Up to 4	Static Pressure Probe
Up to 4	Ammonia Sensor
Up to 4	Press+ Board (X1455)

\* The quantity and necessary equipment depends on the various types of installations.



### Configuration Version

Version	Date	Min. Proc. Version	Modification
CA2iT05V0	03/12/2014	2	- New.
CA2iT05V1	03/12/2014	2	<ul style="list-style-type: none"> <li>- Correction on Zone B and above Inlet Maximum Run Time.</li> <li>- Correction on Inlet Potentiometer and cool down message when alarm history is cleared.</li> <li>- Add an activation delay for the ON/OFF stages.</li> <li>- Adjustment on Inflatable Curtain inflation and deflation delays.</li> </ul>
CA2iT05V2	12/23/2015	2	<ul style="list-style-type: none"> <li>- Change temperature probe 8 for a water meter.</li> </ul>
CA2iT05V3	07/07/2017	2	<ul style="list-style-type: none"> <li>- Terminology changed to Inflatable Curtain.</li> <li>- Corrected display of the state of the rain detector.</li> </ul>
CA2iT05V4	08/04/2017	2	<ul style="list-style-type: none"> <li>- Corrected the alarm messages for the temperature probes of zones 2-4</li> <li>- Added timer 1 logic for inflatable curtains like TV-416</li> <li>- Corrected inflatable curtains not making the controller enter natural mode.</li> </ul>
CA2iT05V5	23/11/2017	2	<ul style="list-style-type: none"> <li>- Add rain and wind compensation for natural inlets.</li> </ul>
CA2iT05V6	06/12/2017	2	<ul style="list-style-type: none"> <li>- Redirecting the view in building view, the menu of adjusting an output is displayed instead of its status.</li> <li>- Add of the Seasonal Setpoint.</li> <li>- Add air inlet defrosting.</li> <li>- Add air inlet minimum ventilation.</li> <li>- Add setpoint and comparison mode for (variables) stir fans.</li> <li>- Modification on navigation when only one zone is used.</li> <li>- Add configurable zone name.</li> <li>- Add inlet blower.</li> <li>- Add acceleration of air inlets in natural time mode.</li> </ul>

## USER'S GUIDE

### SECTION C

CA2iT05V7	05/02/2018	2	<ul style="list-style-type: none"> <li>- Add of the influence of the outside temperature on the variable stage setpoint.</li> <li>- Add of the generic relays outputs.</li> <li>- Reorganization of parameter groups.</li> <li>- Add inflatable curtain tunnel drainage.</li> <li>- Corrected assigning types to relay outputs on slave.</li> <li>- Add configurable communication ports and move associated parameters.</li> <li>- Corrected high and low temperature probe alarms.</li> <li>- Add 2 MGCB 8 Input Board (X1399) with configurable inputs.</li> <li>- Add configurable ventilation stages.</li> <li>- Corrected relay state display in building view.</li> <li>- Add garage door.</li> <li>- Add Lux meter inputs.</li> <li>- Add a decrease of lights according to luminosity read by the Lux meter.</li> <li>- Add slope inversion option for 0-10V outputs.</li> </ul>
CA2iT05V8	14/05/2018	2	<ul style="list-style-type: none"> <li>- Separation of the temperature and water meter alarm parameters into two groups.</li> <li>- Add a dusty relay output type.</li> <li>- Correction of the number of garage doors in the activation of the output relays.</li> <li>- Add a pair of an output Trap Doors by zone.</li> <li>- Add 4 on/off light outputs.</li> <li>- Corrected display of the garage doors zone number.</li> <li>- Display the garage doors opening and closing state in the outputs group.</li> <li>- Add 4 bin scales.</li> <li>- Add air inlets pressure mode.</li> <li>- Add a static pressure input.</li> <li>- Add 4 poultry scales.</li> <li>- Reorganisation of the master regulator inputs.</li> <li>- Add inside temperature probe 16.</li> <li>- Add ammonia sensor types for 4-20mA multifunction inputs.</li> <li>- Corrected input and output zones when the number of zones decreases.</li> </ul>
CA2iT05V8.1	11/10/2018	2	<ul style="list-style-type: none"> <li>- Corrected input reset on day change.</li> </ul>

CA2iT05V9	01/12/2018	2	<ul style="list-style-type: none"> <li>- Add feeder input management.</li> <li>- Add feeder outputs.</li> <li>- Add missing input types to input configuration.</li> <li>- Add CO2 input management.</li> <li>- Correction on missing redirections from the building application.</li> <li>- Add alternating timers.</li> <li>- Add one feed auger input and output per zone.</li> <li>- Modified management of probe selections.</li> <li>- Add recuperator logic.</li> <li>- Correction on exterior probe management.</li> <li>- Correction on full range display of exterior probe.</li> <li>- Add support for relay control version 9+.</li> <li>- Add trap door interlock.</li> <li>- Speed optimisations.</li> <li>- Add sections to the inputs and outputs.</li> <li>- Correction on relay type assignment when inlet or trap door type assignments are removed.</li> <li>- Correction on on/off stir fan differential.</li> </ul>
CA2iT05V10	15/04/2019	2	<ul style="list-style-type: none"> <li>- Display the input group when an active luxmeter is assigned to a light.</li> <li>- Correction of the slave relays activation by TVRP-16 module switches.</li> <li>- Add animal inventory.</li> <li>- Add hot and cold security for the variable stages and for the variable stir fans.</li> <li>- Add CO2 compensation on variable stages.</li> <li>- Add CO2 compensation on variable stir fans.</li> </ul>

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CA2iT05V11	27/06/2019	2	<ul style="list-style-type: none"> <li>- Add 4 generic counters.</li> <li>- Add an energy counter.</li> <li>- Add Press+ module support.</li> <li>- Correction on periodic reset of the bin scales and MGCB probe modules.</li> <li>- Correction on alarm list display of the <i>Wrong Module P#</i> alarm message.</li> <li>- Add Natural Mode Only option.</li> <li>- Add hot/cold security for air inlets in the natural position mode.</li> <li>- Modified display of recuperator defrost settings when using outside temperature influence.</li> <li>- Modified the recuperator's variable timer speed and run time settings for them to vary according to the recuperator temperature and outside temperature respectively.</li> <li>-</li> </ul>
CA2iT05V12	18/10/2019	2	<ul style="list-style-type: none"> <li>- Add a Mortality Percentage parameter to Animal Inventory</li> <li>- Add chart mode for poultry scales</li> <li>- Add 5 periods for cycle lights for a total of 15.</li> <li>- Modification to have a different number of cycles for each lights period</li> <li>- Correction to make actual cycle parameter visible in Lights module</li> <li>- Correction of wrong module alarm deactivation.</li> </ul>

## SECTION C

CA2iT05V13	30/06/2022	3	<ul style="list-style-type: none"> <li>- Add Precision+ mode for the poultry scales.</li> <li>- Make daily the bin's cumulative consumption.</li> <li>- Correction of the minimum and maximum humidity.</li> <li>- Add histories per hours for the temperature, CO2 and humidity</li> <li>- Add of two minimum ventilation timers per zone.</li> <li>- Add a minimum ventilation timer to the variable stir fans.</li> <li>- Add the Minimum Temperature function to the Variable Heaters.</li> <li>- Correction of the Air Inlets and Blowers Inlets activation when they are paired.</li> <li>- Correction of the high temperature alarm activation when no probe is assigned to the zone.</li> <li>- Add GE-HUM+ module support.</li> <li>- Display assignment zones in letters A to D instead of numbers 1 to 4.</li> <li>- Add a maximum speed curve option for the stage 1.</li> <li>- Add curve option for the minimum/maximum speed of the variable stir fans.</li> </ul>
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### Ventilation System Overview

The controller can be used to operate up to 4 zones, amongst which the available inputs and outputs are divided. Each zone can act independently and use its own humidity probe, static pressure, ammonia sensor, its own growth day and its own target temperature.

The controller can be used alone or with slave modules. The controller itself can control up to 16 relay outputs, 4 0-10 Volt outputs and 2 variable outputs. The controller can also use slave modules to increase its capacity to a total of 32 relay outputs, 6 0-10 Volt outputs and 8 variable outputs.

The variable outputs can be used as a variable ventilation stage, a variable stir fan, a variable heater or as a light output.

The 0-10 Volt outputs can be used as a variable ventilation stage, a variable stir fan, a variable heater, a light output or an air inlet.

The relay outputs can be used as a ventilation stage, a stir fan, a heater, a sprinkler, a clock output, an inflatable curtain blower or an air inlet.

The controller can work with up to 16 inside temperature probes that it can use to compute the average temperature of a zone. All outputs will follow the probes selected by the user. When one temperature probe is defective (short or open circuit), the controller does not consider it to compute the temperature it is used in and the alarm is triggered. An **Outside Temperature** can be used to override the inside temperature alarm if it is too hot outside in order to reduce false alarms. The outside temperature can also increase ventilation

The controller can be equipped with a weather station that allows the controller to close inflatable curtain stages when rain and a strong wind coming from the chosen direction are present.

Other features, including night set point, **Ramping Function** and history for alarms, probes and heaters are included.



## **SUMMARY**

### **ZONE (1-4) TEMPERATURE**

These parameters display the actual average temperature of the probes selected for the zone as well as the minimum and maximum temperature of the day. The zone temperatures are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

### **ZONE (1-4) HUMIDITY**

These parameters display the actual humidity for the zone as well as the minimum and maximum humidity of the day. ERROR will be displayed if the humidity probe has not communicated with the controller for 5 minutes. The humidity is displayed to the nearest 1RH% from 0RH% to 100RH%.

### **OUTSIDE TEMPERATURE**

This parameter displays the current outside temperature. The outside temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

### **WIND SPEED**

This parameter displays the wind speed read by the weather station. Wind and rain may cause inflatable curtain stages to close. The wind speed is displayed to the nearest 1mph (1km/h).

### **WIND DIRECTION**

This parameter displays the wind direction read by the weather station. Wind and rain may cause inflatable curtain stages to close. Wind direction can be N (North), NE (North-East), E (East), SE (South-East), S (South), SW (South-West), W (West) or NW (North-West).

### **RAIN DETECTOR**

This parameter displays the state of the weather station's rain detector. Wind and rain may cause inflatable curtain stages to close. When rain is detected, this parameter will display ON. When no rain is detected, this parameter will display OFF.

### **WATER METER**

This parameter displays the amount of water counted by the water meter for the current day. The amount of water read is displayed to the nearest unit (litre or gallon) from 0 to 30000.

### **ACTUAL AMMONIA**

These parameters display the actual ammonia for the zone. ERROR will be displayed if the ammonia cannot be calculated for a given zone. The ammonia is displayed to the nearest 0,01ppm from 0,00ppm to 100,00pm.

### **MINIMUM AMMONIA**

These parameters display the minimum ammonia of the day for the zone. The minimum ammonia is displayed to the nearest 0,01ppm from 0,00ppm to 100,00pm.

### **MAXIMUM AMMONIA**

These parameters display the maximum ammonia of the day for the zone. The maximum ammonia is displayed to the nearest 0,01ppm from 0,00ppm to 100,00pm.

### ACTUAL CO<sub>2</sub>

These parameters display the actual CO<sub>2</sub> for the zone. ERROR will be displayed if the CO<sub>2</sub> cannot be calculated for a given zone.

### MINIMUM CO<sub>2</sub>

These parameters display the minimum CO<sub>2</sub> of the day for the zone.

### MAXIMUM CO<sub>2</sub>

These parameters display the maximum CO<sub>2</sub> of the day for the zone.



### SET POINTS

#### **MAIN SETPOINT (Curve Available)**

This parameter is used to adjust the **MSP**. This value sets the temperature goal for the building. This parameter will be affected by its **Ramping Function** when the *MAIN SETPOINT CURVE* is set to ON and the *GROWTH DAY* is not set to OFF. The **MSP** can be adjusted in 0.1° increments from 0.0°F to 120.0°F (0.0°C to 40.0°C).

#### **CURRENT MAIN SETPOINT (Curve available)**

The value of the CURRENT MAIN SETPOINT is equal to *SUMMER MAIN SETPOINT* when the outside temperature is equal to or greater than *SUMMER OUTSIDE SETPOINT*. If the value of the outside temperature is equal to or lower than *WINTER OUTSIDE SETPOINT*, the CURRENT MAIN SETPOINT is equal to *WINTER MAIN SETPOINT*. When the outside temperature is between *WINTER OUTSIDE SETPOINT* and *SUMMER OUTSIDE SETPOINT*, the CURRENT MAIN SETPOINT modulates between *WINTER MAIN SETPOINT* and *SUMMER MAIN SETPOINT*.

#### **SUMMER MAIN SETPOINT (Curve available)**

This parameter is used to adjust the CURRENT MAIN SETPOINT when the outside temperature is close to the *OUTSIDE SUMMER TEMPERATURE*. This setting is adjustable in increments of 0.1 ° from -40.0 ° C to 40.0 ° C (-40.0 ° F to 120.0 ° F).

#### **WINTER MAIN SETPOINT (Curve available)**

This parameter is used to adjust the *CURRENT MAIN SETPOINT* when the outside temperature is close to *WINTER OUTSIDE TEMPERATURE*. This setting is adjustable in increments of 0.1 ° from -40.0 ° C to 40.0 ° C (-40.0 ° F to 120.0 ° F).

#### **SUMMER OUTSIDE SETPOINT (Curve available)**

This parameter uses the outside temperature as a reference to determine if we are in summer mode. This setting is adjustable in increments of 0.1 ° from -40.0 ° C to 40.0 ° C (-40.0 ° F to 120.0 ° F).

#### **WINTER OUTSIDE SETPOINT (Curve available)**

This parameter uses the outside temperature as a reference to determine if we are in winter mode. This setting is adjustable in increments of 0.1 ° from -40.0 ° C to 40.0 ° C (-40.0 ° F to 120.0 ° F).

#### **MAIN SETPOINT CURVE**

This parameter is used to activate or deactivate the **MSP Ramping Function**. If this option is set to ON and the *GROWTH DAY* is not set to OFF, the *MAIN SETPOINT* will change according to its **Growth Curve** programmed in its curve.



### ***GROWTH DAY***

This parameter is used to adjust the **Growth Day**. The **Growth Day** affects all parameters that are using their **Growth Curve**. The **Growth Day** may be adjusted to any value from OFF, day 0 to day 365 using 1-day increments.

### **ANIMAL INVENTORY**

#### **ACTUAL AMOUNT OF ANIMALS**

This parameter displays the number of remaining animals according to *INITIAL AMOUNT OF ANIMALS*, *TOTAL ADDED* and *TOTAL MORTALITIES*.

#### ***INITIAL AMOUNT OF ANIMALS***

This parameter is used to adjust the number of animals present when a batch is started. When a batch is started or when RESET ANIMAL INVENTORY is pressed, the ACTUAL AMOUNT OF ANIMALS will take the value adjusted here.

#### ***DAY/EVENING/SELECTION MORTALITIES***

These parameters are used to adjust the number of mortalities of the respective category for the current day. This value will be automatically reset with each day change.

#### **MORTALITIES**

This parameter displays the number of mortalities for the current day. It is the sum of *DAY*, *EVENING* AND *SELECTION MORTALITIES*. This value will be automatically reset with each day change.

#### **MORTALITY TOTAL**

This parameter displays the total amount of mortalities since the batch was started. The value here will be subtracted from ACTUAL AMOUNT OF ANIMALS. This value can be reset with the RESET REMAINING ANIMALS parameter.

#### **MORTALITY PERCENTAGE**

These parameters display the mortality percentage for the respective zone for the batch. This value represents the relation between MORTALITY TOTAL, *INITIAL AMOUNT OF ANIMALS* and *TOTAL ADDED*. This value is displayed to the nearest 0.01% from 0.00% to 100.00%.

#### ***ADDED ANIMALS***

This parameter is used to adjust the number of added animals for the current day. The value adjusted here will increase TOTAL ADDED. This value will be automatically reset with each day change.

#### **TOTAL ADDED**

This parameter displays the total of added animals since the batch was started. This value will increase ACTUAL AMOUNT OF ANIMALS. It may also be reset with the RESET ANIMALS LIVESTOCK parameter.

#### **RESET ANIMAL INVENTORY**

This parameter is used to reset the animals' livestock. When this parameter is pressed, all relative livestock parameters for the zone will be reset.

### ALARMS



#### **RELAY**

This parameter is used to activate or deactivate the alarm relays. If this setting is set to OFF, no alarm relay will be activated but messages will still appear in the alarm history. If this parameter is set to ON, alarm relays will activate when alarm condition occurs. A message will be logged every time the alarm relay is activated or deactivated. **It is not recommended to deactivate the alarm relay.**

#### **ALARM STATE**

These parameters display the actual state of the alarm relay. When *ALARM RELAY* is set to OFF, This parameter will display Deactivated. Otherwise, this parameter will display the state of the alarm, either ON or OFF.

#### **CLEAR HISTORY**

This parameter is used to clear the alarm history. When this parameter is pressed, a confirmation question will appear. When the confirmation is performed, the alarm history will be erased.

#### **ZONE ALARM**

This parameter is used to activate or deactivate the alarm for the zone. If this setting is set to OFF, no temperature alarms will be detected for the zone. If this parameter is set to ON, zone temperature will be monitored. **It is not recommended to deactivate the zone alarm for a prolonged period of time.**

#### **PROBES CHECKED FOR HIGH/LOW ALARM**

This parameter is used to check which probes will be checked for the high and low temperature alarms. A probe that is selected in this parameter will trigger the alarm if it is outside the LOW ACTUAL TEMPERATURE and HIGH ACTUAL TEMPERATURE or LOW CRITICAL TEMPERATURE and HIGH CRITICAL TEMPERATURE. A probe that is not selected here will not be checked for high and low temperature alarms.

#### **LOW RELATIVE (DAY) TEMPERATURE**

This parameter adjusts the low temperature alarm. The value adjusted here will be affected by a change of the *MAIN SET POINT*. Setting this parameter to OFF deactivates the low temperature alarm. This parameter is adjusted in 0.1° from OFF, *MAIN SET POINT* - 40.0° to *MAIN SET POINT* + 40.0°.

#### **LOW ACTUAL TEMPERATURE**

These parameters display the low temperature set point. The low alarm temperature may change according to the time of day if the night set point is used. If a temperature is under this setting, an alarm will occur.

#### **LOW NIGHT TEMPERATURE**

These parameters display the low set point temperature when *MAIN SETPOINT* is affected by *NIGHT SET POINT*. Because *MAIN SETPOINT* is changing depending on hour of the day, it is important to know which temperature alarm will occur at different periods.

***HIGH RELATIVE (DAY) TEMPERATURE***

This parameter adjusts the high temperature alarm. The value adjusted here will be affected by a change of the *MAIN SET POINT*. Setting this parameter to OFF deactivates the low temperature alarm. This parameter is adjusted in 0.1° from OFF, *MAIN SET POINT* - 40.0° to *MAIN SET POINT* + 40.0°.

***HIGH ACTUAL TEMPERATURE***

These parameters display the high temperature set point. The high alarm temperature may change according to the time of day if the night set point is used. If a temperature is above this parameter, an alarm will occur.

***HIGH NIGHT TEMPERATURE***

These parameters display the high temperature set point when *MAIN SETPOINT* is affected by *NIGHT SET POINT*. Because *MAIN SETPOINT* is changing depending on hour of the day, it is important to know which temperature alarm will occur at different periods.

***HIGH CRITICAL TEMPERATURE***

This parameter is used to set the temperature at which a critical high temperature alarm condition will occur. The critical high temperature alarm does not consider the OUTSIDE TEMPERATURE or the *MAIN SET POINT Ramping Function*. This parameter is adjusted in 0.1° increments from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

***LOW CRITICAL TEMPERATURE***

This parameter is used to set the temperature at which a critical low temperature alarm condition will occur. If the *CRITICAL* option is set to ON, the alarm will be activated when the AVERAGE TEMPERATURE is lower than this parameter. The critical low temperature alarm does not consider the *MAIN SET POINT Ramping Function*. This parameter is adjusted in 0.1° increments from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

***OUTSIDE TEMPERATURE INFLUENCE***

This parameter is used to set the value that will be added to the OUTSIDE TEMPERATURE to calculate the high alarm set point when the OUTSIDE TEMPERATURE exceeds the *MAIN SETPOINT*. When this is the case, the OUTSIDE TEMPERATURE will replace the *MAIN SETPOINT* to determine the high temperature alarm threshold.

### **ALARME PRESSION STATIQUE**

#### ***LOW STATIC PRESSURE***

This parameter is used to adjust the pressure at which the low pressure critical alarm will activate. It can be set to OFF but it's not recommended since the alarm will not be triggered at low pressures, or displayed to the nearest 0.001"WC (1Pa) from -0.500"WC to 0.500"WC (-99Pa to 99Pa) to set the pressure below which the alarm will be triggered.

#### ***HIGH STATIC PRESSURE***

This parameter is used to adjust the pressure at which the high pressure critical alarm will activate. It can be set to OFF but it's not recommended since the alarm will not be triggered at high pressures, or displayed to the nearest 0.001"WC (1Pa) from -0.500"WC to 0.500"WC (-99Pa to 99Pa) to set the pressure above which the alarm will be triggered.

#### ***STATIC PRESSURE LOW DELAY***

This parameter is used to establish the amount of time before the low pressure alarm will be activated. When the zone pressure reaches values less than *LOW STATIC PRESSURE* the alarm will be triggered after this delay. This parameter is adjusted in 1 second increments from 0 to 300:59 seconds.

#### ***STATIC PRESSURE HIGH DELAY***

This parameter is used to establish the amount of time before the high pressure alarm will be activated. When the zone pressure reaches values higher than *HIGH STATIC PRESSURE* the alarm will be triggered after this delay. This parameter is adjusted in 1 second increments from 0 to 300:59 seconds.

#### ***REINITIALIZATION STATIC PRESSURE***

This parameter can be used to reset the pressure alarm zone. When this button is pressed, the zone pressure alarm timer will be reinitialized.



## **WATER METERS ALARMS**

### ***WATER METER CONSUMPTION***

This parameter is used to set the water consumption at which alarm limits of water meter will be based. The adjusted percentage of low limit will be reduced of this value and the adjusted percentage of the limit will be added to this value to form the high/low limits. This parameter is adjusted in 1 unit (litre or gallon) increments from 1 to 9999 units (litres or gallons).

### ***WATER METER LOW LIMIT***

This parameter is used to adjust the minimum number of gallons or litres in percentage. The adjusted value is a percentage that will be added to the *ALARM WATER METER CONSUMPTION* to form the minimum unit quantity (litres or gallons) the controller may count within a time period of *ALARM WATER METER LOW CHECK RATE* without activating the alarm. Adjusting this parameter to OFF deactivates the low consumption alarm. This parameter is adjusted in 1% increments from OFF, 1% to 100%.

### ***WATER METER CALCULATED LOW LIMIT***

This parameter displays the calculated low water alarm limit. If the number of units is under this limit, the alarm will activate for the water meter.

### ***WATER METER HIGH LIMIT***

This parameter is used to adjust the maximum number of gallons or litres in percentage. The adjusted value is a percentage that will be added to the *ALARM WATER METER CONSUMPTION* to form the maximum unit quantity (litres or gallons) the controller may count within a time period of *ALARM WATER METER HIGH CHECK RATE* without activating the alarm. Adjusting this parameter to OFF deactivates the high consumption alarm. This parameter is adjusted in 1% increments from OFF, 1% to 999%.

### ***WATER METER CALCULATED HIGH LIMIT***

This parameter displays the calculated high water alarm limit. If the number of units exceeds this limit, the alarm will activate for the water meter.

### ***REINITIALIZATION WATER METER***

This parameter is used to reinitialize the water meter alarms. When there is water alarm, press on this parameter. This reinitialization does not affect other alarms.

### ***WATER METER HIGH CHECK RATE***

This parameter is used to adjust the time period for the high limit consumption alarm. If the number of units exceeds the *WATER METER CALCULATED HIGH LIMIT* within this time period, the alarm will activate. This parameter is adjustable from 0:00 to 24:59.

### ***WATER METER LOW CHECK RATE***

This parameter is used to adjust the time period for the low limit consumption alarm. If the number of units is below the *WATER METER CALCULATED LOW LIMIT* within this time period, the alarm will activate. This parameter is adjustable from 0:00 to 24:59

### **FEED AUGER ALARMS**

#### ***FEED AUGER STOP LIMIT (Curve available)***

These parameters are used to set the amount of time after which a feed auger can be inactive for a cycle. If the feed auger is not activated for the time set here during a feed auger activation period, an alarm will occur. Setting this parameter to OFF deactivates the alarm.

#### ***FEED AUGER STOP LIMIT CURVE***

These parameters are used to activate or deactivate the *ALARM FEED AUGER STOP LIMIT Growth Function*. If the curve option is set to ON and *GROWTH DAY* is not set to OFF the *ALARM FEED AUGER STOP LIMIT* will follow its **Growth Curve**.

#### ***FEED AUGER MAXIMUM LIMIT***

These parameters are used to set the amount of time after which the feed auger will activate the alarm if it is activated continuously. If the feed auger is active for the time set here, an alarm will occur. Furthermore, when this alarm occurs, feed auger relays will be deactivated. Setting this parameter to OFF deactivates the alarm.

#### **REINITIALIZATION FEED AUGER**

This parameter is used to reinitialize the feed auger alarms. When a feed auger alarm situation occurs, it will remain active until this parameter is pressed. When there is no feed auger alarm, pressing on this parameter will only reinitialize the feed auger alarm's actual counts and timers.

#### ***ALARM RELAY FOR MAX FEED AUGER ALARM***

This parameter is used to determine if the alarm relay will be activated when a maximum feed auger alarm condition occurs. If this option is set to ON, the alarm relay will activate on this condition. If this option is set to OFF, the alarm relay will not activate on this condition. In both cases, the concerned output that has triggered the alarm will deactivate and a message will be logged in the alarm history.

## **MANUAL OVERRIDE**

### ***INTERNAL 0-10V (1-4) (Type) (Zone)***

These parameters are used to manually control the internal 0-10 Volt output. When one of these parameters is set to AUTO, the corresponding output will take the intensity calculated by the configuration according to user settings. When one of these parameters is set to OFF, the corresponding output will be deactivated. When one of these parameters is set to a value from 1%-100%, the corresponding output will take the adjusted intensity. These parameters are adjusted in 1% increments from AUTO, OFF, 1% to 100%.

### ***EXTERNAL 0-10V (1-4) (Type) (Zone)***

These parameters are used to manually control the external 0-10 Volt output. When one of these parameters is set to AUTO, the corresponding output will take the intensity calculated by the configuration according to user settings. When one of these parameters is set to OFF, the corresponding output will be deactivated. When one of these parameters is set to a value from 1%-100%, the corresponding output will take the adjusted intensity. These parameters are adjusted in 1% increments from AUTO, OFF, 1% to 100%.

### ***VARIABLE (1-2) OUTPUT (1-4) (Type) (Zone)***

These parameters are used to manually control the variable output. When one of these parameters is set to AUTO, the corresponding output will take the intensity calculated by the configuration according to user settings. When one of these parameters is set to OFF, the corresponding output will be deactivated. When one of these parameters is set to a value from 1%-100%, the corresponding output will take the adjusted intensity. These parameters are adjusted in 1% increments from AUTO, OFF, OFF, 1% to 100%.

### ***RELAY (1-32) (Type) (Zone)***

These parameters are used to manually override the calculated activation demand to activate the relay output at the value adjusted here. When the value is AUTO, the associated relay output will be activated according to the configuration's parameters and the temperature read. When the value is OFF, the relay output will be deactivated. When the value is ON, the relay output will be activated.

### **INPUTS**



#### **AVERAGE TEMPERATURE**

These parameters display the actual average temperature of the probes selected for the zone. The zone temperatures are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

#### **HUMIDITY**

These parameters display the actual humidity for the zone. ERROR will be displayed if the humidity probe has not communicated with the controller for 5 minutes. The humidity is displayed to the nearest 1RH% from 0RH% to 100RH%.

#### **TEMPERATURE (1-16)**

These parameters display the actual temperature read by the probe. All probes used by the zone will be displayed. Temperatures are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

#### **ACTUAL LUMINOSITY**

These parameters display the luminosity of the zone read by the lux meter selected in the *ASSOCIATED LUX METER* parameter.

#### **STATIC PRESSURE**

This parameter displays the actual static pressure for the zone. This parameter is displayed to the nearest 0.001WC (1Pa) from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

#### **MINIMUM STATIC PRESSURE**

These parameters display the minimum static pressure of the day for the zone. The minimum static pressure is displayed to the nearest 0.001WC (1Pa) from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

#### **MAXIMUM STATIC PRESSURE**

These parameters display the maximum static pressure of the day for the zone. The maximum static pressure is displayed to the nearest 0.001WC (1Pa) from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

#### **ACTUAL AMMONIA**

These parameters display the actual ammonia for the zone. ERROR will be displayed if the ammonia cannot be calculated for a given zone. The ammonia is displayed to the nearest 0,01ppm from 0,00ppm to 100,00pm.

#### **MINIMUM AMMONIA**

These parameters display the minimum ammonia of the day for the zone. The minimum ammonia is displayed to the nearest 0,01ppm from 0,00ppm to 100,00pm.

#### **MAXIMUM AMMONIA**

These parameters display the maximum ammonia of the day for the zone. The maximum ammonia is displayed to the nearest 0,01ppm from 0,00ppm to 100,00pm.

#### **ACTUAL CO2**

These parameters display the actual CO<sub>2</sub> for the zone. ERROR will be displayed if the CO<sub>2</sub> cannot be calculated for a given zone.



## **MINIMUM CO<sub>2</sub>**

These parameters display the minimum CO<sub>2</sub> of the day for the zone.

## **MAXIMUM CO<sub>2</sub>**

These parameters display the maximum CO<sub>2</sub> of the day for the zone.

## **OUTPUTS**



### **ACTUAL VARIABLE STAGE SPEED**

These parameters display the actual speed of the variable stages. Each stage can display OFF, or a speed from 0% to 100%.

### **ON/OFF STAGE ACTUAL STATUS**

These parameters display the actual status of the on/off stage outputs. Each on/off stage output can be 100% or OFF.

### **HEATER ACTUAL STATUS**

These parameters display the actual status of the heater outputs. Each heater output can be ON or OFF.

### **HEATER RUN TIME**

These parameters display the time for which the current heat output has been activated for the corresponding day. These time values are displayed to the nearest 1 minute from 0:00 hour to 24:00 hours.

### **HEATER TOTAL RUN TIME**

These parameters display the time for which the current heat zone has been activated for the corresponding day. These time values are displayed to the nearest minute from 0:00 hours to 240:00 hours.

### **SPRINKLER ACTUAL STATUS**

These parameters display the actual status of the sprinkler output. The sprinkler output can be ON or OFF.

### **CLOCK ACTUAL STATUS**

These parameters display the actual status of the clock outputs. Each clock output can be ON or OFF.

### **BLOWER (1-4) ACTUAL STATUS**

These parameters display the actual status of each of the blower outputs of the inflatable curtains. Each blower output can be ON or OFF.

### **ACTUAL LIGHT INTENSITY**

These parameters display the current intensity of the light outputs. Each light output can display OFF or an intensity from 1% to 100%.

### **VARIABLE HEATER ACTUAL INTENSITY**

These parameters display the actual intensity of the variable heater. These parameters are displayed to the nearest 1% from OFF, 0% to 100%.

### **ACTUAL VARIABLE STIR FAN SPEED**

These parameters display the actual speed of the variable stir fans. Each variable stir fan can display OFF, or a speed from 0% to 100%.

### **ACTUAL STIR FAN STATUS**

These parameters display the actual status of the stir fan outputs. Each stir fan output can be 100% or OFF.

### **AIR INLET ACTUAL STATUS**

These parameters display the actual position of the air inlets used in Natural Time mode. The parameter displays the actual demanded state, which may be OPEN, CLOSE, or HOLD.

### **AIR INLET ACTUAL POSITION**

These parameters display the actual position of the air inlets used in Position Mode or Natural Position and use a feedback potentiometer. The actual positions are displayed to the nearest 1% from -99% to 127%. However, if the controller cannot read the position, the corresponding parameter will display ERROR.

### **AIR INLET REQUESTED POSITION**

These parameters display the requested position of the air inlets used in Position Mode or Natural Position. Note that this is the requested position and not necessarily the actual position of the inlet. The requested positions are displayed to the nearest 1% from 0% to 100%.

### **DUSTING REQUESTED STATE**

These parameters display the current state of the relays associated with the dusting, they can take the ON values indicating that the dusting is running, or OFF values to indicate that the dusting is off.

### **TRAP DOOR REQUESTED STATE**

These parameters display the requested state of the trap doors. The parameter displays the actual demanded state, which may be OPEN, CLOSE, or HOLD.

### **LIGHTS ON/OFF REQUESTED STATE**

These parameters display the requested state of the on/off light output. Each on/off light output can be ON or OFF.

### **GARAGE DOOR OPEN**

This parameter shows if the garage door is completely open or not. If this parameter displays ON, the garage door is completely open. If it displays OFF, the garage door is not completely open.

### **GARAGE DOOR CLOSE**

This parameter shows if the garage door is completely close or not. If this parameter displays ON, the garage door is completely close. If it displays OFF, the garage door is not completely close.

## SET POINTS



### **MAIN SETPOINT (Curve Available)**

This parameter is used to adjust the **MSP**. This value sets the temperature goal for the building. This parameter will be affected by its **Ramping Function** when the *MAIN SETPOINT CURVE* is set to ON and the *GROWTH DAY* is not set to OFF. The **MSP** can be adjusted in 0.1° increments from 0.0°F to 120.0°F (0.0°C to 40.0°C).

### **ACTUAL MAIN SETPOINT**

These parameters display the **MSP** actually used by the controller. This value can be either *MAIN SETPOINT*, the *NIGHT SETPOINT* or, while a transition delay, a value between these two set points. This set point is displayed the nearest 0.1° from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### **MAIN SETPOINT CURVE**

This parameter is used to activate or deactivate the **MSP Ramping Function**. If this option is set to ON and the *GROWTH DAY* is not set to OFF, the *MAIN SETPOINT* will change according to its **Growth Curve** programmed in its curve.

### **GROWTH DAY**

This parameter is used to adjust the **Growth Day**. The **Growth Day** affects all parameters that are using their **Growth Curve**. The **Growth Day** may be adjusted to any value from OFF, day 0 to day 365 using 1-day increments.

### **START WEIGHT**

These parameters are used to set the weight the animals have at the beginning of the batch.

### **HUMIDITY SETPOINT**

This parameter is used to set the humidity set point for the zone. This is the reference value for all variable stage dehumidification set points. These parameters are adjusted in 1RH% increments from 0RH% to 99%RH, OFF.

### **CO2 SETPOINT**

This parameter is used to set the CO2 concentration set point for the zone. This is the reference value for all variable stage CO2 influence set points. These parameters are adjusted in 1ppm increments from #ppm to 6000ppm.

### **NIGHT SETPOINT**

This parameter is used to adjust the night set point. This value sets the temperature goal during the night period. This setting is relative to the *MAIN SETPOINT*. The night set point is adjusted in 0.1° increments from *MAIN SETPOINT* - 40.0° to *MAIN SETPOINT* + 40.0°.

### **NIGHT SETPOINT TIME BEGIN**

This parameter is used to adjust the time at which the night period will begin. When this time is reached, the **ACTUAL MAIN SETPOINT** will begin to modulate towards the *NIGHT SETPOINT* if *NIGHT SETPOINT ACTIVE* is set to Yes.

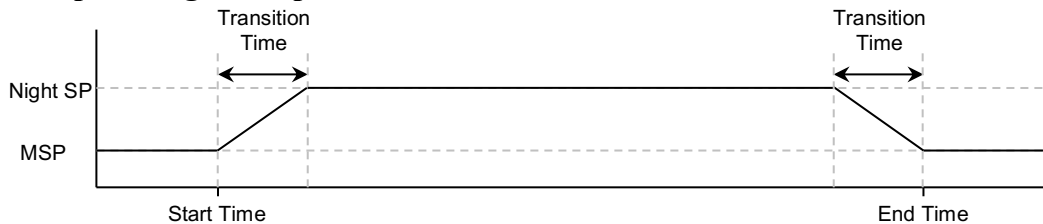
## ***NIGHT SETPOINT TIME END***

This parameter is used to adjust the time at which the day period will end. When this time reaches *NIGHT SETPOINT TIME BEGIN*, the ACTUAL MAIN SETPOINT will modulate to the *MAIN SETPOINT* if it had been modified for night compensation.

## ***NIGHT SETPOINT TRANSITION***

This parameter is used to adjust the time the ACTUAL MAIN SETPOINT will take to go from the *MAIN SETPOINT* to the *NIGHT SETPOINT* or vice versa. The transition time is adjusted in 1 minute increments from 0 to 60 minutes.

### **Example of night compensation:**



## ***NIGHT SETPOINT SYNCHRONIZED WITH LIGHTS***

This parameter is used to synchronize the night set point with the light program zone. If this parameter is not set to OFF, transition value, start and end values will be used as light program zone instead of *NIGHT SETPOINT TIME BEGIN*, *NIGHT SETPOINT TIME END* and *NIGHT SETPOINT TRANSITION*. The *NIGHT SETPOINT* will be used when lights are at *LIGHT INTENSITY BETWEEN CYCLES*. The set point will modulate between *NIGHT SETPOINT* and *MAIN SETPOINT* at the beginning of light program and vice-versa at the end of light program.



## **VARIABLE STAGES**

### **CURRENT MAIN SETPOINT**

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

### **START TEMPERATURE**

These parameters are used to set the temperature at which the variable stage will be activated continuously to *VARIABLE STAGE (1-6) MINIMUM SPEED*. A fixed **Differential** of 0.3° is used with this logic. As the average temperature of the probes selected in *VARIABLE STAGE (1-6) PROBES* increases, the variable stage's speed will increase until *VARIABLE STAGE (1-6) START TEMPERATURE + VARIABLE STAGE (1-6) MODULATION BAND* is reached. These parameters may be adjusted in 0.1° increments from *MAIN SET POINT - 40.0°* to *MAIN SET POINT + 40.0°*.

### **MINIMUM SPEED (Curve Available for variable stage 1)**

These parameters are used to adjust the minimum speed of variable stages. This speed is the base value used to calculate the actual minimum speed. The OUTSIDE TEMPERATURE and humidity may affect variable stages' actual minimum speed. If the minimum speed **Growth Function** for variable stage 1 is activated, that stage's minimum speed will not be adjustable. The minimum speed settings are adjusted in 1% increments from 0% to 100%.

### **MINIMUM SPEED CURVE**

This parameter is used to activate or deactivate the **Ramping Function** on *VARIABLE STAGE 1 MINIMUM SPEED*. If set to ON and the *GROWTH DAY* is not set to OFF, the *VARIABLE STAGE 1 MINIMUM SPEED* will follow its programmed curve.

### **MAXIMUM SPEED CURVE**

This parameter is used to activate or deactivate the **Ramping Function** on *VARIABLE STAGE 1 MAXIMUM SPEED*. If set to ON and the *GROWTH DAY* is not set to OFF, the *VARIABLE STAGE 1 MAXIMUM SPEED* will follow its programmed curve.

### **MAXIMUM SPEED**

These parameters are used to adjust the maximum speed of the variable stage. This speed will be reached when the average temperature of the probes selected in *VARIABLE STAGE (1-6) PROBES* reaches *VARIABLE STAGE (1-6) START TEMPERATURE + VARIABLE STAGE (1-6) MODULATION BAND*. These parameters are adjusted in 1% increments from 0% to 100%.

### **MODULATION BAND**

These parameters are used to determine the temperature at which the variable stage will be activated at its maximum speed. The variable stage will be activated at *VARIABLE STAGE (1-6) MAXIMUM SPEED WHEN* its temperature reaches *VARIABLE STAGE (1-6) START TEMPERATURE + VARIABLE STAGE (1-6) MODULATION BAND*. These parameters are adjusted in 0.1° increments from 0.3° to 25.0°.

## PROBES

These parameters are used to select the probes the variable stage will use to determine activation and deactivation according to temperature demand. To **If there are no probes selected, the temperature used will be equal to the actual MAIN SETPOINT.**

## COLD SECURITY SET POINT

These parameters are used to set at which temperature each variable stage will be affected by cold security. When variable stage temperature reaches a value less than or equal to *COLD SECURITY SET POINT*, the variable stage is affected by the cold security and its *CURRENT SPEED* will be equal to OFF. The cold security effect stops when the variable stage temperature reaches a value greater than *COLD SECURITY SET POINT* + 0.3°.

## HOT SECURITY SET POINT

These parameters are used to set at which temperature each variable stage will be affected by hot security. When a variable stage temperature reaches a value greater than or equal to *HOT SECURITY SET POINT*, the variable stage is affected by hot security and its *CURRENT SPEED* will be equal to *MAXIMUM SPEED*. The effect of hot security stops when the variable stage temperature reaches a value lower than *HOT SECURITY SET POINT* – 0.3°.

## OUTSIDE TEMPERATURE COMPENSATION SET POINT

This parameter sets the *OUTSIDE TEMPERATURE* at which the minimum speed of the variable stages will be increased if the *VARIABLE STAGE OUTSIDE TEMPERATURE COMPENSATION* option is set to ON. When the *OUTSIDE TEMPERATURE* is equal to or above this value, *VARIABLE STAGE (1-6) ADD MINIMUM SPEED OUTSIDE TEMPERATURE COMPENSATION* will be added to the associated variable stage's minimum speed. A fixed **Differential** of 0.3° is used with this logic. This parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

## ADD MINIMUM SPEED OUTSIDE TEMPERATURE COMPENSATION

These parameters are used to adjust the amount by which the variable stage's minimum speed will increase when *OUTSIDE TEMPERATURE COMPENSATION* option is set to ON and the *OUTSIDE TEMPERATURE* is equal to or above *OUTSIDE TEMPERATURE COMPENSATION SET POINT*. Setting one of these parameters to 0% will deactivate the speed increase for the associated variable stage. These parameters are adjusted in 1% increments from 0% to 100%.

## TIMER

These parameters are used to set the timer used by the variable stage when it is not activated on temperature demand. If one of these parameters is set to OFF, the stage will not use any timer. These parameters can be adjusted from OFF, 1 to 4.

## ALTERNATING TIMER

These parameters are used to select the timer cycle that the variable stage will use. At each timer's ON time, the cycle will switch between 1 and 2 and 2 and vice-versa. If this parameter is set to Cycle 1 or Cycle 2, the stage will activate during the respective timer cycle. If set to OFF, the stage will activate every ON time, regardless of the current timer cycle.

### **TEMPERATURE PROTECTION UNDER**

This parameter allows the user to set the temperature set point that will activate the protection on variable stages minimum speed. If *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED* is not set to OFF, the variable stage will be activated to the adjusted speed when it is activated by the timer or dehumidification and its temperature is equal or under the temperature adjusted here This parameter is adjusted in 0.1° increments from *MAIN SETPOINT* - 40.0° to *MAIN SETPOINT*.

### **PROTECTION MINIMUM SPEED**

These parameters are used to set the minimum variable speed when activated by the timer and by the protection option on the minimum speed and the protection minimum speed function is activated. The variable stage will be active at the speed adjusted here when active by its timer and its temperature is equal or under to the *TEMPERATURE PROTECTION UNDER*. If *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED* is set to Stop, the variable stage will deactivate instead of reducing its speed. If *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED* is set to OFF, this function will be deactivated. This speed can also be used for dehumidification if the *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED ON DEHUMIDIFICATION* option is set to Yes. These parameters are adjusted in 1% from Stop, OFF, 0% to 100%.

### **PROTECTION MINIMUM SPEED ON DEHUMIDIFICATION**

These parameters are used to determine if *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED* will be used on a dehumidification demand on the variable stage. If this option is set to Yes, the corresponding variable stage will use that speed when activated for dehumidification. If this option is set to No, the variable stage will not be affected by the minimum speed protection when activated for dehumidification.

### **NATURAL SHUTOFF**

These parameters are used to activate or deactivate the natural shutoff logic for the variable ventilation stage. If a natural shutoff option is set to YES, corresponding ventilation stage will deactivate when natural mode is entered. If it is set to NO, natural mode will not affect the ventilation stage.

### **TUNNEL SHUTOFF**

These parameters are used to activate or deactivate the tunnel shutoff logic for the ventilation stage. If a tunnel shutoff option is set to YES, corresponding variable ventilation stage will deactivate when tunnel mode is entered. If it is set to NO, tunnel mode will not affect the ventilation stage. The stage that is selected to start tunnel mode cannot be shut off by tunnel mode even if the corresponding tunnel shut off option is set to YES.

### ***SPEED WHEN NEXT STAGE ON***

These parameters are used to set the speed a variable stage will take when the next variable stage activates on temperature demand. For example, variable stage 1's speed will be equal to *VARIABLE STAGE 1 SPEED WHEN NEXT STAGE ON* when the average temperature of the probes selected in *VARIABLE STAGE 2 PROBES* reaches *VARIABLE STAGE 2 START TEMPERATURE*. As the temperature continues to increase, variable stage 1 will modulate according to variable stage 2's temperature adjustments. When there is no longer a temperature demand for variable stage 2, variable stage 1 will return to the speed calculated by its own settings. The last variable stage may use this feature when the first on/off stage turns on by temperature demand. In this case, the variable stage will modulate using its own modulation band as temperature rises past the first on/off stage's activation temperature. Setting one of these parameters to STOP will deactivate the variable stage when the next one activates on temperature demand. If one of these parameters is set to OFF, the above-mentioned function for the variable stage will deactivate. These parameters are adjusted in 1% increments from OFF, STOP, 0% to 100%.

### ***DEFROST***

These parameters are used to activate or deactivate the defrost logic on the variable stage. When this parameter is set to Yes, the defrost logic on the variable stage will be applied. This parameter is adjusted to No or Yes.

### ***OUTSIDE TEMPERATURE DEFROST***

This parameter is used to adjust when the temperature set point will be applied on the variable stages. There is a fixed **Differential** of 0.3° on this logic. This parameter is adjusted in 0.1° increments from -50.0°C to 60.0°C (-58.0°F to 140.0°F).

### ***DEFROST TIME***

These parameters are used to set the on time of the defrost cycle. When defrost cycle of a variable stage is in its active portion, the preceding variable stage will deactivate. Furthermore, only one variable stage can be activated for defrosting at any given time. These parameters are adjusted in 1-second increments from 1 second to 900 seconds.

### ***DEFROST CYCLE***

These parameters are used to set the off time of the defrost duration. This amount of time determines the maximum time of the variables stage's inactivity. If a variable stage has not been activated for a consecutive period of time equal to this parameter, it will activate at its minimum speed for *VARIABLE STAGE (1-6) DEFROST TIME*. When defrost cycle of a variable stage is in its active portion, the preceding variable stage will deactivate. Furthermore, only one variable stage can be activated for defrosting at any given time. This parameter is adjusted in 1-minute increments from 0 minute to 720 minutes.



### ***ADD MINIMUM SPEED FOR HUMIDITY***

These parameters are used to adjust the speed increase that will be applied on the variable stage for the dehumidification logic. When the actual humidity reaches the *HUMIDITY SET POINT*, *VARIABLE STAGE (1-6) MINIMUM SPEED* will be increased by this value and, if *VARIABLE STAGE (1-6) START TEMPERATURE* isn't reached, it will activate continuously at its new minimum speed. When the actual humidity reaches the *HUMIDITY SET POINT + VARIABLE STAGE (1-6) HUMIDITY RELATIVE SETPOINT*, variable stage (1-6)'s will be increased by *VARIABLE STAGE (1-6) ADD MINIMUM SPEED FOR HUMIDITY* and, if *VARIABLE STAGE (1-6) START TEMPERATURE* isn't reached, it will activate continuously at its new minimum speed. These parameters are adjusted in 1% increments from 0% to 100%.

### ***HUMIDITY RELATIVE SET POINT***

This relative set point is used to set the humidity level at which *VARIABLE STAGE (1-6)* will be activated for dehumidification. Variable stage (1-6) will be activated at its minimum speed when the actual humidity reaches the *HUMIDITY SET POINT + VARIABLE STAGE (1-6) HUMIDITY RELATIVE SET POINT* even if *VARIABLE STAGE (1-6) START TEMPERATURE* hasn't been reached. There is a fixed **Differential** of 3RH% on this logic. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

### ***HUMIDITY RELATIVE SET POINT LEVEL 2***

This relative set point is used to set the humidity level at which variable stage (1-6) will be activated for level 2 dehumidification. Variable stage (1-6) will be activated at its minimum speed when the actual humidity reaches the *HUMIDITY SET POINT + VARIABLE STAGE (1-6) HUMIDITY RELATIVE SET POINT LEVEL 2* even if *VARIABLE STAGE (1-6) START TEMPERATURE* hasn't been reached. There is a fixed **Differential** of 3RH% on this logic. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

### ***ADD MINIMUM SPEED FOR HUMIDITY LEVEL 2***

These parameters are used to adjust the speed increase that will be applied on the variable stage for the level 2 dehumidification logic. When the actual humidity reaches *HUMIDITY SET POINT + VARIABLE STAGE (1-6) HUMIDITY RELATIVE SETPOINT LEVEL 2*, variable stage (1-6)'s will be increased by *VARIABLE STAGE (1-6) ADD MINIMUM SPEED FOR HUMIDITY LEVEL 2* and, if *VARIABLE STAGE (1-6) START TEMPERATURE* isn't reached, it will activate continuously at its new minimum speed. These parameters are adjusted in 1% increments from 0% to 100%.

### ***CO2 INFLUENCE***

This parameter is used to activate or deactivate CO2 influence for the variable stage. When the CO2 concentration reaches *MINIMUM CO2 INFLUENCE SETPOINT*, the stage speed is increased by *MINIMUM CO2 INFLUENCE*. The influence will linearly increase to reach *MAXIMUM CO2 INFLUENCE* at *MAXIMUM CO2 INFLUENCE SETPOINT*. When the CO2 concentration is equal or superior to *MAXIMUM CO2 INFLUENCE SETPOINT*, the stage speed increases by *MAXIMUM CO2 INFLUENCE*. When this option is set to on, the variable stage can also be activated by the CO2 concentration when it's not activated by temperature. When activated by CO2, the stage is speed is equal to the stage's minimum speed plus the calculated CO2 influence.

### ***MINIMUM/MAXIMUM CO2 INFLUENCE SETPOINT***

These parameters are used to determine at which CO2 concentration the CO2 influence will be minimum and maximum. When the CO2 concentration is equal to *MINIMUM CO2 INFLUENCE SETPOINT*, the stage's speed is increased by *MINIMUM CO2 INFLUENCE*. When the CO2 concentration is equal to *MAXIMUM CO2 INFLUENCE SETPOINT*, the stage's speed is increased by *MAXIMUM CO2 INFLUENCE*. These parameters are relative to the CO2 zone setpoint.

### ***CO2 DIFFERENTIAL***

This parameter is used to adjust at which CO2 concentration the CO2 influence will cease to have effect. When the CO2 concentration decreases to *MINIMUM CO2 INFLUENCE SETPOINT* minus the value of this parameter, the CO2 influence has no effect on the stage.

### ***MINIMUM/MAXIMUM CO2 INFLUENCE***

These parameters set the minimum and maximum speed increase for the variable stage. When the CO2 concentration is equal to *MINIMUM CO2 INFLUENCE SETPOINT*, the speed increase will be equal to *MINIMUM CO2 INFLUENCE*. When the CO2 concentration is equal to *MAXIMUM CO2 INFLUENCE SETPOINT*, the speed increase will be equal to *MAXIMUM CO2 INFLUENCE*.

### ***MINIMUM SPEED REFERENCE FOR INLET***

These parameters are used to set the reference speed used by Position Mode inlets for the beginning of the **Modulation Band** of the variable stage. The inlets positions in Position Mode will modulate from de *AIR INLET (1-8) VARIABLE (1-6) START POSITION* when variable stage is activated at *VARIABLE STAGE (1-6) MINIMUM SPEED REFERENCE FOR INLET*. The inlet opening will increase proportionally to the variable stage speed to reach *AIR INLET (1-8) VARIABLE (1-6) END POSITION* when the variable stage is active to *VARIABLE STAGE (1-6) MAXIMUM SPEED*. These parameters are adjusted in 1% increments from 0% to 100%.

### ***NATURAL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the natural shutoff function will be overridden. When a ventilation stage that would be activated by temperature or otherwise is deactivated because the controller is in natural mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If natural mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***TUNNEL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the tunnel shutoff function will be overridden. When a ventilation stage that would be activated by temperature or otherwise is deactivated because the controller is in tunnel mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If tunnel mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***SETPOINT INFLUENCE OUTSIDE TEMPERATURE***

These parameters are used to define the temperature from which the outside temperature will have an influence on the operation of the variable stages. If the outside temperature is less than or equal to this setpoint, the process of the current speed of the variable stage takes into account of the parameter *INFLUENCE OUTSIDE TEMPERATURE*. These settings are adjustable in 0.1 ° increments from -40.0 °C to 40.0 °C (-40.0 °F to 120.0 °F).

### ***INFLUENCE OUTSIDE TEMPERATURE***

These parameters are used to adjust the *START TEMPERATURE* of the variable stages when the outside temperature is less than or equal to the *SETPOINT INFLUENCE OUTSIDE TEMPERATURE*, if this latter condition is verified, the value of this parameter is added to one of the *START TEMPERATURE* during the process of the value of the current speed of the variable stage. These settings are adjustable in 0.1 ° increments from -40.0 °C to 40.0 °C (-40.0 °F to 120.0 °F).

### ***TIMER VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated on timer when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the variable ventilators selected only here will activate at the stage's minimum speed during the active portion of its timer. Variable ventilators selected here and in *PROGRESSIVE VARIABLE VENTILATOR SELECTION* will activate at the stage's calculated speed during the active portion of its timer. Variable ventilators selected here and in *MAXIMUM SPEED VARIABLE VENTILATOR SELECTION* will activate at the stage's maximum speed during the active portion of its timer.

### ***TIMER CYCLE # VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated on timer as well as the timer cycle on which they will be activated when Configurable Ventilation Stages and Alternating Timers are used.

### ***PROGRESSIVE VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated at variable speed when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the variable ventilators selected only here will activate at the stage's calculated speed.

### ***MAXIMUM SPEED VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated at maximum speed when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the variable ventilators selected only here will activate at the stage's maximum speed.

### ***TIMER ON/OFF VENTILATOR SELECTION***

These parameters are used to select the on/off ventilators that will be activated on timer when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the on/off ventilators selected only here will activate during the active portion of its timer.

### ***TIMER CYCLE # ON/OFF VENTILATOR SELECTION***

These parameters are used to select the ON/OFF ventilators that will be activated on timer as well as the timer cycle on which they will be activated when *CONFIGURABLE VENTILATION STAGES* and *ALTERNATING TIMERS* are used.

### ***ACTIVE ON/OFF VENTILATOR SELECTION***

These parameters are used to select the on/off ventilators that will be activated *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the on/off ventilators selected only activate full time.



### **ON/OFF STAGES**

#### **CURRENT MAIN SETPOINT**

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

#### ***ON TEMPERATURE***

These parameters are used to set the temperature at which the on/off stage will be activated. When the temperature selected in *ON/OFF STAGE (1-10) PROBES* reaches this temperature, the on/off cooling stage will be activated continuously. These parameters may be adjusted in 0.1° increments from *MAIN SETPOINT* - 10.0° to *MAIN SETPOINT* + 40.0°.

#### ***DIFFERENTIAL***

These parameters are used to set the temperature at which the on/off stage will be deactivated. When the temperature selected in *ON/OFF STAGE (1-10) PROBES* drops to *ON/OFF STAGE (1-10) ON TEMPERATURE* - *ON/OFF STAGE (1-10) DIFFERENTIAL* -, the on/off cooling stage will be deactivated. These parameters may be adjusted in 0.1° increments from 0.5° to 25.0°.

#### ***PROBES***

These parameters are used to select the probes the on/off stage will use to determine activation and deactivation according to temperature demand. To **If there are no probes selected, the temperature used will be equal to the actual *MAIN SETPOINT*.**

#### ***TIMER***

These parameters are used to set the timer used by the on/off stage when it is not activated on temperature demand. If one of these parameters is set to OFF, the stage will not use any timer. These parameters can be adjusted from OFF, 1 to 2.

#### ***ALTERNATING TIMER***

These parameters are used to select the timer cycle that the ON/OFF stage will use. At each timer's ON time, the cycle will switch between 1 and 2 and 2 and vice-versa. If this parameter is set to Cycle 1 or Cycle 2, the stage will activate during the respective timer cycle. If set to OFF, the stage will activate every ON time, regardless of the current timer cycle.

### ***NATURAL SHUTOFF***

These parameters are used to activate or deactivate the natural shutoff logic for the ventilation stage. If a natural shutoff option is set to YES, corresponding ventilation stage will deactivate when natural mode is entered. If it is set to NO, natural mode will not affect the ventilation stage.

### ***TUNNEL SHUTOFF***

These parameters are used to activate or deactivate the tunnel shutoff logic for the stage. If a tunnel shutoff option is set to YES, corresponding variable ventilation stage will deactivate when tunnel mode is entered. If it is set to NO, tunnel mode will not affect the ventilation stage. The stage that is selected to start tunnel mode cannot be shut off by tunnel mode even if the corresponding tunnel shut off option is set to YES.

### ***ACTIVATION DELAY***

This parameter is used to set time for which an on/off stage will wait before activating in order to allow other elements to anticipate the ventilation state in which the control will be. When an on/off stage receives an activation demand, it will wait for this amount of time before activating its outputs. This parameter can be adjusted to any value from 0:00 to 300:59 minutes.

### ***NATURAL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the natural shutoff function will be overridden. When a ventilation stage that would be activated by temperature or otherwise is deactivated because the controller is in natural mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If natural mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***TUNNEL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the tunnel shutoff function will be overridden. When a ventilation stage that would be activated by temperature or otherwise is deactivated because the controller is in tunnel mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If tunnel mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***TIMER VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated on timer when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the variable ventilators selected here will activate at 100%.

### ***TIMER CYCLE # VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated on timer as well as the timer cycle on which they will be activated when *CONFIGURABLE VENTILATION STAGES* and *ALTERNATING TIMERS* are used.

### ***MAXIMUM SPEED VARIABLE VENTILATOR SELECTION***

These parameters are used to select the variable ventilators that will be activated at maximum speed when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the variable ventilators selected only here will activate at the stage's maximum speed.

### ***TIMER ON/OFF VENTILATOR SELECTION***

These parameters are used to select the on/off ventilators that will be activated on timer when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the on/off ventilators selected only here will activate during the active portion of its timer.

### ***TIMER ON/OFF VENTILATOR SELECTION***

These parameters are used to select the on/off ventilators that will be activated on timer when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the on/off ventilators selected only here will activate during the active portion of its timer.

### ***TIMER CYCLE # ON/OFF VENTILATOR SELECTION***

These parameters are used to select the ON/OFF ventilators that will be activated on timer as well as the timer cycle on which they will be activated when *CONFIGURABLE VENTILATION STAGES* and *ALTERNATING TIMERS* are used.

### ***ACTIVE ON/OFF VENTILATOR SELECTION***

These parameters are used to select the on/off ventilators that will be activated when *CONFIGURABLE VENTILATION STAGES* is used. When the respective stage is the active stage and that stage uses a timer, the on/off ventilators selected only here will activate full time.

## HEATERS



### CURRENT MAIN SETPOINT

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

### ON TEMPERATURE

These parameters are used to set the temperature at which the heater stage will be activated. When the temperature of the probes selected in the corresponding *HEATER (1-6) PROBES* parameter drops to this temperature, the heater will be activated. These parameters are relative to the *MAIN SETPOINT* and may be adjusted in 0.1° increments from *MAIN SETPOINT* - 40.0° to *MAIN SETPOINT* + 40.0°.

### DIFFERENTIAL

These parameters are used to set the temperature at which the heater stage will be deactivated. When the temperature of the probes selected in the corresponding *HEATER (1-6) PROBES* parameter rises to *HEATER (1-6) ON TEMPERATURE* + *HEATER (1-6) DIFFERENTIAL*, the heater will be deactivated. These parameters are adjusted in 0.1° increments from 0.3° to 25.0°.

### PROBES

These parameters are used to select the probes the heater will use to determine activation and deactivation according to temperature demand. **If there are no probes selected, the temperature used will be equal to the actual *MAIN SETPOINT*.**

### HIGH TEMPERATURE SHUTOFF

This parameter sets the temperature of the probes selected in the corresponding *HEATER (1-6) PROBES* at which a heater will deactivate in all modes. Temperature, dehumidification, manual mode and even the toggle switches will not be permitted to activate a heater whose temperature has risen to this set point. A fixed **Differential** of 1.0° is used with this logic. This parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C, OFF (0.0°F to 120.0°F, OFF).

### HUMIDITY SETPOINT

This parameter is used to set the humidity level at which heater dehumidification will be activated. When the actual humidity rises to this set point, *OUTSIDE TEMPERATURE* is below *OUTSIDE SETPOINT HUMIDITY DEACTIVATION* and the heater's temperature is below the activation temperature of the stage selected at *VENTILATION STAGE STOP DEHUMIDIFICATION*, that heater will be activated for *HUMIDITY TIMER ON TIME* and deactivated for *HUMIDITY TIMER OFF TIME*. A fixed **Differential** of 3RH% is used with this logic. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

### HUMIDITY TIMER ON TIME

This parameter is used to set the on time of the heater dehumidification timer. When heater dehumidification logic is activated, the heaters will be activated for this amount of time and deactivated for *HUMIDITY TIMER OFF TIME*. This parameter can be adjusted from 0:00 minutes to 300:59 minutes.

### ***HUMIDITY TIMER OFF TIME***

This parameter is used to set the off time of the heater dehumidification timer. When heater dehumidification logic is activated, the heaters will be activated for *HUMIDITY TIMER ON TIME* and deactivated for this amount of time. This parameter is adjusted from 0:00 minutes to 300:59 minutes.

### ***OUTSIDE SETPOINT HUMIDITY DEACTIVATION***

This parameter is used to set the OUTSIDE TEMPERATURE at which heater dehumidification will not be allowed. When the OUTSIDE TEMPERATURE rises to this temperature, all heaters will not be allowed to activate for dehumidification. A fixed **Differential** of 0.3° is used with this logic. This parameter is adjusted in 0.1° increments from -40.0°C to 40.0°C (-40.0°F to 120.0°F).

### ***VENTILATION STAGE STOP DEHUMIDIFICATION***

This parameter is used to select which ventilation stage's activation temperature will be used to stop a heater's dehumidification function. When a heater's temperature reaches the activation temperature of the stage selected here, that heater's dehumidification function will cease. Adjusting this parameter to None will remove dehumidification deactivation by the heater's temperature.

### ***RUN IN NATURAL MODE***

This parameter is used to determine if the heaters are allowed to be activated when the Natural Mode is active. If this parameter is set to No, the heaters will never be allowed to activate when the system is in Natural Mode. If this parameter is set to Yes, the heaters will be allowed to activate when the system is in Natural Mode.



## **SPRINKLER**



### **ACTUAL TIMER**

These parameters display the current timer used by the sprinkler output. This parameter can display OFF, 1, 2 or Soak.

### **ACTUAL TIMER ON TIME LEFT**

These parameters display the remaining on time of the timer used by the sprinkler output. This value is displayed to the nearest second from 00:00 minutes to 300:59 minutes.

### **ACTUAL TIMER ON TIME PERIOD**

These parameters display the total on time of the timer used by the sprinkler output. This value is displayed to the nearest second from 00:00 minutes to 300:59 minutes.

### **ACTUAL TIMER OFF TIME LEFT**

These parameters display the remaining off time of the timer used by the sprinkler output. This value is displayed to the nearest second from 00:00 minutes to 300:59 minutes.

### **ACTUAL TIMER OFF TIME PERIOD**

These parameters display the total off time of the timer used by the sprinkler output. This value is displayed to the nearest second from 00:00 minutes to 300:59 minutes.

### ***TIMER 1 ON TEMPERATURE***

This parameter is used to adjust the first sprinkler timer's activation temperature. Timer 1 will be activated when the temperature selected in *SPRINKLER PROBES* is equal to or above this set point and under *TIMER 2 ON SPRINKLER TIMER 1 ON TIME TEMPERATURE*. When this temperature is reached, the sprinkler will be activated for and deactivated for *SPRINKLER TIMER 1 OFF TIME*. This parameter is adjusted in 0.1° increments from *MAIN SETPOINT* - 40.0° to *MAIN SETPOINT* + 40.0°.

### ***TIMER 1 DIFFERENTIAL***

This parameter is used to adjust the first sprinkler timer's deactivation temperature. When the temperature selected in *SPRINKLER PROBES* drops to *SPRINKLER TIMER 1 ON TEMPERATURE* - , *SPRINKLER TIMER 1 DIFFERENTIAL* the timer 1 logic will no longer be effective. This parameter is adjusted in 0.1° increments from the *SPRINKLER TIMER 1 ON TEMPERATURE* - 0.5° to *SPRINKLER TIMER 1 ON TEMPERATURE* - 10.0°.

### ***TIMER 1 ON TIME***

This parameter is used to adjust the on time of the first sprinkler timer. When the *SPRINKLER TIMER 1 ON TEMPERATURE* is reached the sprinkler will be activated for this amount of time and deactivated for *SPRINKLER TIMER 1 OFF TIME*. This parameter is adjusted in 1-second increments from 0:00 minutes to 300:59 minutes.

### ***TIMER 1 OFF TIME***

This parameter is used to adjust the off time of the first sprinkler timer. When the *TIMER 1 ON TEMPERATURE* is reached the sprinkler will be activated for *SPRINKLER TIMER 1 ON TIME* and deactivated for this amount of time. This parameter is adjusted in 1-second increments from 0:00 minutes to 300:59 minutes.

### ***TIMER 2 ON TEMPERATURE***

This parameter is used to adjust the second sprinkler timer's activation temperature. Timer 2 will be activated when the temperature selected in *SPRINKLER PROBES* is equal to or above this set point. When this temperature is reached, the sprinkler will be activated for *SPRINKLER TIMER 2 ON TIME* and deactivated for *SPRINKLER TIMER 2 OFF TIME*. This parameter is adjusted in 0.1° increments from *MAIN SETPOINT* - 10.0° to *MAIN SETPOINT* + 40.0°.

### ***TIMER 2 DIFFERENTIAL***

This parameter is used to adjust the second sprinkler timer's deactivation temperature. When the temperature selected in *SPRINKLER PROBES* drops to *SPRINKLER TIMER 2 ON TEMPERATURE* - , *SPRINKLER TIMER 2 DIFFERENTIAL*, the timer 2 logic will no longer be effective. This parameter is adjusted in 0.1° increments from the *SPRINKLER TIMER 2 ON TEMPERATURE* - 0.5° to *SPRINKLER TIMER 2 ON TEMPERATURE* - 10.0°.

### ***TIMER 2 ON TIME***

This parameter is used to adjust the on time of the second sprinkler timer. When the *SPRINKLER TIMER 2 ON TEMPERATURE* is reached the sprinkler will be activated for this amount of time and deactivated for *SPRINKLER TIMER 2 OFF TIME*. This parameter is adjusted in 1-second increments from 0:00 minutes to 300:59 minutes.

### ***TIMER 2 OFF TIME***

This parameter is used to adjust the off time of the second sprinkler timer. When the *SPRINKLER TIMER 2 ON TEMPERATURE* is reached the sprinkler will be activated for *SPRINKLER TIMER 2 ON TIME* and deactivated for this amount of time. This parameter is adjusted in 1-second increments from 0:00 minutes to 300:59 minutes.

### ***ACTIVATION PERIOD START***

This parameter is used to set the beginning of the sprinkler activation period. When the time of day reaches the time set here, the sprinkler output will be allowed to activate according to temperature. Setting this value to the same value as the *SPRINKLER ACTIVATION PERIOD END* will cancel the deactivation period. This parameter can be set to any value from 12:00A to 11:59P (0:00 to 23:59).

### ***ACTIVATION PERIOD END***

This parameter is used to set the end of the sprinkler activation period. When the time of day reaches the time set here, the sprinkler output will no longer be allowed to activate according to temperature. Setting this value to the same value as the *SPRINKLER ACTIVATION PERIOD START* will cancel the deactivation period. This parameter can be set to any value from 12:00A to 11:59P (0:00 to 23:59).

### ***HUMIDITY INFLUENCE***

This option is used to determine if the sprinkler will be deactivated by the actual humidity. If this option is set to ON the sprinkler will be deactivated if humidity is above the *SPRINKLER HUMIDITY SETPOINT*. If this option is set to OFF the sprinkler will not be affected by humidity.

***HUMIDITY SETPOINT***

This parameter is used to adjust the humidity level at which the sprinkler may not be activated by temperature demand. If the *SPRINKLER HUMIDITY INFLUENCE* option is set to ON, the sprinkler will be deactivated if humidity is above this set point. A fixed **Differential** of 3RH% is used with this logic. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

***SOAKING CYCLE***

This parameter is used to activate or deactivate the soak cycle. As soon as this option is set to ON, the sprinkler will be activated for the *SPRINKLER SOAKING TIME ON* and will be deactivated for the *SPRINKLER SOAKING TIME OFF*. This cycle will continue for a period of time equal to the *SPRINKLER SOAKING DURATION*. As soon as the *SPRINKLER SOAKING DURATION* has elapsed, this parameter will automatically be reset to OFF. The user may also cancel the soak cycle at any time by adjusting this option to OFF before the *SPRINKLER SOAKING DURATION* has elapsed. The soak cycle has priority over all other sprinkler timers.

***SOAKING DURATION***

This parameter is used to determine the amount of time for which the soak cycle will be active after the *SPRINKLER SOAKING CYCLE* option has been set to ON. As soon as this period of time has elapsed, the *SPRINKLER SOAKING CYCLE* option will automatically be reset to OFF. This parameter is adjusted in 1-minute increments from 0:00 hours to 300:59 hours.

***SOAKING ON TIME***

This parameter is used to adjust the on time of the soak timer. When the *SPRINKLER SOAKING CYCLE* option has been set to ON, the sprinkler will be activated for this amount of time and deactivated for the *SPRINKLER SOAKING TIME OFF*. Setting this parameter to 0 will deactivate the soak timer. This parameter is adjusted in 1-second increments from 0:00 minutes to 300:59 minutes.

***SOAKING OFF TIME***

This parameter is used to adjust the off time of the soak timer. When the *SPRINKLER SOAKING CYCLE* option has been set to ON, the sprinkler will be activated for the *SPRINKLER SOAKING TIME ON* and deactivated for this amount of time. Setting this parameter to 0 will activate the sprinkler continuously during the soak cycle. This parameter is adjusted in 1-second increments from 0:00 minutes to 300:59 minutes.

***SOAKING TIME LEFT***

These parameters display the remaining time of the soak cycle. After the *SPRINKLER SOAKING CYCLE* option has been set to ON, this parameter will start to decrease as time advances. The value displayed may vary from 0:00 hours to 300:59 hours.

***PROBES***

These parameters are used to select the probes the sprinkler will use to determine activation and deactivation according to temperature demand. **If there are no probes selected, the temperature used will be equal to the actual MAIN SETPOINT.**

## **CLOCKS**



### ***NUMBER OF CYCLES***

This parameter is used to set the number of cycles that are used and displayed when using mode 1. The cycles with a number lower than the number adjusted here will disappear and not be considered. This parameter can be adjusted from 1 to 15 cycles.

### ***START TIME CYCLE (1-15)***

These parameters are used to set the time at which the clock cycle will begin. When the time of day reaches this time, the clock outputs will activate. These parameters are adjusted in 1-minute increments from 0:00 to 23:59 (12:00A to 11:59P).

### ***STOP TIME CYCLE (1-15)***

These parameters are used to set the time at which the clock cycle will end. When the time of day reaches this time, the clock output will deactivate. These parameters are adjusted in 1-minute increments from 0:00 to 23:59 (12:00A to 11:59P).

### ***RUN TIME CYCLE (1-15)***

These parameters are used to set the time for which the clock cycle will run. When the time of day reaches *CLOCK (1-4) START TIME CYCLE (1-15) + CLOCK (1-4) RUN TIME CYCLE (1-15)*, the clock output will deactivate. These parameters are adjusted in 1-second increments from 0:00 to 300:59 minutes.

### ***START TIME CYCLE (1-3)***

These parameters are used to set the time at which the first repetition of the cycle will start when Mode 2 is used. When the time of day reaches this time, the cycle will activate for the first time. These parameters are adjusted in 1-minute increments from 0:00 to 23:59 (12:00A to 11:59P).

### ***DURATION CYCLE (1-3)***

These parameters are used to set the time for which the clock cycle will last in Mode 2. Each repetition of the cycle will have a duration equal to the value adjusted here. These parameters are adjusted in 1-minute increments from 0:00 to 23:59 hours.

### ***REPETITION CYCLE (1-3)***

These parameters are used to set the time after which the clock cycle will repeat itself in Mode 2. Each time a number of hours equal to the value adjusted here have elapsed after *CLOCK (1-4) START TIME CYCLE (1-3)*, the cycle repetition will begin. All repetition must begin at 23:59 (11:59P) at the latest, or else they will be cancelled. These parameters are adjusted in 1-minute increments from 0:00 to 23:59 hours.

### ***NUMBER OF REPETITIONS CYCLE (1-3)***

These parameters are used to set the number of times the cycle will repeat itself each day. Adjusting this value to 0 deactivates the cycle. These parameters are adjustable from 0 to 12.

## **INFLATABLE CURTAIN**



### **CURRENT MAIN SETPOINT**

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

### ***BLOWER (1-4) OPENING TEMPERATURE***

These parameters are used to set temperature at which the inflatable curtain stage will open. When the temperature of the probes selected in *INFLATABLE CURTAIN (1-8) PROBES* is equal or above to this value, the inflatable curtain blower will deactivate. These parameters are adjustable in 0.1° increments from *MAIN SETPOINT* – 40.0° to *MAIN SETPOINT* + 40.0°.

### ***BLOWER (1-4) DEFLATION DELAY***

These parameters are used to set the minimum deactivation delay between the previous inflatable curtains blower and this one. When the previous inflatable curtain stage deflates, the controller will wait at least this amount of time before deflating this stage. For proper inflatable curtain operation, all set points of a given inflatable curtain must be set in ascending order. This parameter can be adjusted to any value from 0:00 to 300:59 minutes.

### ***BLOWER (1-3) INFLATION DELAY***

These parameters are used to set the minimum activation delay between the next inflatable curtains blower and this one. When the next inflatable curtain stage inflates, the controller will wait at least this amount of time before inflating this stage. For proper inflatable curtain operation, all set points of a given inflatable curtain must be set in ascending order. This parameter can be adjusted to any value from 0:00 to 300:59 minutes.

### ***DIFFERENTIAL***

These parameters are used to set temperature at which the inflatable curtain blowers will close. When the temperature of the probes selected in *INFLATABLE CURTAIN (1-8) PROBES* is equal or below *INFLATABLE CURTAIN (1-8) BLOWER (1-4) OPENING TEMPERATURE* - *INFLATABLE CURTAIN (1-8) DIFFERENTIAL*, the inflatable curtain blower will activate. These parameters are adjustable in 0.1° increments from 0.3° to 25.0°.

### ***MINIMUM VENTILATION ON TIME***

This parameter is used to adjust the deflation time for the minimum ventilation timer. This parameter determines the time for which stage 1 will deflate when it has remained inflated for a period of time equal to *INFLATABLE CURTAIN (1-8) MINIMUM VENTILATION OFF TIME*. This parameter can be adjusted from 0:00 to 300:59 minutes.

### ***MINIMUM VENTILATION OFF TIME***

This parameter is used to adjust the idle time for the minimum ventilation timer. This parameter determines the time for which stage 1 must be inflated before it deflates according to the *INFLATABLE CURTAIN (1-8) MINIMUM VENTILATION ON TIME*. If stage 1 has remained inflated for a time equal to *INFLATABLE CURTAIN (1-8) MINIMUM VENTILATION OFF TIME*, it will deflate for *INFLATABLE CURTAIN (1-8) MINIMUM VENTILATION ON TIME* even if its deflation temperature has not been reached. This parameter can be adjusted from 0:00 to 300:59 minutes.

### ***PROBES***

This is used to select the inside temperature probes that will be used by the Inflatable curtain. The average of the selected probes will dictate opening and closing. **If there are no probes selected, the temperature used will be equal to the MAIN SETPOINT.**

### ***DRAINING TIME***

This parameter establishes the time at which stages 2 to 4 will inflate to evacuate water accumulation on the membrane of those stages. The inflation delays between stages will be applied within *DRAINING DURATION*. The drainage of those stages will be performed only when they have been deflated for 24 hours or more. Only one inflatable inlet will perform its draining sequence at a time. If more than one inflatable inlet requires draining, they will be performed one at a time. This parameter can be adjusted from 12:00A to 11:59P (00:00 to 23:59).

### ***DRAINING DURATION***

This parameter determines the inflation time for stages 2 to 4 during a drainage sequence. The inflation delays between stages will be applied within the drainage time adjusted here. This parameter can be adjusted from 0:00 to 300:59 minutes.

### ***CLOSE IN TUNNEL***

This parameter allows the user to set if the inflatable curtain will close in tunnel mode. When this parameter is set to Yes, the inflatable curtain will completely close when controller begins tunnel mode. This parameter will not be available if the tunnel mode is not used.

### ***RAIN/WIND COMPENSATION***

This parameter displays the actual rain/wind compensation state. When the inflatable curtain stages close for rain/wind compensation, this parameter displays ON. When the rain/wind compensation does not affect the inflatable curtain stages, this parameter displays OFF.

### ***WIND COMPENSATION DIRECTION***

These parameters are used to determine the wind direction that triggers compensation for the inflatable curtain. A wind must at least partially come from the adjusted direction to cause rain/wind compensation. For example, if the selected direction is North, wind from North-West, North and North-East will all affect the inflatable curtain. When the wind comes at least partially from the direction chosen here, its speed is at *INFLATABLE CURTAIN (1-8) WIND COMPENSATION SPEED* and the rain detector is active, the inflatable curtain will close a number of stages equal to *INFLATABLE CURTAIN (1-8) NUMBER OF BLOWERS COMPENSATION*. The wind direction can be North, East, South or West.

### ***WIND COMPENSATION SPEED***

These parameters are used to determine the wind speed that triggers compensation for the inflatable curtain. A wind must have a speed equal to or greater than this value to affect an inflatable curtain. When the wind comes at least partially from the *INFLATABLE CURTAIN (1-8) WIND COMPENSATION SPEED*, its speed is equal to or greater the value adjusted here and the rain detector is active, the inflatable curtain will close a number of stages equal to *INFLATABLE CURTAIN (1-8) NUMBER OF BLOWERS COMPENSATION*. The wind direction can be North, East, South or West.

### ***RAIN/WIND COMPENSATION STOP DELAY***

These parameters determine the time for which the rain/wind compensation will continue after one of the conditions is no longer satisfied. When one of the conditions that causes wind/rain compensation is no longer present, either wind direction, wind speed or rain, compensation will continue for this amount of time. These parameters can be adjusted from 0:00 minutes to 300:59 minutes.

### ***NUMBER OF BLOWERS COMPENSATION***

These parameters determine the number of blowers that will activate for wind/rain compensation. When the rain/win compensation condition is ON, a number of stages selected here will close in addition to the ones that are required to close because of other conditions. Adjusting this parameter to OFF deactivates wind/rain compensation for the inflatable curtain. This parameter can be adjusted to OFF, 1 to 4 blowers.

### ***OUTSIDE SET POINT***

This parameter is used to adjust the OUTSIDE TEMPERATURE at which time 1 will be allowed to activate. Timer 1 will be active only when the OUTSIDE TEMPERATURE is equal to or below *OUTSIDE SET POINT*. If the outside probe is defective, the controller will react as if the ready was low (*OUTSIDE SET POINT* is reached). A fixed differential of 0.3° is used with this logic. This parameter is adjusted in 0.1° increments from -50.0°C to 60.0°C (-58.0°F to 140.0°F).

### ***INFLATION TIME INCREASE***

This parameter is used to adjust the percentage by which the inflation time of timer 1 will increase. For each degree of difference between the OUTSIDE TEMPERATURE and the *OUTSIDE SET POINT* when the OUTSIDE TEMPERATURE is below *OUTSIDE SET POINT*, the inflation time will increase by the percentage of *TIMER 1 PERIOD* according to the value adjusted at this parameter. This parameter is adjusted in 1% increments from 0% to 100%.

### ***MINIMUM DEFLATION TIME***

This parameter is used to adjust the minimum deflation time, represented as a percentage of *TIMER 1 PERIOD*. The deflation time will never be less than *MINIMUM DEFLATION TIME*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***TIMER 1 PERIOD***

This parameter is used to adjust the timer 1 period. Timer 1 determines the deflation time of stage 1 when the OUTSIDE TEMPERATURE is at or below *OUTSIDE SET POINT*. When the OUTSIDE TEMPERATURE is at or below *OUTSIDE SET POINT*, stage 1 will deflate according to timer 1. Stage 1 will operate according to timer 1 until the ZONE TEMPERATURE reaches the *OPENING TEMPERATURE* of stage 2. If this parameter is set to OFF, timer 1 will not be used. This parameter is adjusted in 1 minute increments from OFF, 1 minute to 15 minutes.

### ***STOP ON/OFF STAGE IN TUNNEL DRAINAGE***

This parameter is used to select which on/off ventilation stage is to be stopped when the inflatable curtain is executing its drainage while tunnel mode is active.

### ***STOP VARIABLE STAGE IN TUNNEL DRAINAGE***

This parameter is used to select which variable ventilation stage is to be stopped when the inflatable curtain is executing its drainage while tunnel mode is active.

## **LIGHTS**



### ***SYSTEM***

This parameter is used to activate or deactivate light program of the zone. To avoid activating lights when settings are adjusted, it is recommended to adjust this parameter to OFF. When this parameter is set to OFF, lights zone will be deactivated and timer will be reset. As soon as this parameter is set to ON, controller will re-evaluate all light settings of the zone.

### ***ACTUAL PERIOD***

These parameters display the current light period. The value displayed may be OFF, 1 to 10.

### ***ACTUAL CYCLE***

These parameters display the current light cycle.

### ***ACTUAL LIGHT INTENSITY***

These parameters display the current intensity of the light outputs.

### ***NUMBER OF PERIODS***

This parameter is used to adjust the amount of periods used by the zone. Deactivated periods will not be visible thorough the configuration. A zone might use up to 10 periods.

### ***INTENSITY BETWEEN CYCLES***

This parameter is used to set the intensity lights will use when they are activated but no cycle is active. Lights will modulate from *LIGHT PERIOD (1-10) MAXIMUM INTENSITY* to this intensity at the end cycle. This parameter is adjusted in 1% increments from OFF, 1% to 100%.

### ***SYSTEM OFF INTENSITY***

This parameter is used to set the intensity lights will use when *LIGHT SYSTEM* is set to OFF. This parameter is adjusted in 1% increments from 0% to 100%.



### ***START MODULATION TIME***

This parameter is used to set the time for which lights will take to go from *LIGHT PERIOD (1-10) CYCLE (1-5) MINIMUM INTENSITY* to *LIGHT PERIOD (1-10) MAXIMUM INTENSITY*. If this parameter is set to 0, lights will go directly from *LIGHT INTENSITY BETWEEN CYCLES* to intensity *LIGHT PERIOD (1-10) MAXIMUM INTENSITY*, at the beginning of a cycle. This parameter is adjusted in 1-minute increments from 0 minute to 50 minutes.

### ***END MODULATION TIME***

This parameter is used to set the time for which lights will take to go from *LIGHT PERIOD (1-10) MAXIMUM INTENSITY* to *LIGHT PERIOD (1-10) CYCLE (1-5) MINIMUM INTENSITY* at the end of a cycle. If this parameter is set to 0, lights will go directly from *LIGHT MAXIMUM INTENSITY* to intensity *LIGHT PERIOD (1-10) INTENSITY BETWEEN CYCLES*, at the end of a cycle. This parameter is adjusted in 1-minute increments from 0 minute to 50 minutes.

### ***NUMBER OF STIMULATIONS***

This parameter is used to set the amount of stimulations that will be performed in each cycle of each period. Stimulations will be distributed evenly throughout the cycle. A stimulation is performed by increasing light intensity for a short period of time within the cycle. This parameter is adjusted in 1-stimulation increments from OFF, 1 stimulation to 10 stimulations.

### ***STIMULATION INTENSITY***

This parameter is used to set the intensity lights of will take during a stimulation. This parameter is adjusted in 1% increments from 0% to 100%.

### ***STIMULATION DURATION***

This parameter is used to set the amount of time for which each stimulation will last and determines if stimulation modulates or goes directly to from *LIGHT PERIOD (1-10) MAXIMUM INTENSITY* to *LIGHT STIMULATION INTENSITY*. When a stimulation begins, lights will modulate from *LIGHT PERIOD (1-10) MAXIMUM INTENSITY* to *LIGHT STIMULATION INTENSITY* throughout a 20-second period, which is included in the duration. Lights will remain at *LIGHT STIMULATION INTENSITY* for the rest of the duration and will then modulate to *LIGHT PERIOD (1-10) MAXIMUM INTENSITY* throughout the 20-seconds period, which is not included in the duration. If this setting is adjusted to any value less than the 20 seconds, no modulation will be performed. This parameter is adjusted in 1-second increments from 10 seconds to 900 seconds.

### ***PERIOD (1-15) OPTION 24-HOUR***

These parameters are used to set this period in 24-hour cycle. Setting one of these parameters to ON results in a 24-hour cycle that will not perform any transition start, but will perform its ending transition when its ending day is reached to finish at 23:59 of this day. Note that all other cycles will be overcome by a 24-hour cycle. These parameters can be adjusted to ON or OFF.

### ***PERIOD (1-15) NUMBER OF CYCLES***

This parameter is used to adjust the amount of cycles used by the zone. Deactivated cycles will not be visible thorough the configuration. A zone might use up to 5 cycles.

### ***PERIOD (1-15) MAXIMUM INTENSITY***

These parameters are used to adjust the maximum intensity for the period. When hour of the day reaches *LIGHT PERIOD (1-15) CYCLE (1-5) ON TIME* associated to *LIGHT ACTUAL PERIOD*, lights will activate to *LIGHT PERIOD (1-15) CYCLE (1-5) MINIMUM INTENSITY* and will modulate to this value for an amount of time equal to *LIGHT START MODULATION TIME*. These parameters are adjusted in 1 % increment from 0% to 100%

### ***PERIOD (1-15) END DAY***

These parameters are used to adjust the end day for the period. This day is the last day at which the controller will consider to be in its related period. The last activated period does not have end day and will be continuously used when the last day is reached. These parameters are adjusted in 1-day increment from day 0 to day 365.

### ***PERIOD (1-15) CYCLE (1-5) MINIMUM INTENSITY***

These parameters are used to adjust the minimum cycle intensity. When hour of the day reaches *LIGHT PERIOD (1-15) CYCLE (1-5) ON TIME* related to *LIGHT ACTUAL PERIOD*, lights will activate to this intensity and will modulate to *LIGHT PERIOD (1-15) MAXIMUM INTENSITY* for an amount of time equal to *LIGHT START MODULATION TIME*. These parameters are adjusted in 1% increments from 0% to 100%.

### ***PERIOD (1-15) CYCLE (1-5) ON TIME***

These parameters are used to set the time at which the cycle will start. When hour of the day reaches hour of the start related to the *LIGHT ACTUAL PERIOD* cycle, this cycle begins. These parameters are adjusted in 1-minute increments from 12:00A to 11:59P (0:00 to 23:59).

### ***PERIOD (1-15) CYCLE (1-5) OFF TIME***

These parameters are used to set the time at which the cycle will start. When hour of the day reaches hour of the stop related to the *LIGHT ACTUAL PERIOD* cycle, this cycle ends. These parameters are adjusted in 1-minute increments from 12:00A to 11:59P (0:00 to 23:59).

### ***ASSOCIATED LUX METER***

These parameters are used to select the lux meter that will be used to measure the luminosity of the current zone. They can take the values: None, Lux meter 1-4.

### ***LUX METER RANGE***

This parameter is used to select the range of the lux meter. The selected range must match the range the lux meter can read and the wiring used.

### ***ACTUAL LUMINOSITY***

These parameters display the luminosity of the zone read by the lux meter selected in the *ASSOCIATED LUX METER* parameter.

### ***LUMINOSITY MINIMUM REDUCTION***

These parameters are used to set the minimum luminosity read by the lux meter from which a reduction proportional to the luminosity is applied to the intensity of the lights. These parameters are adjustable in increments of 1 lux from 0 lux to 1000 lux.

### ***LUMINOSITY MAXIMUM REDUCTION***

These parameters are used to set the maximum luminosity read by the lux meter which will correspond to the *MAXIMUM REDUCTION* that can be applied to the intensity of the lights. These parameters are adjustable in increments of 1 lux from 0 lux to 1000 lux.

### ***MINIMUM REDUCTION***

These parameters define the value of the reduction of the intensity of the lights that will be applied when the luminosity read by the lux meter equals the value of *LUMINOSITY MINIMUM REDUCTION*. These parameters are adjustable in increments of 1% from 0% to 100%.

### ***MAXIMUM REDUCTION***

These parameters define the maximum reduction of the intensity of the lights that will be applied when the luminosity read by the lux meter is equivalent to or greater than the *LUMINOSITY MAXIMUM REDUCTION* value. These parameters are adjustable in increments of 1% from 0% to 100%.

### ***ABSOLUTE MINIMUM INTENSITY***

These parameters are used to configure a minimum threshold that the intensity of the lights can reach after applying a reduction of the intensity, in other words, when the reduction is applied, if the value of the intensity obtained is less than *ABSOLUTE MINIMUM INTENSITY*, an adjustment will be made on the intensity of the lights so its value will be the same of this parameter. These parameters are adjustable in increments of 1% from 0% to 100%.

# Logic Diagram 1: Light cycle operation Logic diagrams and examples

*CYCLE 1 START = 12:30A*

*CYCLE 1 STOP = 2:45A*

*CYCLE 1 MIN = 30%*

*MAXIMUM INTENSITY = 55%*

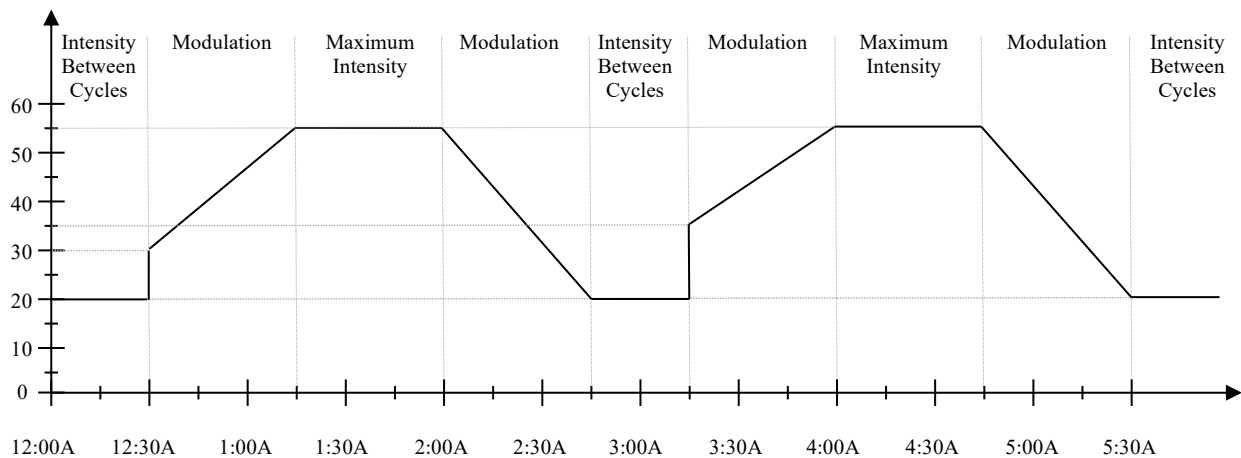
*START/END MODULATION TIME = 45 minutes*

*INTENSITY BETWEEN CYCLES = 20%*

*CYCLE 2 START = 3:15A*

*CYCLE 2 STOP = 5:30A*

*CYCLE 2 MIN = 35%*



**If two or more light cycles overlap, the active light cycle will finish before the new one activates. This situation may be caused by unusual programming or by a period change.**

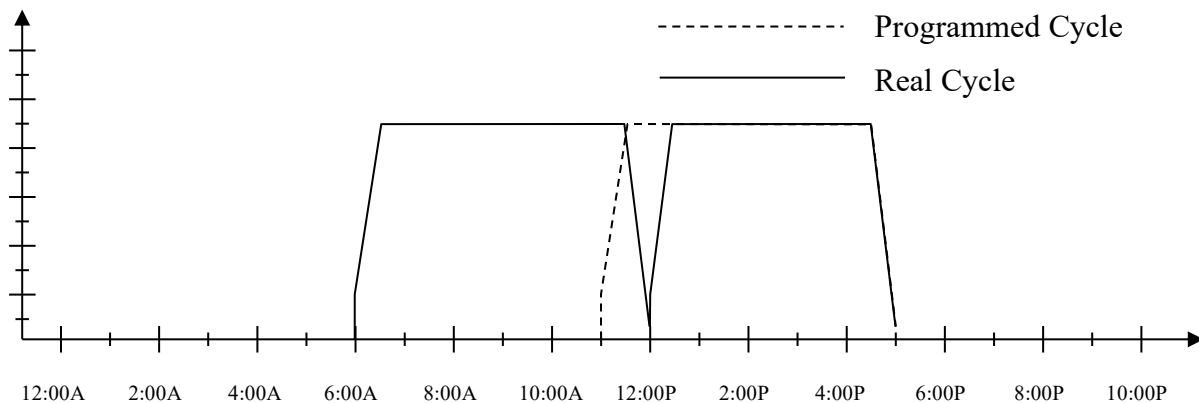
## Logic Diagram 2: Programmed overlapping light cycle operation

*CYCLE 1 START = 6:00A*

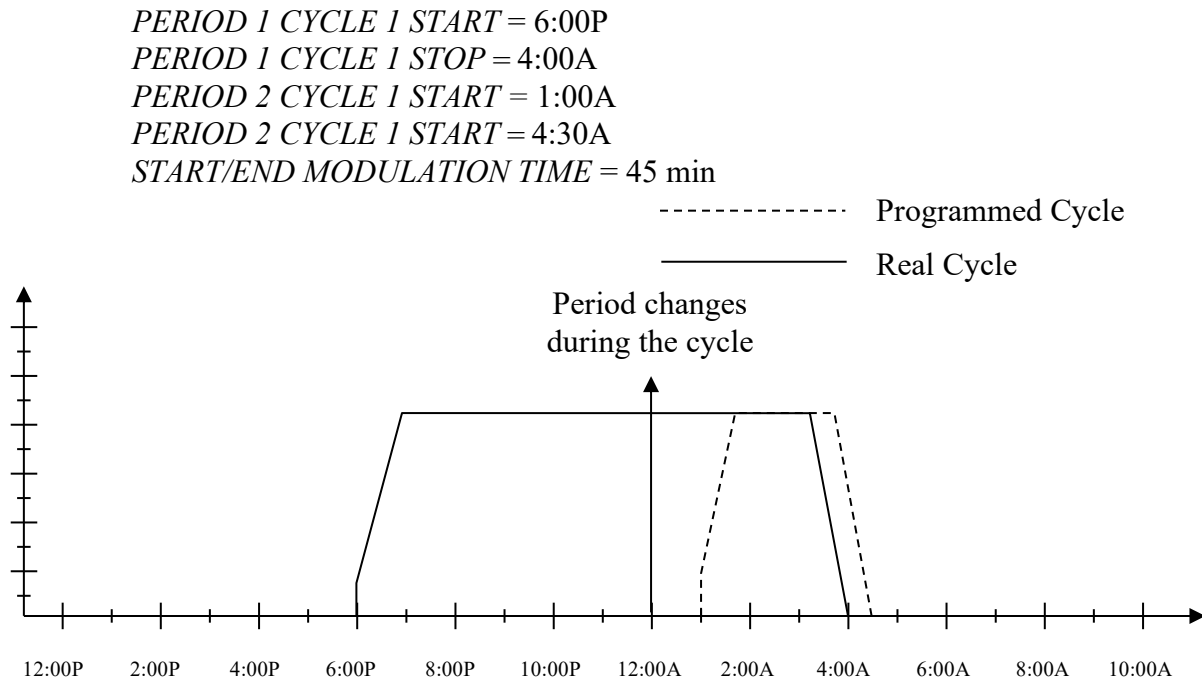
*CYCLE 1 STOP = 12:00P*

*CYCLE 2 START = 11:00A*

*CYCLE 2 STOP = 5:00P*



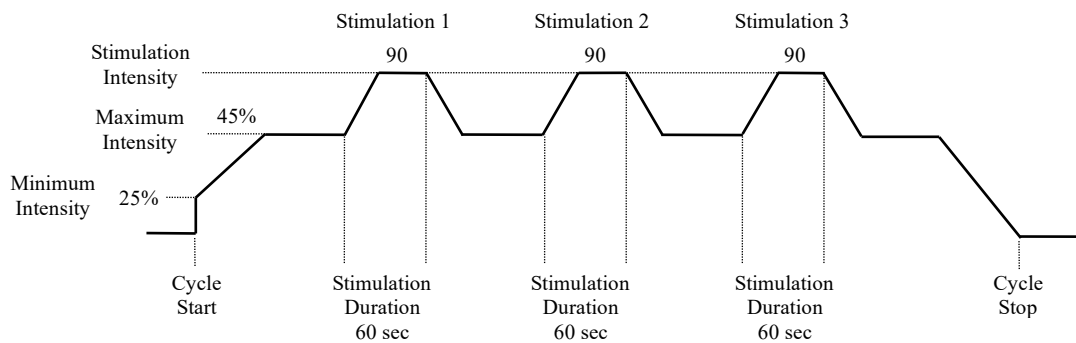
**Logic Diagram 3: Period change overlapping light cycle operation**



**Logic Diagram 4: Light stimulation with duration greater than 20 seconds**

*MAXIMUM INTENSITY = 45%*  
*STIMULATION INTENSITY = 90%*  
*NUMBER OF STIMULATIONS = 3*

*MINIMUM INTENSITY = 25%*  
*STIMULATION DURATION = 60 sec*

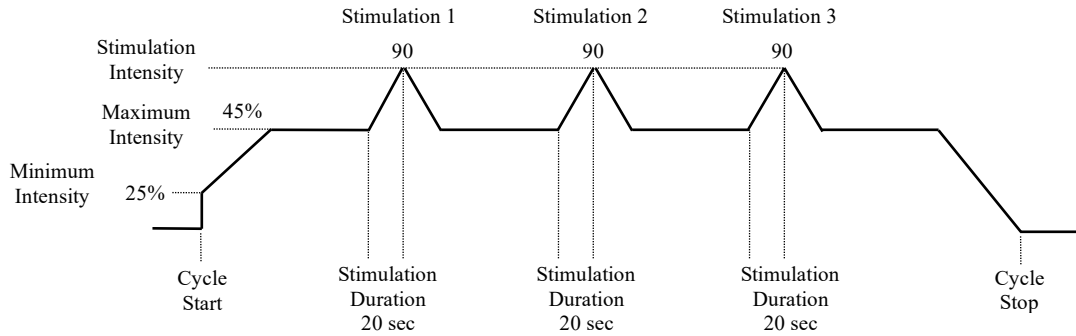


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### Logic Diagram 5: Light stimulation with duration of 20 seconds

*MAXIMUM INTENSITY* = 45%  
*STIMULATION INTENSITY* = 90%  
*NUMBER OF STIMULATIONS* = 3

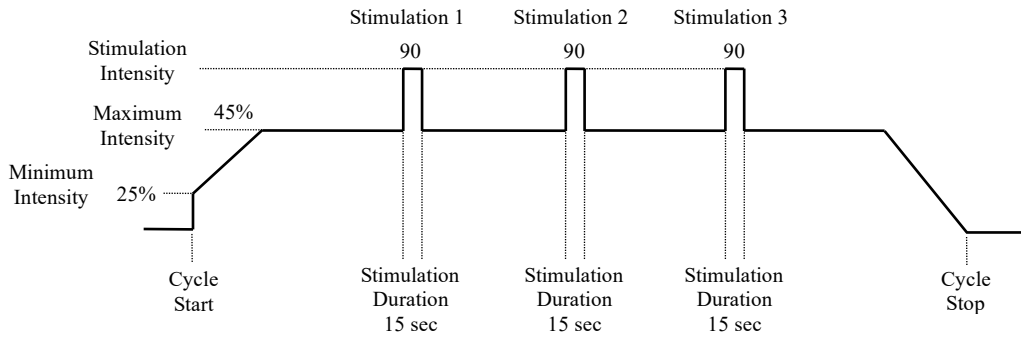
*MINIMUM INTENSITY* = 25%  
*STIMULATION DURATION* = 20 sec



### Logic Diagram 6: Light stimulation with duration lesser than 20 seconds

*MAXIMUM INTENSITY* = 45%  
*STIMULATION INTENSITY* = 90%  
*NUMBER OF STIMULATIONS* = 3

*MINIMUM INTENSITY* = 25%  
*STIMULATION DURATION* = 15 sec



**MINIMUM VENTILATION*****ON TIME (Curve available)***

These parameters are used to adjust the on time of the minimum ventilation timer used by ventilation stages when not activated on temperature demand. The minimum ventilation cycle is used to reduce humidity and insure adequate airflow is provided for the room. These parameters can be adjusted from 0:00 minutes to 300:59 minutes.

***OFF TIME (Curve available)***

These parameters are used to adjust the off time of the minimum ventilation timer used by ventilation stages when not activated on temperature demand. The minimum ventilation cycle is used to reduce humidity and insure adequate airflow is provided for the room. These parameters can be adjusted from 0:00 minutes to 300:59 minutes.

***CURVE***

These parameters are used to activate or deactivate the growth curve of the ventilation timer. If this option is set to ON and the *GROWTH DAY* is not set to OFF, values of *MINIMUM VENTILATION TIMER (1-4) ON/OFF TIME* will follow their **Growth Curve** will not be adjustable anymore. If this value is set to OFF, timers will not be affected by the *GROWTH DAY*.

### VARIABLE HEATER



#### **CURRENT MAIN SETPOINT**

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

#### ***ON TEMPERATURE***

These parameters are used to set the temperature at which the variable heater will activate at *VARIABLE HEATER (1-6) MINIMUM INTENSITY*. When the variable heater temperature is equal to this set point, the variable heater will activate at *VARIABLE HEATER (1-6) MINIMUM INTENSITY*. When the variable heater temperature is below this set point, the variable heater intensity will increase to reach *VARIABLE HEATER (1-6) MAXIMUM INTENSITY* when the temperature reaches *VARIABLE HEATER (1-6) MAXIMUM TEMPERATURE*. A fixed **Differential** of 0.3° is used with this logic. These parameters are adjusted in 0.1° increments from *MAIN SET POINT* - 40.0° to *MAIN SET POINT* + 20.0°.

#### ***MODULATION BAND***

These parameters are used to set the temperature at which the variable heater will be activated at *VARIABLE HEATER (1-6) MAXIMUM INTENSITY*. When the variable heater temperature drops and reaches *VARIABLE HEATER (1-6) ON TEMPERATURE* - *VARIABLE HEATER (1-6) MODULATION BAND*, the variable heater will be activated at *VARIABLE HEATER (1-6) MAXIMUM INTENSITY*. These parameters are adjusted in 0.1° increments from 0.3° to 25.0°.

#### ***MINIMUM INTENSITY***

These parameters are used to set the intensity that will take the variable heater when its temperature is equal to *VARIABLE HEATER (1-6) ON TEMPERATURE*. These parameters are adjusted in 1% increments from 0% to 100%.

#### ***MAXIMUM INTENSITY***

These parameters are used to set the intensity that will take the variable heater when its temperature is equal to *VARIABLE HEATER (1-6) ON TEMPERATURE* - *VARIABLE HEATER (1-6) MODULATION BAND*. These parameters are adjusted in 1% increments from 0% to 100%.

#### ***PROBES***

This is used to select the inside temperature probes that will be used by the variable heater. The average of the selected probes will dictate heater intensity. **If there are no probes selected, the temperature used will be equal to the *MAIN SETPOINT*.**

#### ***MINIMUM INTENSITY TEMPERATURE***

This parameter is used to adjust the temperature at which the variable heater output will be activated at *MINIMUM INTENSITY*. The variable heater output will be at *MINIMUM INTENSITY* as long as *TEMPERATURE READOUT* is between *MINIMUM TEMPERATURE* and *TEMPERATURE ON*. If this parameter is set to OFF, the variable heater output will activate at *MINIMUM INTENSITY* when *TEMPERATURE READOUT* is equal to *TEMPERATURE ON*.



## **VARIABLE STIR FANS**



### **CURRENT MAIN SETPOINT**

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

### **START TEMPERATURE**

When the *setpoint* mode is selected in the *Variable Stir Fan Mode* of the *Options* group, these parameters are used to set the temperature at which the variable stir fan will be activated continuously to *VARIABLE STIR FAN (1-6) MINIMUM SPEED*. A fixed **Differential** of 0.3° is used with this logic. As the average temperature of the probes selected in *VARIABLE STIR FAN (1-6) PROBES* increases, the variable stir fan's speed will increase until *VARIABLE STIR FAN (1-6) END TEMPERATURE* is reached. These parameters may be adjusted in 0.1° increments from *MAIN SET POINT* - 10.0° to *MAIN SET POINT* + 40.0°.

### **ACTIVATION DIFFERENCE**

These parameters determine the temperature at which the variable stir fan will activate when the *comparison* mode is selected in the *VARIABLE STIR FAN MODE* in the *Options* group. A fixed **differential** of 0.3 ° is used for this logic. When the temperature difference between the average temperature of the *COMPARISON PROBES* and *PROBES* reaches the value of the *ACTIVATION DIFFERENCE*, the Variable Stir Fan will activate, depending on this difference, the speed varies between the *MINIMUM SPEED* and the *MAXIMUM SPEED*. This setting is adjustable in increments of 0.1° from 0 °C to 40.0 °C (0.0 °F to 40.0 °F).

### **END TEMPERATURE**

These parameters are used to set the temperature at which the variable stir fan will be activated at *VARIABLE STIR FAN (1-6) MAXIMUM SPEED*. These parameters adjusted in 0.1° increments from *VARIABLE STIR FAN (1-6) START TEMPERATURE* + 0.5° to *VARIABLE STIR FAN (1-6) START TEMPERATURE* + 40.0°.

### **MINIMUM SPEED**

These parameters are used to adjust the minimum speed of variable stir fans. This speed is the base value used to calculate the actual minimum speed. The *OUTSIDE TEMPERATURE* and humidity may affect variable stir fans' actual minimum speed. If the minimum speed **Growth Function** for variable stir fan 1 is activated, that stage's minimum speed will not be adjustable. The minimum speed settings are adjusted in 1% increments from 0% to 100.

### **MINIMUM SPEED CURVE**

This parameter is used to activate or deactivate the **Ramping Function** on *VARIABLE STIR FAN # MINIMUM SPEED*. If set to ON and the *GROWTH DAY* is not set to OFF, the *VARIABLE STIR FAN # MINIMUM SPEED* will follow its programmed curve.

### **MAXIMUM SPEED**

These parameters are used to adjust the maximum speed of the variable stir fan. This speed will be reached when the average temperature of the probes selected in *VARIABLE STIR FAN (1-6) PROBES* reaches the corresponding *VARIABLE STIR FAN (1-6) END TEMPERATURE*. These parameters are adjusted in 1% increments from 0% to 100%.

### **MAXIMUM SPEED CURVE**

This parameter is used to activate or deactivate the **Ramping Function** on *VARIABLE STIR FAN # MAXIMUM SPEED*. If set to ON and the *GROWTH DAY* is not set to OFF, the *VARIABLE STIR FAN # MAXIMUM SPEED* will follow its programmed curve.

### **NATURAL SHUTOFF**

These parameters are used to activate or deactivate the natural shutoff logic for the variable stir fan. If a natural shutoff option is set to YES, corresponding variable stir fan will deactivate when natural mode is entered. If it is set to NO, natural mode will not affect the variable stir fan.

### **TUNNEL SHUTOFF**

These parameters are used to activate or deactivate the tunnel shutoff logic for the variable stir fan. If a tunnel shutoff option is set to YES, corresponding variable stir fan will deactivate when tunnel mode is entered. If it is set to NO, tunnel mode will not affect the variable stir fan.

### **COMPARISON PROBES**

These parameters appear when the *VARIABLE STIR FAN MODE* of the Options group is set to Comparison, they allow selecting a group of probes and compare their average to the average of the probes selected at *PROBES*. If the difference between the two averages reaches the value of the *ACTIVATION DIFFERENCE*, the variable stir fan will be activated.

### **PROBES**

These parameters are used to select the probes the variable stir fan will use to determine activation and deactivation according to temperature demand. To **If there are no probes selected, the temperature used will be equal to the actual MAIN SETPOINT.**

### **COLD SECURITY SET POINT**

These parameters are used to set at which temperature each variable stir fan will be affected by cold security. When variable stir fan temperature reaches a value less than or equal to *COLD SECURITY SET POINT*, the variable stir fan is affected by the cold security and its CURRENT SPEED will be equal to OFF. The cold security effect stops when the variable stir fan temperature reaches a value greater than *COLD SECURITY SET POINT* + 0.3°.

### ***HOT SECURITY SET POINT***

These parameters are used to set at which temperature each variable stir fan will be affected by hot security. When a variable stir fan temperature reaches a value greater than or equal to *HOT SECURITY SET POINT*, the variable stir fan is affected by hot security and its *CURRENT SPEED* will be equal to *MAXIMUM SPEED*. The effect of hot security stops when the variable stir fan temperature reaches a value lower than *HOT SECURITY HOT SET POINT* – 0.3°

### ***MINIMUM VENTILATION TIMER***

These parameters are used to set the timer used by the variable stir fan when it is not activated on temperature demand. If one of these parameters is set to OFF, the variable stir fan will not use any timer. These parameters can be adjusted from OFF, 1 to 4.

### ***NATURAL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the natural shutoff function will be overridden. When a variable stir fan that would be activated by temperature or otherwise is deactivated because the controller is in natural mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If natural mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***TUNNEL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the tunnel shutoff function will be overridden. When a stir fan that would be activated by temperature or otherwise is deactivated because the controller is in tunnel mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If tunnel mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***CO2 INFLUENCE***

These parameters are used to activate or deactivate CO2 influence for each of the variable stir fan. When the CO2 concentration reaches *MINIMUM CO2 INFLUENCE SETPOINT*, the fan speed is increased by *MINIMUM CO2 INFLUENCE*. The influence will linearly increase to reach *MAXIMUM CO2 INFLUENCE* at *MAXIMUM CO2 INFLUENCE SETPOINT*. When the CO2 concentration is equal or superior to *MAXIMUM CO2 INFLUENCE SETPOINT*, the fan speed increases by *MAXIMUM CO2 INFLUENCE*. When this option is set to on, the fan can also be activated by the CO2 concentration when it's not activated by temperature. When activated by CO2, the fan is speed is equal to the fan minimum speed plus the calculated CO2 influence.

### ***MINIMUM/MAXIMUM CO2 INFLUENCE SETPOINT***

These parameters are used to determine at which CO2 concentration the CO2 influence will be minimum and maximum. When the CO2 concentration is equal to *MINIMUM CO2 INFLUENCE SETPOINT*, the fan's speed is increased by *MINIMUM CO2 INFLUENCE*. When the CO2 concentration is equal to *MAXIMUM CO2 INFLUENCE SETPOINT*, the fan's speed is increased by *MAXIMUM CO2 INFLUENCE*. These parameters are relative to the CO2 zone setpoint.

### ***CO2 DIFFERENTIAL***

These parameters are used to adjust at which CO2 concentration the CO2 influence will cease to have effect. When the CO2 concentration decreases to *MINIMUM CO2 INFLUENCE SETPOINT* minus the value of this parameter, the CO2 influence has no effect on the fan.

### ***MINIMUM/MAXIMUM CO2 INFLUENCE***

These parameters set the minimum and maximum speed increase for each variable stir fan. When the CO2 concentration is equal to *MINIMUM CO2 INFLUENCE SETPOINT*, the speed increase will be equal to *MINIMUM CO2 INFLUENCE*. When the CO2 concentration is equal to *MAXIMUM CO2 INFLUENCE SETPOINT*, the speed increase will be equal to *MAXIMUM CO2 INFLUENCE*.

## **STIR FANS**



### **CURRENT MAIN SETPOINT**

This parameter displays the setpoint currently used. The displayed value will be the night setpoint during the night period, the day setpoint during the daytime period or a value between the two during the transition.

### **ON TEMPERATURE**

These parameters are used to set the temperature at which the stir fan will be activated. When the temperature selected in *STIR FAN (1-6) PROBES* reaches this temperature, the stir fan will be activated according to its timer. These parameters may be adjusted in 0.1° increments from -40.0°F to 120.0°F (-40.0°C to 40.0°C).

### **ACTIVATION DIFFERENCE**

This setting determines the temperature at which the Stir Fan will be activated when the comparison mode is selected in the *RECIRCULATION FAN MODE* of the Options group. When the temperature difference between the average temperature of the *COMPARATIVE PROBES* and the *PROBES* reaches the value of the *ACTIVATION DIFFERENCE*, the stir fan will be activated according to its timer. This setting is adjustable in increments of 0.1 ° from 0 °C to 40.0 °C (0.0 °F to 40.0 °F).

### **DIFFERENTIAL**

These parameters are used to set the temperature at which the stir fan will be deactivated. When the temperature selected in *STIR FAN (1-6) PROBES* drops to *STIR FAN (1-6) ON TEMPERATURE - STIR FAN (1-6) DIFFERENTIAL*, the stir fan will be deactivated. These parameters may be adjusted in 0.1° increments from 0.3° to 25.0°.

### **COMPARISON PROBES**

These parameters appear when the *STIR FAN MODE* of the Options group is set to Comparison, they allow selecting a group of probes and compare their average to the average of the probes selected at *PROBES*. If the difference between the two averages reaches the value of the *ACTIVATION DIFFERENCE*, the stir fan will be activated.

### **PROBES**

These parameters are used to select the probes the stir fan will use to determine activation and deactivation according to temperature demand. To **If there are no probes selected, the temperature used will be equal to the actual MAIN SETPOINT.**

### **TUNNEL SHUTOFF**

These parameters are used to activate or deactivate the tunnel shutoff logic for the stage. If a tunnel shutoff option is set to YES, corresponding variable stir fan will deactivate when tunnel mode is entered. If it is set to NO, tunnel mode will not affect the stir fan.

### **NATURAL SHUTOFF**

These parameters are used to activate or deactivate the natural shutoff logic for the stir fan. If a natural shutoff option is set to YES, corresponding stir fan will deactivate when natural mode is entered. If it is set to NO, natural mode will not affect the stir fan.

### ***ON TIME***

These parameters are used to set the on time of the stir fan's timer. The stir fan will activate for this amount of time and deactivate for *STIR FAN (1-6) OFF TIME* when its temperature reaches *STIR FAN (1-6) ON TEMPERATURE*. These parameters are adjusted from 0:00 to 500:59 minutes.

### ***OFF TIME***

These parameters are used to set the off time of the stir fan's timer. The stir fan will activate for *STIR FAN (1-6) ON TIME* and deactivate for this amount of time when its temperature reaches *STIR FAN (1-6) ON TEMPERATURE*. These parameters are adjusted from 0:00 to 500:59 minutes.

### ***NATURAL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the natural shutoff function will be overridden. When a stir fan that would be activated by temperature or otherwise is deactivated because the controller is in natural mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If natural mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

### ***TUNNEL MODE REACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which temperature the tunnel shutoff function will be overridden. When a stir fan that would be activated by temperature or otherwise is deactivated because the controller is in tunnel mode, it may reactivate when the associated temperature reaches this set point. A fixed **Differential** of 1.0° is used with this logic. If tunnel mode is not used, this parameter will not appear. The value of this parameter is adjusted in 0.1° increments from 0.0°C to 40.0°C (0.0°F to 120.0°F).

## AIR INLETS SETUP



### ***TYPE***

These parameters are used to set the mode according to which the inlet will operate. When this parameter is set to No Mode, the associated inlet will not move unless the manual override or toggle switches are used. Otherwise, inlets may operate according to three modes. In Position Mode, the inlet will position itself according to the position mode settings. In Position Mode, the inlet will follow ventilation stage activation according to their own probes and will be able to use temperature compensation. In Natural Position mode the inlet can trigger natural mode and will position itself according to the assigned temperature and the parameter adjustments of that mode. In Natural Time mode, the inlet can trigger natural mode and will position itself according to the assigned temperature and the parameter adjustments of that mode, but 0-10 Volt inlets cannot operate with this mode.

### ***PROBES***

This is used to select the inside temperature probes that will be used by the inlet. The average of the selected probes will dictate inlet position. **If there are no probes selected, the temperature used will be equal to the *MAIN SETPOINT*.**

### ***PRECISION***

This parameter is used to adjust the precision of the inlet. If the inlet performs unnecessary small movements, increase this value until acceptable stability is obtained. This parameter is adjusted in 1% increments from 1% to 20%.

### ***POTENTIOMETER ALARM***

This parameter is used to determine if the alarm will be activated when the inlet's potentiometer value cannot be read. If this option is set to ON and the inlet's potentiometer has an out of range reading, the alarm relay will activate. If this option is set to OFF, only an alarm message will be logged in the alarm history in the case of a potentiometer problem.

### ***MAXIMUM RUN TIME***

This parameter is used to set the maximum run time of the inlet within a ten-minute period. When an inlet has moved for a time greater than the value of this parameter within a ten-minute period, the module will not activate the open or close relays until the inlet has had time to cool down and an alarm message will be logged in the alarm history. This value should be set according to the manufacturer's specifications. Setting this value to OFF will deactivate the module cool down function. If the air inlet is already in cool down mode when this parameter is set to OFF, it will finish the cool down period before deactivating the function. It is possible to cancel the cool down sequence immediately by powering off the controller and the powering it back on. Make sure this parameter is set to OFF before powering down to cancel cool down sequence. This parameter is adjusted in 1-minute increments from 1 minute to 9 minutes, OFF.

### **LOW LIMIT CALIBRATION**

This parameter is used to set the low potentiometer limit for the inlet. This will define the lowest value the inlet's potentiometer can reach. To obtain this value, completely close the inlet using the manual override switch. Once the inlet is completely closed, press on this parameter. At this moment, the displayed text will change for Low Limit Saved, if the operation was successful, Cannot Save Low Limit, if the potentiometer value could not be saved, or Error, Check Potentiometer if the potentiometer has an out of range value. In the two last cases, the calibration must be performed again once the situation is corrected.

### **HIGH LIMIT CALIBRATION**

This parameter is used to set the low potentiometer limit for the inlet. This will define the lowest value the inlet's potentiometer can reach. To obtain this value, completely open the inlet using the manual override switch. Once the inlet is completely closed, press on this parameter. At this moment, the displayed text will change for High Limit Saved, if the operation was successful, Cannot Save High Limit, if the potentiometer value could not be saved, or Error, Check Potentiometer if the potentiometer has an out of range value. In the two last cases, the calibration must be performed again once the situation is corrected.

### ***TOTAL RUN TIME***

This parameter is used to determine the total run time of the inlet. The total run time is the time the inlet takes to go from a completely closed position to a completely open position. Time Mode inlets will use this value to convert the requested position (in percentage) to a requested run time.

### ***POSITION FOR DEFROST***

This parameter is used to set the maximum position at which the inlet can be for defrosting to be possible. If the inlet is at a position superior to the position set at this parameter, the defrosting will not be possible.

### ***DEFROST OPENING***

This parameter is used to set the position at which the inlet will open when in the ON time of the defrosting.

### ***DEFROST WAIT TIME***

This parameter is used to set the amount of time for which the inlet will follow its normal demand.

### ***DEFROST TIME***

This parameter is used to set the ON time of the defrosting cycle. During the ON time, the inlet will open to the position set at *DEFROST OPENING*.

### ***DEFROST EXTERIOR TEMPERATURE***

This parameter is used to set the temperature below which the exterior temperature must be for defrosting to be possible. This parameter is not visible if the outside probe is not in use. If the outside probe is not in use, inlet defrosting will be possible at all times.



### ***POSITION FOR MINIMUM VENTILATION***

This parameter is used to set the maximum position at which the inlet can be for minimum ventilation to be possible. If the inlet is at a position superior to the position set at this parameter, minimum ventilation will not be possible.

### ***MINIMUM VENTILATION OPENING***

This parameter is used to set the position at which the inlet will open when in the ON time of the minimum ventilation.

### ***MINIMUM VENTILATION WAIT TIME***

This parameter is used to set the amount of time for which the inlet will follow its normal demand.

### ***MINIMUM VENTILATION TIME***

This parameter is used to set the ON time of the minimum ventilation cycle. During the ON time, the inlet will open to the position set at *MINIMUM VENTILATION OPENING*.

## **AIR INLETS POSITION MODE**



### ***MANUAL OVERRIDE***

This parameter is used to manually operate the inlet. When this parameter is set to a value other than AUTO, the corresponding inlet will take the corresponding state/position. This parameter can be adjusted to AUTO, HALT, CLOSE, OPEN or any value from 0% to 100%.

### ***WINTER SETPOINT***

This parameter is used to adjust the temperature at which calculated position (*AIR INLET (1-8) MINIMUM OPENING* and *AIR INLET (1-8) VARIABLE 1 START POSITION*) will be equal to *AIR INLET (1-8) WINTER MINIMUM OPENING* and *AIR INLET (1-8) WINTER VARIABLE 1 START*. When the **Outside Temperature** is between *AIR INLET (1-8) WINTER SETPOINT* and *AIR INLET (1-8) SUMMER SETPOINT*, calculated positions will modulate according to settings. These calculated positions are displayed to the parameter *AIR INLET (1-8) MINIMUM OPENING* and on the *AIR INLET (1-8) VARIABLE 1 START POSITION*. This parameter is adjusted in 0.1° from -40.0°C to 40.0°C (-40.0°F to 120.0°F).

### ***SUMMER SETPOINT***

This parameter is used to adjust the temperature at which calculated position (*AIR INLET (1-8) MINIMUM OPENING* and *AIR INLET (1-8) VARIABLE 1 START POSITION*) will be equal to *AIR INLET (1-8) SUMMER MINIMUM OPENING* and *AIR INLET (1-8) SUMMER VARIABLE 1 START POSITION*. When the **Outside Temperature** is between *AIR INLET (1-8) WINTER SETPOINT* and *AIR INLET (1-8) SUMMER SETPOINT*, calculated positions will modulate according to settings. These calculated positions are displayed to the parameter *AIR INLET (1-8) MINIMUM OPENING* and on the *AIR INLET (1-8) VARIABLE 1 START POSITION*. This parameter is adjusted in 0.1° from -40.0°C to 40.0°C (-40.0°F to 120.0°F).

### ***WINTER MINIMUM OPENING***

This parameter is used to adjust the minimum opening position when the OUTSIDE TEMPERATURE is equal to or below *AIR INLET (1-8) WINTER SETPOINT*. When the OUTSIDE TEMPERATURE is between *AIR INLET (1-8) WINTER SETPOINT* and *AIR INLET (1-8) SUMMER SETPOINT*, the minimum opening position will modulate accordingly. The calculated minimum opening is displayed at the parameter *AIR INLET (1-8) MINIMUM OPENING*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***SUMMER MINIMUM OPENING***

This parameter is used to adjust the minimum opening position when the OUTSIDE TEMPERATURE is equal to or above *AIR INLET (1-8) SUMMER SETPOINT*. When the OUTSIDE TEMPERATURE is between *AIR INLET (1-8) WINTER SETPOINT* and *AIR INLET (1-8) SUMMER SETPOINT*, the minimum opening position will modulate accordingly. The calculated minimum opening is the parameter *AIR INLET (1-8) MINIMUM OPENING*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***WINTER VARIABLE 1 START POSITION***

This parameter allows to adjust the variable stage 1 start position (*AIR INLET (1-8) VARIABLE 1 START POSITION*) when OUTSIDE TEMPERATURE is equal or under *AIR INLET (1-8) WINTER SETPOINT* and *AIR INLET (1-8) SUMMER SETPOINT*, this position will modulate according to the adjustments. This calculated position is displayed on parameter *AIR INLET (1-8) VARIABLE 1 START POSITION*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***SUMMER VARIABLE 1 START POSITION***

This parameter is used to adjust the position of variable stage 1 start (*AIR INLET (1-8) VARIABLE 1 START POSITION*) when OUTSIDE TEMPERATURE is equal or above to *AIR INLET (1-8) SUMMER SETPOINT*. When OUTSIDE TEMPERATURE is between *AIR INLET (1-8) WINTER SETPOINT* and *AIR INLET (1-8) SUMMER SETPOINT*, this position will modulate according to the settings. This position is displayed on the parameter *AIR INLET (1-8) VARIABLE 1 START POSITION*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***MINIMUM OPENING***

This parameter is used to adjust the minimum opening position when no ventilation stages are active. When the OUTSIDE TEMPERATURE is used, the calculated minimum opening is shown here and this parameter is not adjustable. This parameter is adjusted in 1% increments from 0% to 100%.

### ***VARIABLE (1-6) START POSITION***

These parameters allow the user to set the inlet opening position when variable stage is activated at *VARIABLE STAGE (1-6) MINIMUM SPEED REFERENCE FOR INLET* or *VARIABLE STAGE (1-6) MINIMUM SPEED* (including OUTSIDE TEMPERATURE compensation, but excluding humidity compensation) according to *VARIABLE STAGE (1-6) MINIMUM SPEED AFFECTS INLET*. Inlet opening will increase proportionally to the variable stage speed to reach *AIR INLET (1-8) VARIABLE (1-6) END POSITION* when variable stage is activated at *VARIABLE STAGE (1-6) MAXIMUM SPEED*. Inlet will also be positioned when the variable stage is active on minimum ventilation or while dehumidification is active. If the outside temperature probe is used, *AIR INLET (1-8) VARIABLE 1 START POSITION* will reflect the minimum calculated position and will not be adjustable. These positions are adjusted in 1% increments from 0% to 100%.

### ***VARIABLE (1-6) END POSITION***

These parameters allow adjusting the opening position the inlet will take when variable stage is activated at *VARIABLE STAGE (1-6) MAXIMUM SPEED*. These positions are adjusted in 1% increments from 0% to 100%.

### ***POSITION AFTER STAGE (1-10)***

This parameter is used to set the position that inlet will take when the idle back function between the last variable stage and the first on/off stage is used. When *VARIABLE STAGE (1-6) IDLE BACK* of the last variable stage is set to a value other than OFF or STOP, the air inlet will modulate from the first on/off stage's position to this position throughout the last variable stage's modulation band. This parameter is adjusted in 1% increments from 0% to 100%.

### ***STAGE (1-10) POSITION***

These parameters are used to set the opening position that inlet will take when stage is activated. These positions are adjusted in 1% increments from 0% to 100%.

### ***MAXIMUM OPENING TEMPERATURE***

This parameter allows the user to set the temperature at which inlet will take the *AIR INLET (1-8) MAXIMUM OPENING* position. When related temperature to the inlet reaches this set point, the inlet will be positioned to *AIR INLET (1-8) MAXIMUM OPENING*. A fixed **Differential** of 0.3° is used with this logic. This parameter is adjusted in 0.1° increments from 0°C to 40.0°C (0.0°F to 120.0°F).

### ***MAXIMUM OPENING TEMPERATURE CURVE OPTION***

This parameter is used to activate or deactivate the *AIR INLET (1-8) MAXIMUM OPENING TEMPERATURE Growth Function*. If curve option is set to ON and *GROWTH DAY* is not set to OFF the *AIR INLET (1-8) MAXIMUM OPENING TEMPERATURE* will follow its **Growth Curve**.

### ***MAXIMUM OPENING***

This parameter is used to set the position that inlet will take when related temperature reaches *AIR INLET (1-8) MAXIMUM OPENING TEMPERATURE*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***ABSOLUTE MAXIMUM OPENING WINTER***

This parameter is used to set the maximum position that inlet can take when OUTSIDE TEMPERATURE drops to or below *AIR INLET (1-8) WINTER SET POINT*. If the air inlet is in winter mode, it will never take an opening above this setting except if manual override is used. This parameter is adjusted in 1% increments from 0% to 100%.

### ***POSITION IN TUNNEL***

This parameter is used to determine the position the inlet will take in tunnel mode. If this parameter is set to OFF, the inlet will position itself according to stage position and the selected temperature. If the parameter is set to any value from 0% to 100%, this will be the position the inlet will take when in tunnel mode. This parameter is adjusted in 1% increments from OFF, 0% to 100%.

### ***CLOSE IN NATURAL***

This parameter allows the user to set if the inlet closes in natural mode. When this parameter is set to Yes, the inlet will completely close when controller begins a tunnel mode. This parameter will not be available if the natural mode is not used or if the inlet is used as an inlet in natural.

### ***NATURAL REACTIVATION TEMPERATURE***

This parameter is used to reactivate the inlet in natural mode if it is closed by the *AIR INLET (1-8) CLOSE IN NATURAL*. When inlet temperature reaches this parameter, inlet will not be forced to close in natural mode. A fixed **Differential** of 1.0° is used with this logic. This parameter is adjusted in 0.1° increments from 0.0° to 40.0°C, OFF (0.0°F to 120.0°F, OFF).

### ***COLD CLOSING TEMPERATURE***

This parameter is used to set the temperature at which the inlet will close, regardless of ventilation demand. When the inlet's temperature drops to this set point, the air inlet will close without considering other requests. A locked **Differential** of 0.3° is used with this set point. Setting this parameter to OFF deactivates the cold closing function. This parameter is adjusted in 0.1° increments from *MAIN SET POINT* - 40.0° to *MAIN SET POINT* + 40.0°.

### ***POSITION ON TIMER***

This parameter determines the behavior of the inlet for its positioning when a ventilation stage is activated by its timer or by a heater. When this parameter is set to V1Str, in minimum ventilation, no matter which stage is activated by its timer or by a heater, the inlet will position itself at the *AIR INLET (1-8) VARIABLE 1 START POSITION* if no stage is activated by temperature. When a stage is activated by temperature, the inlet will position itself according to the opening position of the last stage which is activated by temperature. If this parameter setting is between 0% and 100% inclusive, the inlet will act as the previous case, replacing the V1Str position by the position adjusted in this parameter. When this parameter is set to Stages, the inlet will position itself according to the opening position of the last stage which is activated by temperature, its timer or by a heater. This parameter can be set to V1Str, Stages or adjusted in 1% increments from 0% to 100%.

### **TEMPERATURE COMPENSATION**

This parameter is used to adjust the compensation that will be applied to the inlet for each degree of difference between its temperature and the *AIR INLET (1-8) PROBES* temperature. When the inlet's temperature is greater than the *AIR INLET (1-8) PROBES*, the inlet's opening will be increased by this value for every degree of difference. When the *AIR INLET (1-8) PROBES* temperature is less than the *AVERAGE TEMPERATURE* the inlet's opening will be decreased by this value for every degree of difference. This compensation will be applied only if the inlet is positioned for the stage selected at *AIR INLET (1-8) MINIMUM STAGE TEMPERATURE COMPENSATION* or a higher stage. This parameter is adjusted in 1% increments from 0% to 99%.

### **MINIMUM STAGE TEMPERATURE COMPENSATION**

This parameter is used to adjust the minimum stage that must for which the inlet must be positioned in order to apply temperature compensation. If the air inlet has a position of a stage lower than the one selected here, temperature compensation will not be applied.

### **ACTUAL TEMPERATURE COMPENSATION**

These parameters display the current compensation temperature applied on the inlet.

### **FOLLOW NATURAL POT INLET IN NATURAL**

This parameter is used to choose if the air inlet will follow a natural position air inlet when the system is in natural mode. If this parameter is set to a number that corresponds to a natural position air inlet, this air inlet will follow the requested position of the selected natural position inlet when in natural mode. Adjusting this parameter to OFF or a number that does not correspond to a natural position air inlet will deactivate this function.

### **AIR INLETS NATURAL POSITION**

#### **MANUAL OVERRIDE**

This parameter is used to manually operate the inlet. When this parameter is set to a value other than AUTO, the corresponding inlet will take the corresponding state/position. This parameter can be adjusted to AUTO, HALT, CLOSE, OPEN or any value from 0% to 100%.

#### **OPENING TEMPERATURE**

This parameter is used to set the temperature at which the inlet will position itself at its *AIR INLET (1-8) MINIMUM OPENING*. The inlet will close completely when the inlet's selected temperature drops to *AIR INLET (1-8) OPENING TEMPERATURE - AIR INLET (1-8) DIFFERENTIAL*. If temperature continues to increase, the inlet's opening will increase proportionally to reach *AIR INLET (1-8) MAXIMUM OPENING* when the selected temperature is equal to or above the *AIR INLET (1-8) OPENING TEMPERATURE + AIR INLET (1-8) MODULATION BAND*. This temperature is adjusted in 0.1° increments from *MAIN SETPOINT - 20.0°* to *MAIN SETPOINT + 20.0°*.



### ***DIFFERENTIAL***

This parameter is used to set the **Differential** used with the *INLET (1-8) OPENING TEMPERATURE*. When temperature decreases, the inlet will close completely when the inlet's selected temperature drops to *INLET (1-8) OPENING TEMPERATURE - INLET (1-8) DIFFERENTIAL*. This temperature is adjusted in 0.1° increments from 0.3° to 25.0°.

### ***MODULATION BAND***

This parameter is used to set the range of temperature within which the inlet's opening will modulate from its *INLET (1-8) MINIMUM OPENING* to its *INLET (1-8) MAXIMUM OPENING*. When the inlet's temperature reaches *INLET (1-8) OPENING TEMPERATURE + INLET (1-8) MODULATION BAND*, the inlet will open at its *INLET (1-8) MAXIMUM OPENING*. This temperature is adjusted in 0.1° increments from 0.5° to 25.0°.

### ***MINIMUM OPENING***

This parameter is used to set the position the inlet will take when its temperature reaches its *INLET (1-8) OPENING TEMPERATURE*. The inlet's opening will modulate from this position to its *INLET (1-8) MAXIMUM OPENING* throughout the *INLET (1-8) MODULATION BAND*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***ABSOLUTE MINIMUM OPENING***

This parameter is used to set the absolute minimum of the inlet. The positioning of the inlet will not be under this parameter. This parameter is adjusted in 1% increments from 0% to 100%.

### ***MAXIMUM OPENING***

This parameter is used to set the position the inlet will take when its temperature reaches its *INLET (1-8) OPENING TEMPERATURE + INLET (1-8) MODULATION BAND*. The inlet's opening will modulate from its *INLET (1-8) MINIMUM OPENING* to this position throughout the *INLET (1-8) MODULATION BAND*. This parameter is adjusted in 1% increments from 0% to 100%.

### ***POSITION DIFFERENCE BEFORE MOVEMENT***

This parameter is used to set the minimum difference between the actual demanded position and the last demanded position before requesting a movement from the inlet. If the difference between the actual demanded position and the last demanded position is less than this parameter, the inlet will not move. When the inlet's demanded position is 0%, *INLET (1-8) MINIMUM OPENING* or *INLET (1-8) MAXIMUM OPENING*, the inlet will not consider this parameter. This parameter is adjusted in 1% increments from 1% to 100%.

### ***COLD SECURITY TEMPERATURE***

These parameters are used to set at which temperature each inlet will be affected by cold security. When an inlet's temperature reaches a value less than or equal to *COLD SECURITY TEMPERATURE*, the inlet is affected by the cold security and its *REQUESTED POSITION* will be equal to *MINIMUM OPENING*. The cold security effect stops when the inlet's temperature reaches a value greater than *COLD SECURITY TEMPERATURE + 1°*.

### ***HOT SECURITY TEMPERATURE***

These parameters are used to set at which temperature each inlet will be affected by hot security. When an inlet's temperature reaches a value greater than or equal to *TEMPERATURE SECURITY HOT*, the inlet is affected by hot security and its REQUESTED POSITION will be equal to *MAXIMUM OPENING*. The effect of hot security stops when the inlet temperature reaches a value lower than *TEMPERATURE SECURITY HOT* - 1°

## AIR INLETS NATURAL TIME



### OPENING TEMPERATURE

This parameter is used to set the temperature at which the inlet will begin to open according to its opening timer. When the assigned temperature reaches this relative set point, the ON portion of the opening timer will be equal to the *INLET (1-8) MINIMUM OPENING* parameter. As temperature increases, the opening time will increase proportionally to reach the *INLET (1-8) MAXIMUM OPENING* time when the assigned temperature reaches the *INLET (1-8) OPENING TEMPERATURE + INLET (1-8) PROGRESSIVE OPENING*. This parameter can be adjusted in 0.1° increments from *MAIN SETPOINT - 40.0°* to *MAIN SETPOINT + 40.0°*.

### PROGRESSIVE OPENING

This parameter is used to set the temperature at which the ON portion of the opening timer will be equal to the maximum value. When the assigned temperature reaches the *INLET (1-8) OPENING TEMPERATURE + INLET (1-8) PROGRESSIVE OPENING* temperature, the inlet will open for *INLET (1-8) MAXIMUM OPENING*. This parameter can be adjusted in 0.1° increments from 0.3° to 25.0°.

### CLOSING TEMPERATURE

This parameter is used to set the temperature at which the inlet will begin to close according to its closing timer. When the assigned temperature reaches this relative set point, the ON portion of the closing timer will be equal to the *INLET (1-8) MINIMUM CLOSING* parameter. As the temperature decreases, the closing time will increase proportionally to reach the *INLET (1-8) MAXIMUM CLOSING* time when the assigned temperature drops to *INLET (1-8) CLOSING TEMPERATURE - INLET (1-8) PROGRESSIVE CLOSING*. This parameter can be adjusted in 0.1° increments from *MAIN SETPOINT - 20.0°* to *MAIN SETPOINT + 20.0°*.

### PROGRESSIVE CLOSING

This parameter is used to set the temperature at which the ON portion of the closing timer will be equal to the maximum value. When the assigned temperature drops to *INLET (1-8) CLOSING TEMPERATURE - INLET (1-8) PROGRESSIVE CLOSING* temperature, the inlet will open for *INLET (1-8) MAXIMUM CLOSING*. This parameter can be adjusted in 0.1° increments from 0.3° to 25.0°.

### DIFFERENTIAL

This parameter is used to set the **Differential** used on both the opening and closing set points. Once a movement temperature (*INLET (1-8) OPENING TEMPERATURE* or *INLET (1-8) CLOSING TEMPERATURE*) is reached, the timer will only be deactivated when temperature reaches *INLET (1-8) OPENING TEMPERATURE - INLET (1-8) DIFFERENTIAL* or *INLET (1-8) CLOSING TEMPERATURE + INLET (1-8) DIFFERENTIAL*. This parameter is adjusted in 0.1° increments from 0.3° to 25.0°.

### CYCLE TIME

This parameter is used to set the total period of both the opening and the closing timers. An inlet will open or close according to the actual calculated opening or closing time and stay put for the rest of the period. If the calculated opening or closing time is equal to or greater than this parameter, the inlet will continuously be in movement. This parameter can be adjusted from 0:00 to 300:59 minutes.



### MINIMUM CLOSING TIME

This parameter is used to set the minimum active portion of the closing timer. When the assigned temperature reaches the *INLET (1-8) CLOSING TEMPERATURE* set point, the ON portion of the closing timer will be equal to this value. This parameter can be adjusted from 0:00 to 300:59 minutes.

### MAXIMUM CLOSING TIME

This parameter is used to set the maximum active portion of the closing timer. When the assigned temperature drops to *INLET (1-8) CLOSING TEMPERATURE - INLET (1-8) PROGRESSIVE CLOSING*, the ON portion of the closing timer will be equal to this value. This parameter can be adjusted from 0:00 to 300:59 minutes.

### MINIMUM OPENING TIME

This parameter is used to set the minimum active portion of the opening timer. When the assigned temperature reaches the *INLET (1-8) OPENING TEMPERATURE* set point, the ON portion of the opening timer will be equal to this value. This parameter can be adjusted from 0:00 to 300:59 minutes.

### MAXIMUM OPENING TIME

This parameter is used to set the maximum active portion of the opening timer. When the assigned temperature reaches the *INLET (1-8) OPENING TEMPERATURE + INLET (1-8) PROGRESSIVE OPENING*, the ON portion of the opening timer will be equal to this value. This parameter can be adjusted from 0:00 to 300:59 minutes.

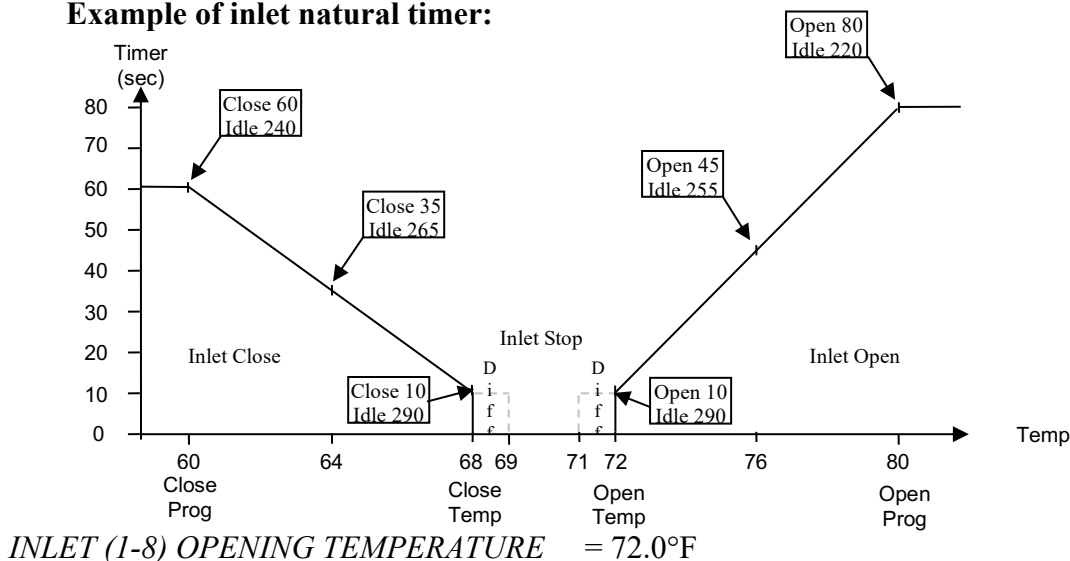
### CLOSE BEFORE NATURAL

This parameter allows the user to set if the inlet closes when the system is not yet in natural mode. When this parameter is set to Yes, the inlet will completely close before controller is not in natural mode.

### CLOSE IN TUNNEL

This parameter allows the user to set if the inlet closes in tunnel mode. When this parameter is set to Yes, the inlet will completely close when controller begins tunnel mode. This parameter will not be available if the tunnel mode is not used.

Example of inlet natural timer:



## USER'S GUIDE

<i>INLET (1-8) PROGRESSIVE OPENING</i>	= 80.0°F
<i>INLET (1-8) CLOSING TEMPERATURE</i>	= 68.0°F
<i>INLET (1-8) PROGRESSIVE CLOSING</i>	= 60.0°F
<i>INLET (1-8) DIFFÉRENTIAL</i>	= 1.0°F
<i>INLET (1-8) CYCLE TIME</i>	= 5:00 min
<i>INLET (1-8) MINIMUM CLOSING TIME</i>	= 0:10 min
<i>INLET (1-8) MAXIMUM CLOSING TIME</i>	= 1:00 min
<i>INLET (1-8) MINIMUM OPENING TIME</i>	= 0:10 min
<i>INLET (1-8) MAXIMUM OPENING TIME</i>	= 1:20 min

### ***OUTSIDE SETPOINT ACCELERATED MOVEMENT***

This parameter is used to control the activation temperature of the accelerated movement of the Air Inlets in natural time mode. If the outside temperature is less than or equal to this setpoint, the acceleration of the opening and closing of the Air Inlets is activated. This parameter is adjustable in increments of 0.1° from -40.0°F to 120.0°F (-40°C to 40°C).

### ***PERCENTAGE ACCELERATED MOVEMENT***

This parameter permits to adjust the value of the acceleration of the Air Inlets in natural time mode, the opening and closing times are prolonged by a percentage of the initial values equal to the value indicated in this parameter.

## **AIR INLETS STATIC PRESSURE**

### **REQUESTED STATE**

These parameters display the actual state of the air inlets. The parameter displays the actual demanded state, which may be OPEN, CLOSE, or HOLD.

### ***LOW STATIC PRESSURE***

This parameter is used to set the inlet's low static pressure set point. When static pressure is below this set point, the inlet will close according to its static pressure timer. As soon as static pressure rises to or above this set point, the inlet will stop closing. This parameter is adjusted in 0.001WC" increments from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

### ***HIGH STATIC PRESSURE***

This parameter is used to set the inlet's high static pressure set point. When static pressure is above this set point, the inlet will open according to the static pressure timer. As soon as static pressure drops to or below this set point, the inlet will stop opening. This parameter is adjusted in 0.001WC" increments from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

### ***RUN TIME***

This parameter is used to set the active portion of the static pressure timer. When static pressure is not within the *INLET (1-7, 9-15) HIGH STATIC PRESSURE* and *INLET (1-7, 9-15) LOW STATIC PRESSURE* set points, the inlet will open or close for this amount of time and remain immobile for the *INLET (1-7, 9-15) DELAY*. This parameter is adjusted in 1-second increments from 0 to 999 seconds.

### ***DELAY***

This parameter is used to set the idle portion of the static pressure timer. When static pressure is not within the *INLET (1-7, 9-15) HIGH STATIC PRESSURE* and *INLET (1-7, 9-15) LOW STATIC PRESSURE* set points, the inlet will open or close for the *INLET (1-7, 9-15) RUN TIME* and remain immobile for this amount of time. This parameter is adjusted in 1-second increments from 0 to 999 seconds.

### ***CLOSE IN TUNNEL***

This parameter allows the user to set if the respective inlet closes in tunnel mode. When this parameter is set to Yes, the inlet will completely close when controller begins tunnel mode. This parameter will not be available if the tunnel mode is not used.

### ***CLOSE WHEN NOT IN TUNNEL***

This parameter allows the user to set if the respective inlet closes when the system is not in tunnel mode. When this parameter is set to Yes, the inlet will completely close when controller is not in tunnel mode. This parameter will not be available if the tunnel mode is not used.

### ***CLOSE IN NATURAL***

This parameter allows the user to set if the respective inlet closes in natural mode. When this parameter is set to Yes, the inlet will completely close when controller begins a tunnel mode. This parameter will not be available if the natural mode is not used or if the inlet is used as an inlet in natural.

### ***FORCED OPENING TEMPERATURE***

This parameter is used to set the temperature at which the respective inlet will be forced to open continuously. When the assigned temperature reaches this set point, the inlet will open continuously, without regard to static pressure. Adjusting this parameter to OFF will deactivate this forced opening. This parameter is adjusted in 0.1° increments from *MAIN SET POINT* - 10.0° to *MAIN SET POINT* + 40.0°, OFF.

### ***DIFFERENTIAL***

This parameter is used to set the **Differential** used with the *INLET (1-7, 9-15) FORCED OPENING TEMPERATURE*. After receiving a continuous opening demand, the inlet will only follow its static pressure set points when the assigned temperature drops to *INLET (1-7, 9-15) FORCED OPENING TEMPERATURE* - *INLET (1-7, 9-15) DIFFERENTIAL*. This parameter is adjusted in 0.1° increments from 0.5° to 40.0°.

## **WEATHER COMPENSATION**

### ***WIND COMPENSATION INCREASE DELAY***

This parameter is used to set the amount of time for which the increase in wind compensation must be present for it to have an effect on the air inlet. When an air inlet must close for wind compensation, this delay will be applied on the air inlet.

### ***WIND COMPENSATION DECREASE DELAY***

This parameter is used to set the amount of time for which the decrease in wind compensation must be present for it to have an effect on the air inlet. When an air inlet must open for wind compensation, this delay will be applied on the air inlet.

### ***WIND COMPENSATION DIRECTION***

This parameter is used to select the wind direction that will cause compensation on the air inlet. If the wind direction read by the weather station is exactly the one adjusted here, the calculated wind compensation will be applied. If the wind direction is indirectly the one adjusted here, for example North-East or North-West when the chosen direction is North, applied compensation will be a percentage, defined by *INDIRECT WIND COMPENSATION*, of the original calculated compensation.

### ***WIND SPEED POINT #***

These parameters are used to set the wind speed at which *WIND COMPENSATION CLOSING POINT #* of the same number will be applied. When the wind speed reaches one of these values, the calculated compensation will be equal to the associated closing value.

### ***WIND COMPENSATION CLOSING POINT #***

These parameters are used to set the percentage by which the air inlets will close when the associated wind speed is reached.

### ***WIND COMPENSATION MINIMUM OPENING***

This parameter is used to set the minimum percentage that the inlet will take because of wind compensation. If calculated wind compensation would make the inlet close more than this position, it will instead be at the position adjusted here.

### ***WIND COMPENSATION DEACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which wind compensation will be cancelled. When the zone's temperature reaches this value, wind compensation will no longer be effective.

### ***INDIRECT WIND COMPENSATION***

This parameter is used to set the percentage of the calculated wind compensation that will be applied when an indirect wind is detected by the weather station. A wind qualifies as indirect when it has a direction that is not exactly the one chosen at *WIND COMPENSATION DIRECTION*, but does contain that direction. For example, if *WIND COMPENSATION DIRECTION* of an inlet is set to south, indirect winds will be South-East and South West winds. South will be direct wind and other directions will not have any effect on wind.

***MINIMUM WIND SPEED RAIN COMPENSATION***

This parameter is used to set the minimum wind speed for rain compensation to be applied. If wind and rain compensations are both used, the wind must have at least this speed for rain compensation to be effective.

***RAIN COMPENSATION ACTIVATION DELAY***

This parameter is used to set the amount of time for which the rain compensation must be present for it to have an effect on the air inlet. When an air inlet must limit its opening for rain compensation, this delay will be applied before the limitation becomes effective.

***RAIN COMPENSATION DEACTIVATION DELAY***

This parameter is used to set the amount of time for which the rain compensation must be absent for it to no longer have an effect on the air inlet. When an air inlet must no longer limit its opening for rain compensation, this delay will be applied before the limitation is removed.

***RAIN COMPENSATION DEACTIVATION TEMPERATURE***

This parameter is used to set the temperature at which rain compensation will be cancelled. When the zone's temperature reaches this value, rain compensation will no longer be effective.

***RAIN COMPENSATION MAXIMUM OPENING***

This parameter is used to set the maximum opening the inlet can take when rain compensation is activated. When the air inlet compensates for rain, it will not open to a position greater than the one adjusted here.

## **INLET BLOWER**

### ***ASSOCIATED INLET***

This parameter is used to select the inlet to which the blower is associated. If the blower is not associated to an inlet, it will be continuously activated.

### ***DELAY BEFORE MOVE***

This parameter is used to set the time for which the blower must be off for the inlet to be able to move. If the associated inlet is required to move, the blower will deactivate and, once the delay set at this parameter has passed, the inlet will be able to move.

### ***DELAY AFTER MOVE***

This parameter is used to set the time for which the blower will stay off once the inlet has finished moving. Once the inlet has finished moving and the delay set at this parameter has passed, the blower will reactivate.

### ***OPENING DEACTIVATION***

This parameter is used to set the opening percentage under which the inlet must be for the blower to activate. The blower will be continuously deactivated if the opening of the inlet is equal to or above the value set at this parameter.

### ***OUTSIDE SETPOINT STOP***

This parameter is used to set the temperature under which the outside temperature must be for the blower to activate. The blower will be continuously deactivated if the outside temperature is equal to or above the temperature set at this parameter. If the exterior probe isn't used, the blower will be unaffected by the exterior temperature.

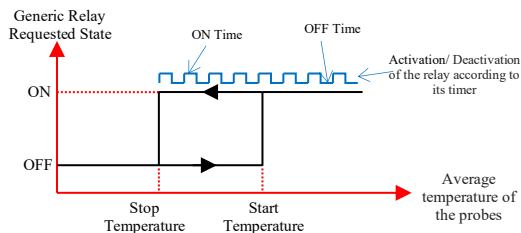
## **GENERIC RELAY**

### **GENERIC RELAY REQUESTED STATE**

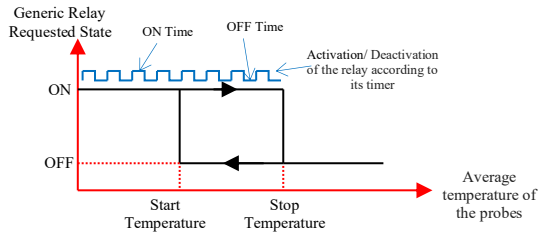
These parameters display the current state of the generic relays, they can take the ON values to indicate that the corresponding relays are activated, or OFF indicating that the relays are disabled.

The operation of the generic relay follows one of the two following cases:

**1- Case 1:** When the average temperature of the selected probes is greater than or equal to the start temperature which one is greater than the stop temperature, the generic relay will be activated according to its timer, this operation is only possible when the current time is greater than or equal to the start time and less than the stop time. The following figure summarizes this operation.



**2- Case 2:** When the average temperature of the probes is less than or equal to the starting temperature which one is less than or equal to the stop temperature, the generic relay will activate according to its timer, this operation is only possible when the current time is greater than or equal to the start time and less than the stop time. The following figure summarizes this operation.



### **START TEMPERATURE**

These parameters adjust the temperature at which the generic relay will activate. These parameters are adjustable in 0.1 ° increments from -40.0 °C to 40.0 °C (-40.0 °F to 120.0 °F).

### **STOP TEMPERATURE**

These parameters adjust the temperature at which the generic relay will turn off. These parameters are adjustable in 0.1 ° increments from -40.0 °C to 40.0 °C (-40.0 °F to 120.0 °F).

### **PROBES**

These parameters allow the selection the probes to be used to calculate the average temperature. **If there are no probes selected, the temperature used will be equal to the MAIN SETPOINT.**

### **TIME ON**

These parameters are used to adjust the time ON of the generic relays timers. When the average temperature of the probes reaches the start temperature, the generic relay activates according to its timer for a time ON and deactivates during a time OFF. These parameters are adjustable from 0:00 minutes to 500:59 minutes.

### **OFF TIME**

These parameters are used to adjust the time OFF of the generic relays timers. When the average temperature of the probes reaches the start temperature, the generic relay activates according to its timer for a time ON and deactivates during a time OFF. These parameters are adjustable from 0:00 minutes to 500:59 minutes.

### **START TIME**

These parameters are used to set the time at which the generic relays can be activated. These parameters are adjustable from 0:00 to 23:59 (12: 00A to 11: 59P).

### **STOP TIME**

These parameters are used to set the time at which the generic relays will be deactivated. These parameters are adjustable from 0:00 to 23:59 (12: 00A to 11: 59P).

### **GARAGE DOOR**

#### **GARAGE DOOR OPEN**

This parameter shows if the garage door is completely open or not. If this parameter displays ON, the garage door is completely open. If it displays OFF, the garage door is not completely open.

#### **GARAGE DOOR CLOSE**

This parameter shows if the garage door is completely close or not. If this parameter displays ON, the garage door is completely close. If it displays OFF, the garage door is not completely close.

#### ***PROBES***

This parameter is used to select the probes the garage door will use to determine his relay activation according to temperature demand. To **If there are no probes selected, the temperature used will be equal to the actual *MAIN SETPOINT*.**

#### ***OPENING TEMPERATURE***

This parameter is used to adjust the temperature at which the garage door begins to open. If the average temperature of the garage door reaches the value of this parameter and the garage door is not fully open, its relay activates. The relay is active for the value of *RELAY ACTIVATION TIME* parameter. Once its activation is over, the relay will not reactivate until the *DELAY BETWEEN ACTIVATION* is over. If the *DELAY BETWEEN ACTIVATION* is over and the garage door is not fully open, the relay will reactivate for its activation time. This parameter is adjustable in 0.1 ° increments from -40.0 °C to 40.0 °C (-40.0 °F to 40.0 °F).

#### ***CLOSING TEMPERATURE***

This parameter is used to adjust the temperature at which the garage door begins to close. If the average temperature of the garage door reaches the value of this parameter and the garage door is not fully close, its relay activates. The relay is active for the value of *RELAY ACTIVATION TIME* parameter. Once its activation is over, the relay will not reactivate until the *DELAY BETWEEN ACTIVATION* is over. If the *DELAY BETWEEN ACTIVATION* is over and the garage door is not fully close, the relay will reactivate for its activation time. This parameter is adjustable in 0.1 ° increments from -40.0 °C to 40.0 °C (-40.0 °F to 40.0 °F).

#### ***RELAY ACTIVATION TIME***

This parameter is used to adjust the activation time of the garage door relay when the door needs to open or close. The relay activates when the average temperature of the garage door reaches its *CLOSING TEMPERATURE* and the garage door is not fully closed or when the average temperature of the garage door reaches its *OPENING TEMPERATURE* and the garage door is not fully open. Once the relay activation is over, the relay deactivated and cannot reactivate until the delay between activation is done. This parameter is adjustable from 0:00 minute to 300:59 minutes.



### ***DELAY BETWEEN ACTIVATION***

This parameter is used to adjust the minimum time between two relay activations. Once the relay deactivates, it cannot reactivate until the delay adjusted by this parameter is over. When this delay is completed, the relay activates if the average temperature of the garage door reaches its *CLOSING TEMPERATURE* and the garage door is not fully closed or if the average temperature of the garage door reaches its *OPENING TEMPERATURE* and the garage door is not fully open. This parameter is adjustable from 0:00 minute to 300:59 minutes.

### **DUSTING**

#### **REQUESTED STATE**

These parameters display the current state of the relays associated with the dusting, they can take the ON values indicating that the dusting is running, or OFF values to indicate that the dusting is off.

#### ***RUN TIME***

These parameters are used to adjust the activation time of the dusting. These parameters are adjustable from 0:00 minutes to 300:59 minutes.

#### ***WAITING TIME***

These parameters are used to adjust the deactivation time of the dusting. These parameters are adjustable from 0:00 hours to 300:59 hours.

### **TRAP DOORS**

#### **REQUESTED STATE**

These parameters display the state of the trap door. The parameter displays the actual demanded state, which may be OPEN, CLOSE, or HOLD.

#### ***NUMBER OF CYCLES***

These parameters are used to select the amount of cycles per day that the trap door will use.

#### ***OPEN TIME #***

These parameters are used to set the time at which trap door will open for the respective cycle. When the time of day reaches this value, the trap door opens for *OPEN DURATION #*.

#### ***CLOSE TIME #***

These parameters are used to set the time at which trap door will close for the respective cycle. When the time of day reaches this value, the trap door closes for *CLOSE DURATION #*.

#### ***OPEN DURATION #***

These parameters are used to set the time for which trap door will open for the respective cycle. When the time of day reaches *OPEN TIME #*, the trap door opens for this amount of time.

### ***CLOSE DURATION #***

These parameters are used to set the time for which trap door will close for the respective cycle. When the time of day reaches *CLOSE TIME #*, the trap door closes for this amount of time.

### **ON/OFF LIGHTS**

#### **REQUESTED STATE**

These parameters display the requested state of the on/off light output. Each on/off light output can be ON or OFF.

#### ***NUMBER OF CYCLES***

These parameters are used to select the amount of cycles per day that the on/off light will use.

#### ***START TIME CYCLE #***

These parameters are used to set the time at which the respective cycle will start. When time of the day reaches a cycle start time, that cycle will begin. Setting *START TIME CYCLE #* to the same value as the corresponding *END TIME CYCLE #* will deactivate the cycle.

#### ***END TIME CYCLE #***

These parameters are used to set the time at which the respective cycle will end. When time of the day reaches a cycle end time, that cycle will end. Setting *START TIME CYCLE #* to the same value as the corresponding *END TIME CYCLE #* will deactivate the cycle.

### **RECUPERATOR**

#### ***MODE***

This parameter determines the recuperator mode. The mode affects outputs associated to the recuperator system. In Recovery mode, the variable ventilation stages assigned to exhaust and intake ventilators will follow the recuperator demands and valves and pumps will be allowed to activate according to their schedule. In Evacuation mode, the variable ventilation stages assigned to exhaust and intake ventilators will shut off while valves and pumps will not be allowed to activate.

#### ***RECUPERATOR SETPOINT***

This parameter is used to set the recuperator set point. All recuperator-relative values will follow this parameter when its value is changed.

#### **TEMPERATURE**

This parameter displays the temperature read by the *RECUPERATOR PROBE*. The intake ventilator will follow this temperature.

#### **MINIMUM TEMPERATURE**

This parameter displays the minimum temperature read by the *RECUPERATOR PROBE* for the day.

### **MAXIMUM TEMPERATURE**

This parameter displays the maximum temperature read by the *RECUPERATOR PROBE* for the day.

### **INTAKE VENTILATOR REQUESTED STATE**

This parameter displays the requested speed of the intake ventilator.

### **EXHAUST VENTILATOR REQUESTED STATE**

This parameter displays the requested speed of the exhaust ventilator.

### **PUMP REQUESTED STATE**

This parameter displays the requested state of the pump.

### **VALVE # REQUESTED STATE**

This parameter displays the requested state of the respective valve.

## **RECOVERY SETTINGS – INTAKE VENTILATOR**

### **MODE**

This parameter displays the current recuperator mode being used.

### **INTAKE VENTILATOR REQUESTED STATE**

This parameter displays the requested speed of the intake ventilator.

### ***INTAKE VENTILATOR START TEMPERATURE***

This parameter is used to set the temperature at which the intake ventilator will be activated continuously with a speed equal to *INTAKE VENTILATOR MINIMUM SPEED*. A fixed **Differential** of 0.3° is used with this logic. As the temperature of the probe selected in the *RECUPERATOR PROBE* increases, the speed will increase until *INTAKE VENTILATOR END TEMPERATURE* is reached. The intake ventilator's behaviour may change, depending on the mode chosen in *INTAKE VENTILATOR MODE*.

### ***INTAKE VENTILATOR END TEMPERATURE***

This parameter is used to set the temperature at which the intake ventilator will be activated at *INTAKE VENTILATOR MAXIMUM SPEED*. The intake ventilator's behaviour may change, depending on *INTAKE VENTILATOR MODE*.

### ***ANTI-FREEZE SETPOINT***

This parameter is used to set the drop temperature at which the intake ventilator will deactivate in variable speed mode. The intake ventilator will no longer be allowed to operate according to its timers when the temperature of the *RECUPERATOR PROBE* is equal to or below this set point.

### ***INTAKE VENTILATOR INSIDE TEMPERATURE STOP***

This parameter is used to set the average temperature at which the intake ventilator will deactivate in variable speed mode. The intake ventilator will no longer be allowed to operate when the AVERAGE TEMPERATURE is equal to or below this set point.

### ***INTAKE VENTILATOR MINIMUM SPEED***

This parameter is used to adjust the minimum speed of the intake ventilator. In variable speed mode, this speed is used on speed mode timer or when *RECUPERATOR PROBE* is equal to *INTAKE VENTILATOR START TEMPERATURE*. The *OUTSIDE TEMPERATURE* and humidity may affect the intake ventilator's speed. In variable timer mode, this speed will be used when the temperature probes selected in *RECUPERATOR PROBE* reaches *RECUPERATOR SET POINT VARIABLE TIMER MODE MINIMUM SPEED*.

### ***INTAKE VENTILATOR MAXIMUM SPEED***

This parameter is used to adjust the maximum speed of the intake ventilator. In variable speed mode, this speed will be reached when the average temperature of the probes selected in *RECUPERATOR PROBE* reaches the corresponding *INTAKE VENTILATOR END TEMPERATURE*. In variable timer mode, this speed will be used when the temperature probes selected in *RECUPERATOR PROBE* reaches *RECUPERATOR SET POINT VARIABLE TIMER MODE MINIMUM SPEED*.

### ***INTAKE VENTILATOR DEHUMIDIFICATION SETPOINT***

This parameter is used to set the humidity set point at which the intake ventilator dehumidification logic will be activated. When the actual humidity reaches this value, the intake ventilator's speed will gradually be increased as humidity rises. There is a fixed **Differential** of 3RH% used with this logic. Dehumidification will not force the intake ventilator to activate if it does not have a temperature demand.

### ***INTAKE VENTILATOR ADD SPEED DEHUMIDIFICATION***

This parameter is used to adjust the speed increase that will be applied on the intake ventilator for the dehumidification. When the actual humidity reaches *INTAKE VENTILATOR DEHUMIDIFICATION SETPOINT* + *INTAKE VENTILATOR DEHUMIDIFICATION MODULATION BAND*, the intake ventilator's speed will be increased by this value.

### ***INTAKE VENTILATOR DEHUMIDIFICATION MODULATION BAND***

This parameter is used to adjust the range of humidity throughout which the speed increase for dehumidification will go from 0% to *INTAKE VENTILATOR ADD SPEED DEHUMIDIFICATION*. When the humidity reaches *INTAKE VENTILATOR DEHUMIDIFICATION SETPOINT*, the speed increase for dehumidification will be 0%. As humidity rises, the speed increase will modulate to reach *INTAKE VENTILATOR ADD SPEED DEHUMIDIFICATION* at *INTAKE VENTILATOR DEHUMIDIFICATION SETPOINT* + *INTAKE VENTILATOR DEHUMIDIFICATION MODULATION BAND*.

### ***RECUPERATOR TIMER SETPOINT***

This parameter is used to set the temperature at which the intake ventilator will use its speed mode timer. In variable speed mode, the intake ventilator will use the speed mode timer when the *RECUPERATOR PROBE* temperature is equal to or greater than this set point but lower than *INTAKE VENTILATOR START TEMPERATURE*.

### ***RECUPERATOR TIMER ON TIME***

This parameter is used to set the ON time of the speed mode timer. In variable speed mode, when the speed mode timer is used, the intake ventilator will activate for this amount of time, then deactivate for *SPEED MODE TIMER OFF TIME*.

### ***RECUPERATOR TIMER OFF TIME***

This parameter is used to set the ON time of the speed mode timer. In variable speed mode, when the speed mode timer is used, the intake ventilator will activate for *SPEED MODE TIMER ON TIME*, then deactivate for this amount of time.

### ***OUTSIDE SETPOINT TIMER MODE***

This parameter is used to adjust the outside temperature at which intake ventilator mode will be the timer mode if *INTAKE VENTILATOR MODE* is set to Variable Timer/Spd. When **Outside Temperature** is equal to or under this set point, the intake ventilator will change to variable timer mode.

### ***OUTSIDE SETPOINT SPEED MODE***

This parameter is used to adjust the outside temperature at which intake ventilator mode will be the variable speed mode if *OPERATING MODE* is set to Min/Spd Variable. When **Outside Temperature** is equal or above this set point, intake ventilator will change to speed variable mode.

### ***RECUPERATOR SETPOINT VARIABLE TIMER MODE MINIMUM SPEED***

This parameter is used to adjust the temperature at which the intake ventilator speed will equal *INTAKE VENTILATOR VARIABLE TIMER MODE MINIMUM SPEED* in variable timer mode. When temperature probes selected in *RECUPERATOR PROBE* is equal to or under this set point and the intake ventilator is in variable timer mode, it will activate at *INTAKE VENTILATOR VARIABLE TIMER MODE MINIMUM SPEED* on the active portion of its timer. Between this temperature and *INTAKE VENTILATOR RECUPERATOR SETPOINT VARIABLE TIMER MODE MAXIMUM SPEED*, the speed will modulate between *INTAKE VENTILATOR VARIABLE TIMER MODE MINIMUM SPEED* and *INTAKE VENTILATOR VARIABLE TIMER MODE MAXIMUM SPEED*.

### ***RECUPERATOR SETPOINT VARIABLE TIMER MODE MAXIMUM SPEED***

This parameter is used to adjust the temperature at which the intake ventilator speed will equal *INTAKE VENTILATOR VARIABLE TIMER MODE MAXIMUM SPEED* in variable timer mode. When the temperature probes selected in *RECUPERATOR PROBE* is equal to or above this set point and the intake ventilator is in variable timer mode, it will activate at its *VARIABLE TIMER MODE MAXIMUM SPEED* on the active time of its timer. Between *INTAKE VENTILATOR RECUPERATOR SETPOINT VARIABLE TIMER MODE MINIMUM SPEED* and this temperature, the speed will modulate between *INTAKE VENTILATOR VARIABLE TIMER MODE MINIMUM SPEED* and *INTAKE VENTILATOR VARIABLE TIMER MODE MAXIMUM SPEED*.

### ***VARIABLE TIMER MODE MINIMUM SPEED***

This parameter is used to adjust the intake ventilator speed when the temperature probes selected in *RECUPERATOR PROBE* is equal to or below *INTAKE VENTILATOR RECUPERATOR SETPOINT VARIABLE TIMER MODE MINIMUM SPEED* in variable timer mode.

### ***VARIABLE TIMER MODE MAXIMUM SPEED***

This parameter is used to adjust the intake ventilator speed when the temperature probes selected in *RECUPERATOR PROBE* is equal to or below *INTAKE VENTILATOR RECUPERATOR SETPOINT VARIABLE TIMER MODE MAXIMUM SPEED* in variable timer mode.

### ***VARIABLE TIMER MODE MINIMUM ON TIME (Curve available)***

This parameter is used to adjust the activation time of the intake ventilator timer when the temperature probes selected in *RECUPERATOR PROBE* reach *INTAKE VENTILATOR START TEMPERATURE* in variable timer mode. This value will follow a **Growth Curve** if *VARIABLE TIMER MODE MINIMUM TIME CURVE* and *GROWTH DAY* are not set to OFF.

### ***VARIABLE TIMER MODE MAXIMUM ON TIME (Curve available)***

This parameter is used to adjust the activation time of the intake ventilator timer when the temperature probes selected in *RECUPERATOR PROBE* reach *INTAKE VENTILATOR END TEMPERATURE* in variable timer mode. This value will follow a **Growth Curve** if *VARIABLE TIMER MODE MAXIMUM TIME CURVE* and *GROWTH DAY* are not set to OFF.

### ***VARIABLE TIMER MODE MINIMUM OFF TIME (Curve available)***

This parameter is used to set the deactivation time of the intake ventilator when the temperature probes selected in *RECUPERATOR PROBE* reach *INTAKE VENTILATOR START TEMPERATURE* in variable timer mode. This value will follow a **Growth Curve** if *VARIABLE TIMER MODE MINIMUM TIME CURVE* and *GROWTH DAY* are not set to OFF.

### ***VARIABLE TIMER MODE MAXIMUM OFF TIME (Curve available)***

This parameter is used to set the deactivation time of the intake ventilator when the temperature probes selected in *RECUPERATOR PROBE* reach *INTAKE VENTILATOR END TEMPERATURE* in variable timer mode. This value will follow a **Growth Curve** if *VARIABLE TIMER MODE MAXIMUM TIME CURVE* and *GROWTH DAY* are not set to OFF.

### ***VARIABLE TIMER MODE MINIMUM TIME CURVE***

This parameter is used to activate or deactivate the **Ramping Function** of the intake ventilator minimum timer when variable timer mode is used. If this option is set to ON and the *GROWTH DAY* is not set to OFF, *INTAKE VENTILATOR VARIABLE TIMER MODE MINIMUM ON TIME* and *INTAKE VENTILATOR VARIABLE TIMER MODE MINIMUM OFF TIME* will follow their **Growth Curve**.

### ***VARIABLE TIMER MODE MAXIMUM TIME CURVE***

This parameter is used to activate or deactivate the **Ramping Function** of the intake ventilator maximum timer when variable timer mode is used. If this option is set to ON and the *GROWTH DAY* is not set to OFF, *INTAKE VENTILATOR VARIABLE TIMER MODE MAXIMUM ON TIME* and *INTAKE VENTILATOR VARIABLE TIMER MODE MAXIMUM OFF TIME* will follow their **Growth Curve**.

### **INTAKE VENTILATOR MANUAL DEFROST**

This parameter is used to activate or deactivate the defrost sequence of the intake ventilator. If this parameter is pressed when it displays Activate, the defrost sequence will activate. If this parameter is pressed when it displays Deactivate, the defrost sequence will deactivate.

### ***INTAKE VENTILATOR DEFROST OUTSIDE TEMPERATURE***

This parameter is used to adjust the outside temperature at which the defrost sequence will be allowed to operate. When the outside temperature remains below this set point for an amount of time equal to *INTAKE VENTILATOR DEFROST OFF TIME*, the defrost sequence will be active. At the start of the active portion of the defrost sequence, the intake ventilator will deactivate for 5 seconds. Then, the intake vent polarity relay will deactivate and the intake ventilator will activate at 100% for *INTAKE VENTILATOR DEFROST ON TIME*. After that, the intake ventilator will deactivate again for 5 seconds and the intake vent polarity relay will reactivate. The intake ventilator then returns to a state open to other demands.

### ***INTAKE VENTILATOR DEFROST ON TIME***

This parameter is used to set the time during which the intake ventilator will be activated during the active portion of the defrost sequence. During this time, the intake vent polarity relay will be activated and the intake ventilator will be activated at 100%.

### ***INTAKE VENTILATOR DEFROST OFF TIME***

This parameter is used to set the wait time for the defrost sequence. If the outside temperature remains below the *INTAKE VENTILATOR DEFROST OUTSIDE TEMPERATURE* for this amount of time, the active portion of the defrost sequence will begin.

### ***INTAKE VENTILATOR DEFROST PERIOD START***

This parameter is used to set time of day at which defrosting will be allowed. Defrost function will be permitted from this time on until the *INTAKE VENTILATOR DEFROST PERIOD STOP* is reached. Setting start and stop time to equal values will remove all time restrictions for defrosting.

### ***INTAKE VENTILATOR DEFROST PERIOD STOP***

This parameter is used to set the time of day at which defrosting will no longer be allowed. Defrost function will be cancelled from this time on until the *INTAKE VENTILATOR DEFROST PERIOD START* is reached. Setting start and stop time to equal values will remove all time restrictions for defrosting.

## **RECOVERY SETTINGS – EXHAUST VENTILATOR**

### **MODE**

This parameter displays the current recuperator mode being used.

### ***EXHAUST VENTILATOR START TEMPERATURE***

This parameter is used to set the temperature at which the exhaust ventilator will be activated continuously to *EXHAUST VENTILATOR MINIMUM SPEED*. A fixed **Differential** of 0.3° is used with this logic. As the temperature of the probes selected in *EXHAUST VENTILATOR PROBES* increases, the speed will increase until *EXHAUST VENTILATOR END TEMPERATURE* is reached.

### ***EXHAUST VENTILATOR END TEMPERATURE***

This parameter is used to set the temperature at which the exhaust ventilator will be activated at *EXHAUST VENTILATOR MAXIMUM SPEED*. The exhaust ventilator's behaviour may change, depending on the chosen mode of *EXHAUST VENTILATOR MODE*.

### ***EXHAUST VENTILATOR STOP TEMPERATURE***

This parameter is used to set the drop temperature at which the exhaust ventilator will deactivate in variable speed mode. The exhaust ventilator will no longer be allowed to operate according to its timers when the temperature of the *EXHAUST VENTILATOR PROBES* is equal to or below this set point.

### ***EXHAUST VENTILATOR MINIMUM SPEED***

This parameter is used to adjust the minimum speed of the exhaust ventilator. This speed is used on speed mode timer or when *EXHAUST VENTILATOR PROBES* is equal to *EXHAUST VENTILATOR START TEMPERATURE*. The humidity may affect the actual minimum speed.

### ***EXHAUST VENTILATOR MAXIMUM SPEED***

This parameter is used to adjust the maximum speed of the exhaust ventilator. This speed will be reached when the average temperature of the probes selected in *EXHAUST VENTILATOR PROBES* reaches the corresponding *EXHAUST VENTILATOR END TEMPERATURE*.

### ***EXHAUST VENTILATOR DEHUMIDIFICATION SETPOINT***

This parameter is used to set the humidity set point at which the exhaust ventilator dehumidification logic will be activated. When the actual humidity reaches this value, the exhaust ventilator's speed will gradually be increased as humidity rises. There is a fixed **Differential** of 3RH% on this logic. Dehumidification will not force the exhaust ventilator to activate if it does not have a temperature demand.

### ***EXHAUST VENTILATOR ADD SPEED DEHUMIDIFICATION***

This parameter is used to adjust the speed increase applied on the exhaust ventilator for dehumidification. When the actual humidity reaches *EXHAUST VENTILATOR DEHUMIDIFICATION SETPOINT* + *EXHAUST VENTILATOR DEHUMIDIFICATION MODULATION BAND*, the exhaust ventilator's speed will be increased by this value.

### ***EXHAUST VENTILATOR DEHUMIDIFICATION MODULATION BAND***

This parameter is used to adjust the range of humidity through which the speed increase for dehumidification will go from 0% to *EXHAUST VENTILATOR ADD SPEED DEHUMIDIFICATION*. When humidity reaches *EXHAUST VENTILATOR DEHUMIDIFICATION SETPOINT*, the speed increase for dehumidification will be 0%. As humidity rises, the speed increase will modulate to reach *EXHAUST VENTILATOR ADD SPEED DEHUMIDIFICATION* at *EXHAUST VENTILATOR DEHUMIDIFICATION SETPOINT* + *EXHAUST VENTILATOR DEHUMIDIFICATION MODULATION BAND*.

### ***EXHAUST VENTILATOR ON TIME***

This parameter is used to set the ON time of the exhaust ventilator timer. When the exhaust ventilator has no temperature demand, it will activate for this amount of time, then deactivate for *SPEED MODE TIMER OFF TIME*.

### ***EXHAUST VENTILATOR OFF TIME***

This parameter is used to set the OFF time of the exhaust ventilator timer. When exhaust ventilator has no temperature demand, it will activate for *SPEED MODE TIMER ON TIME*, then deactivate for this amount of time.



## **RINSING**

### **PUMP REQUESTED STATE**

This parameter displays the requested state of the pump. The pump activates 5 seconds after a valve activates and deactivates 5 seconds before a valve deactivates.

### **ÉTAT DEMANDÉ VALVE**

This parameter displays the requested state of the respective valve.

### ***RUN TIME***

This parameter is used to set the run time for the respective valve. When the start time of an active cycle is reached, the corresponding valve will activate for the time adjusted here. Only one valve can be activated at once. If two or more valves receive an activation demand at the same time, the other valves will wait until no other valve is active before activating for their respective *RUN TIME*.

### ***START TIME CYCLE #***

These parameters are used to set the time at which a cycle will start. When the time of day reaches the time set here, the respective valve will have an activation demand. If no other valves are activated, the valve will activate immediately. If another valve is already activated, this valve will wait until all valves are deactivated before activating for its *RUN TIME*.

### ***OPTION CYCLE #***

These parameters are used to activate or deactivate a given cycle. If this option is set to OFF, the corresponding cycle will not be considered. If this option is set to ON, the valve will have an activation demand when the corresponding cycle's *START TIME CYCLE #* is reached. If the rinsing curve is used, the state of these parameters will be determined by the number of cycles per day that is programmed and these values will no longer be adjustable.

## **RINSING CURVE**

### ***OPTION CURVE***

This parameter is used to determine whether the rinsing cycles will follow a curve or not. If the curve is not used, the active cycles will depend on what the user set at *OPTION CYCLE #*. If the curve is used, *OPTION CYCLE #* will be determined by the curve and will no longer be adjustable. When the *GROWTH DAY* reaches *DAY CURVE POINT #*, the cycles that have a number equal or inferior to the corresponding *CYCLES CURVE POINT #* will have their option set to ON and cycles that have a number superior to the corresponding *CYCLES CURVE POINT #* will have their option set to OFF.

### ***DAY CURVE POINT #***

These parameters are used to determine at which day the number of active cycles will be equal to the corresponding *CYCLES CURVE POINT #*. When the *GROWTH DAY* reaches *DAY CURVE POINT #*, the cycles that have a number equal to or inferior to the corresponding *CYCLES CURVE POINT #* will have their option set to ON and cycles that have a number superior to the corresponding *CYCLES CURVE POINT #* will have their option set to OFF. Before *DAY CURVE POINT 1*, all cycles are OFF.

### ***CYCLES CURVE POINT #***

These parameters are used to determine how many cycles per day will be active when the corresponding *DAY CURVE POINT #* is reached. When the *GROWTH DAY* reaches *DAY CURVE POINT #*, the cycles that have a number equal to or inferior to the corresponding *CYCLES CURVE POINT #* will have their option set to ON and cycles that have a number superior to the corresponding *CYCLES CURVE POINT #* will have their option set to OFF. Before *DAY CURVE POINT 1*, all cycles are OFF.

### **DEFROST INFLUENCE**

#### ***DEFROST INFLUENCE SET POINTS***

These parameters establish the set points for the defrost influence when *OUTSIDE TEMPERATURE DEFROST TIME INFLUENCE* is set to ON. When the outside temperature drops to the value adjusted here, the times for the intake ventilator defrost function will change to the times of the same column. These temperatures must be set in descending order.

#### ***DEFROST ON TIME***

These parameters set the ON times that will be used for the intake ventilator defrost when *OUTSIDE TEMPERATURE DEFROST TIME INFLUENCE* is set to ON. When the outside temperature drops to *DEFROST INFLUENCE SET POINTS (1-5)*, *INTAKE VENTILATOR DEFROST ON TIME* will be replaced by the associated ON time adjusted here.

#### ***DEFROST OFF TIME***

These parameters set the OFF times that will be used for the intake ventilator defrost when *OUTSIDE TEMPERATURE DEFROST TIME INFLUENCE* is set to ON. When the outside temperature drops to *DEFROST INFLUENCE SET POINTS (1-5)*, *INTAKE VENTILATOR DEFROST ON TIME* will be replaced by the associated OFF time adjusted here.

### **OPTIONS**

#### ***STAGE USED FOR INTAKE VENTILATOR***

This parameter is used to select the stage that will be used for the recuperator intake ventilation. When a ventilation stage is assigned here, it will operate normally when the recuperator is in Evacuation mode. However, when the recuperator is in Recuperation mode, the ventilation stage will be activated according to the intake ventilation settings.

#### ***STAGE USED FOR EXHAUST VENTILATOR***

This parameter is used to select the stage that will be used for the recuperator intake ventilation. When a ventilation stage is assigned here, it will operate normally when the recuperator is in Evacuation mode. However, when the recuperator is in Recuperation mode, the ventilation stage will be activated according to the exhaust ventilation settings.

### ***RECUPERATOR PROBE***

This parameter is used to select the probe that is assigned to the drop. The intake ventilator will activate according to this probe when the recuperator is in Recuperation mode.

### ***RECUPERATOR PROBE CALIBRATION***

This parameter is used to adjust the recuperator probe's value to match an external reference.

### ***EXHAUST VENTILATOR PROBES***

These parameters are used to select the probes the exhaust ventilator will use to determine activation and deactivation according to temperature demand. **If there are no probes selected, the temperature used will be equal to the actual MAIN SETPOINT.**

### ***LOW ALARM SETPOINT***

This parameter is used to set the low temperature alarm threshold for the recuperator. If the *RECUPERATOR PROBE* is below this value, an alarm will activate.

### ***HIGH ALARM SETPOINT***

This parameter is used to set the high temperature alarm threshold for the recuperator. If the *RECUPERATOR PROBE* is below this value, an alarm will activate.

### ***OUTSIDE TEMPERATURE DEFROST TIME INFLUENCE***

This parameter is used to determine if the outside temperature can influence the defrost time of the intake ventilator. If this option is set to ON, the defrost times can be replaced by the values of the Defrost Influence group.

### ***RECUPERATOR SETPOINT CURVE***

### ***INTAKE VENTILATOR MINIMUM SPEED CURVE***

### ***INTAKE VENTILATOR MAXIMUM SPEED CURVE***

### ***INTAKE VENTILATOR VARIABLE TIMER MINIMUM SPEED CURVE***

### ***INTAKE VENTILATOR VARIABLE TIMER MAXIMUM SPEED CURVE***

### ***EXHAUST VENTILATOR MINIMUM SPEED CURVE***

### ***INTAKE VENTILATOR MINIMUM SPEED CURVE***

These parameters are used to activate or deactivate the respective **Ramping Function**. If this option is set to ON and the *GROWTH DAY* is not set to OFF, the corresponding parameter will change according to its **Growth Curve**.

### ***EXHAUST VENTILATOR FULL START***

These parameters are used to determine if the exhaust ventilator will perform a full start upon activation. If this option is set to ON the exhaust ventilator output will be activated at full speed for the first few seconds following an activation demand.

### ***INTAKE VENTILATOR FULL START***

These parameters determine if the intake ventilator will perform a full start upon activation. If this option is set to ON the intake ventilator output will be activated at full speed for the first few seconds following an activation demand.



## ALARMS (ZONE)

### ***ZONE TEMPERATURE ALARM***

This parameter is used to activate or deactivate the alarm for the zone. If this setting is set to OFF, no temperature alarms will be detected for the zone. If this parameter is set to ON, zone temperature will be monitored. **It is not recommended to deactivate the zone alarm for a prolonged period of time.**

### ***LOW RELATIVE (DAY) TEMPERATURE***

This parameter adjusts the low temperature alarm. The value adjusted here will be affected by a change of the *MAIN SET POINT*. Setting this parameter to OFF deactivates the low temperature alarm. This parameter is adjusted in 0.1° from OFF, *MAIN SET POINT* - 40.0° to *MAIN SET POINT* + 40.0°.

### **LOW ACTUAL TEMPERATURE**

These parameters display the low temperature set point. The low alarm temperature may change according to the time of day if the night set point is used. If a temperature is under this setting, an alarm will occur.

### ***LOW NIGHT TEMPERATURE***

These parameters display the low set point temperature when *MAIN SETPOINT* is affected by *NIGHT SET POINT*. Because *MAIN SETPOINT* is changing depending on hour of the day, it is important to know which temperature alarm will occur at different periods.

### ***HIGH RELATIVE (DAY) TEMPERATURE***

This parameter adjusts the high temperature alarm. The value adjusted here will be affected by a change of the *MAIN SET POINT*. Setting this parameter to OFF deactivates the low temperature alarm. This parameter is adjusted in 0.1° from OFF, *MAIN SET POINT* - 40.0° to *MAIN SET POINT* + 40.0°.

### **HIGH ACTUAL TEMPERATURE**

These parameters display the high temperature set point. The high alarm temperature may change according to the time of day if the night set point is used. If a temperature is above this parameter, an alarm will occur.

### ***HIGH NIGHT TEMPERATURE***

These parameters display the high temperature set point when *MAIN SETPOINT* is affected by *NIGHT SET POINT*. Because *MAIN SETPOINT* is changing depending on hour of the day, it is important to know which temperature alarm will occur at different periods.

### ***HIGH CRITICAL TEMPERATURE***

This parameter is used to set the temperature at which a critical high temperature alarm condition will occur. The critical high temperature alarm does not consider the OUTSIDE TEMPERATURE or the *MAIN SET POINT Ramping Function*. This parameter is adjusted in 0.1° increments from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

### ***LOW CRITICAL TEMPERATURE***

This parameter is used to set the temperature at which a critical low temperature alarm condition will occur. If the *CRITICAL* option is set to ON, the alarm will be activated when the AVERAGE TEMPERATURE is lower than this parameter. The critical low temperature alarm does not consider the *MAIN SET POINT Ramping Function*. This parameter is adjusted in 0.1° increments from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

### ***OUTSIDE TEMPERATURE INFLUENCE***

This parameter is used to set the value that will be added to the OUTSIDE TEMPERATURE to calculate the high alarm set point when the OUTSIDE TEMPERATURE exceeds the *MAIN SETPOINT*. When this is the case, the OUTSIDE TEMPERATURE will replace the *MAIN SETPOINT* to determine the high temperature alarm threshold.

## **PROBE CALIBRATION**



### **TEMPERATURE (1-16)**

These parameters display the probe reading with its corresponding calibration. These temperatures are displayed to the nearest 0.1° from -50.0°C to 60.0°C (-58.0°F to 140.0°F).

### ***TEMPERATURE (1-16) ADJUSTMENT***

These parameters are used to adjust the probe reading. These values are adjusted in 0.1° increments from -20.0° to 20.0°.

### **OUTSIDE TEMPERATURE**

These parameters display the outside probe reading with its corresponding calibration. This temperature is displayed to the nearest 0.1° from -50.0°C to 60.0°C (-58.0°F to 140.0°F).

### ***OUTSIDE TEMPERATURE ADJUSTMENT***

This parameter is used to adjust the outside probe reading. This value is adjusted in 0.1° increments from -20.0° to 20.0°.

## **HUMIDITY CALIBRATION**

### **HUMIDITY**

These parameters display the actual humidity with its calibration. The humidity is displayed to the nearest 1RH% from 0RH% to 100RH%. The control may also display ERR if the humidity probe has not responded for five minutes.

### ***HUMIDITY ADJUSTMENT***

This parameter is used to adjust the humidity reading. This value is adjusted in 1RH% increments from -20RH% to 20RH%.

### **HUM+ CALIBRATION**



#### **HUM+**

These parameters display the actual humidity of the HUM+ probe with its calibration. The HUM+ humidity is displayed to the nearest 1RH% from 0RH% to 100RH%. The control may also display ERR if the HUM+ humidity probe has not responded for five minutes.

#### ***HUM+ ADJUSTMENT***

This parameter is used to adjust the HUM+ humidity reading.

### **STATIC PRESSURE CALIBRATION**

#### **STATIC PRESSURE**

This parameter displays the actual static pressure probe with its calibration. This parameter is displayed to the nearest 0.001WC (1Pa) from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

#### ***STATIC PRESSURE ADJUSTMENT***

This parameter is used to adjust the static pressure probe reading. This parameter is adjusted in 0.001WC (1Pa) increments from -0.500"WC to 0.500"WC (-99Pa to 99Pa).

### **FEED AUGER CALIBRATION**

#### ***FEED # 1-MINUTE CALIBRATION***

These parameters are used to calibrate the feed input. Each minute of activation read by the feed input will add the amount of units (kg or lb) adjusted here to the associated feeder or feed auger count.

### **BACKUP PROBES**

#### ***BACKUP FOR PROBE (1-16)***

These parameters are used to select the probe that will be used as a backup when the associated inside temperature probe reading is not valid. The backup probes will be used only if less than three sensors are used (or left) in the temperature calculation. If three or more sensors are used (or left) in the temperature calculation, the non-valid probe will simply be eliminated from the calculation. If a temperature calculation originally has more than two probes, but, due to non-valid readings, probes are eliminated and there are two or less left, the control will use backup probes.

A probe will be eliminated or replaced from a temperature calculation if:

- The probe is an open-circuit or a short-circuit.
- The probe reading is not within an acceptable temperature range (-4.0°F to 131.0°F) or (-20.0°C to 55.0°C).
- The probe is used to calculate a temperature that is 20.0° above or below the probe's reading. This particular situation does not trigger the alarm.

## **OPTIONS**



### ***NUMBER OF VARIABLE STAGES***

This parameter is used to set the number of variable stages that will be used in the respective zone when *CONFIGURABLE VENTILATION STAGES* are used. Zone A can have up to 12 variable stages. Other zones can have up to 8 variable stages.

### ***NUMBER OF ON/OFF STAGES***

This parameter is used to set the number of on/off stages that will be used in the respective zone when *CONFIGURABLE VENTILATION STAGES* are used. Zone A can have up to 24 on/off stages. Other zones can have up to 10 on/off stages.

### ***NIGHT SETPOINT ACTIVE***

This parameter is used to activate or deactivate the night compensation. If this parameter is set to No, the *MAIN SETPOINT* will be the value used anytime. If this parameter is set to Yes, when the *NIGHT SETPOINT TIME BEGIN*, the ACTUAL MAIN SETPOINT will modulate from *MAIN SETPOINT* to reach *NIGHT SETPOINT* when the *NIGHT SETPOINT TRANSITION* delay is done. When time reaches *NIGHT SETPOINT TIME END* – *NIGHT SETPOINT TRANSITION*, the ACTUAL MAIN SETPOINT will modulate to reach *MAIN SETPOINT* when time reaches *NIGHT SETPOINT TIME END*.

### ***SEASONAL SETPOINT***

This option is visible and effective only if an outside temperature sensor is used. If the value of this option is set to Yes, a *CURRENT MAIN SETPOINT* and *SUMMER MAIN SETPOINT*, *WINTER MAIN SETPOINT*, *SUMMER OUTSIDE SETPOINT*, and *WINTER OUTSIDE SETPOINT* will appear in the *Setpoints* group.

### ***ACCELERATED MOVEMENT ACCORDING TO EXTERNAL TEMPERATURE AIR INLETS***

This option is visible and effective only if an outside temperature sensor is used. If the value of this option is set to Yes, the settings *OUTSIDE SETPOINT ACCELERATED MOVEMENT* and *PERCENTAGE ACCELERATED MOVEMENT* are displayed in the *Air Inlets* group in natural time mode.

### ***STIR FAN MODE***

This option is visible when a stir fan is assigned to a relay in the *Output Configuration* group. It allows the user to choose between the operating mode *Setpoint* or *Comparison*. In *setpoint* mode, the average temperature of a group of probes is calculated, according to its value and of the *Temperature On* as well as of the *Differential*, a stir fan is activated or deactivated. The comparison mode is used to calculate the difference between the probe group "*Probes comparison*" and the probe group "*Probes*", the value obtained and the value of the *Difference Activation* as well as of the *Differential* determine if the fan will be activated or not.

### ***VARIABLE STIR FAN MODE***

This option is visible when a variable stir fan is assigned to a relay in the *Output Configuration* group. It allows the user to choose between the operating mode *Setpoint* or *Comparison*. In setpoint mode, the average temperature of a group of probes is calculated, according to its value and of the *Start Temperature* as well as of the *Modulation Strip*, a variable stir fan is activated or deactivated. The comparison mode calculates the difference between the probe group "*Probes comparison*" and the probe group "*Probes*", the value obtained and the value of the *Difference Activation* as well as of the *Modulation Strip* determine if the fan will be activated or not.

### ***CRITICAL TEMPERATURE ALARM OPTION***

This option is used to activate or deactivate the critical high and low temperature alarms. If this option is set to ON, the high and low critical alarms will activate if a temperature is greater than *HIGH CRITICAL TEMPERATURE* or lower than *LOW CRITICAL TEMPERATURE*. If this option is set to OFF, critical alarms will not be active or displayed.

### ***TUNNEL START STAGE***

This parameter is used to set the on/off ventilation stage that will activate the tunnel ventilation mode. When the selected on/off ventilation is activated by temperature demand, tunnel mode will be activated. Tunnel mode will end when that same stage no longer has a temperature activation demand. The on/off ventilation stage selected here must have an associated relay to make tunnel mode available. Setting this parameter to OFF will deactivate tunnel mode. This parameter is adjustable from OFF, 1 to 10. However, depending on system setup, some of the values will not be available.

### ***# INLETS/INFLATABLE CURTAINS ACTIVE FOR NATURAL***

This parameter is used to set the amount of inlet using natural mode and/or inflatable curtains that must have an opening demand before natural mode is activated. When a number of inlets using natural mode and/or inflatable curtains equal to this parameter have an opening demand, the *NATURAL MODE TRANSITION DELAY* will start. Once the *NATURAL MODE TRANSITION DELAY* has elapsed, natural mode will effectively begin. At this point, cool stages set to shutoff in natural mode will shutoff and inlets set to close in natural mode will close. This parameter is adjustable from All, 1 to 15.

### ***OUTSIDE TEMPERATURE FOR NATURAL***

This parameter is used to set the *OUTSIDE TEMPERATURE* at which inlet in natural mode and inflatable curtains will open. When *OUTSIDE TEMPERATURE* is above this parameter, these inlets will stop continuously close and will be allowed to open. When the option *OUTSIDE PROBE ACTIVE* is set to No or the outside probe is defective, this restriction will not be applied. A fixed **Differential** of 0.3° is used with this logic. This parameter is adjusted in 0.1° increments from -40.0°C to 40.0°C (-40.0°F to 120.0°F).



### ***NATURAL MODE TRANSITION DELAY***

This parameter is used to set the amount of time for which cooling stages that will shutoff in natural mode and inlets that close in natural mode will continue to operate. When a number of inlets using natural mode equal to # *INLETS/INFLATABLE CURTAINS ACTIVE FOR NATURAL* have an opening demand, this delay will start. Once this delay has elapsed, natural mode will effectively begin. At this point, cool stages set to shutoff in natural mode will shutoff and inlets set to close in natural mode will close. This parameter can be adjusted from 0:00 minutes to 300:59 minutes.

### ***NATURAL MODE ONLY***

This parameter allows the user to activate or deactivate the natural mode only option. If this option is set to ON, the zone will operate as in natural mode event if natural mode's activation condition are not met.

### ***VARIABLE STAGE OUTSIDE COMPENSATION***

This parameter is used to activate or deactivate the increase of the minimum speed of the variable stages when the OUTSIDE TEMPERATURE is equal to or above *VARIABLE STAGE OUTSIDE TEMPERATURE SET POINT*. If this parameter is set to OFF, the OUTSIDE TEMPERATURE will not affect the minimum speed of the variable stages. If this parameter is set to ON, *VARIABLE STAGE (1-6) ADD MINIMUM SPEED OUTSIDE TEMPERATURE COMPENSATION* will be added to the associated variable stage's minimum speed when the OUTSIDE TEMPERATURE is equal to or above *VARIABLE STAGE OUTSIDE TEMPERATURE COMPENSATION SET POINT*.

### ***VARIABLE STAGE MINIMUM SPEED PROTECTION***

This parameter allows *VARIABLE STAGE TEMPERATURE PROTECTION UNDER*, *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED* and *VARIABLE STAGE (1-6) PROTECTION MINIMUM SPEED ON DEHUMIDIFICATION* to be used and displayed.

### ***VARIABLE STAGE IDLE BACK***

This parameter allows *VARIABLE STAGE (1-6) SPEED WHEN NEXT STAGE ON* to be used and displayed.

### ***VARIABLE STAGE DEFROST***

This parameter allows *VARIABLE STAGE (1-6) DEFROST*, *VARIABLE STAGE OUTSIDE TEMPERATURE DEFROST*, *VARIABLE STAGE (1-6) DEFROST TIME* and *VARIABLE STAGE (1-6) DEFROST CYCLE* to be used and displayed.

### ***VARIABLE STAGE DEHUMIDIFICATION***

This parameter allows *VARIABLE STAGE (1-6) HUMIDITY RELATIVE SET POINT* and *VARIABLE STAGE (1-6) ADD MINIMUM SPEED FOR HUMIDITY*, to be used and displayed if its value is 1 or 2, as well as *VARIABLE STAGE (1-6) HUMIDITY RELATIVE SET POINT LEVEL 2* and *VARIABLE STAGE (1-6) ADD MINIMUM SPEED FOR HUMIDITY LEVEL 2*, to be used and displayed if its value is 2.

### ***VARIABLE STAGES CO2 INFLUENCE***

This parameter allows *VARIABLE STAGE # MINIMUM/MAXIMUM CO2 INFLUENCE*, *VARIABLE STAGE # CO2 DIFFERENTIAL* and *VARIABLE STAGE # MINIMUM/MAXIMUM CO2 COMPENSATION* to be used and displayed.

***VARIABLE STAGE TIMER***

This parameter allows *VARIABLE STAGE (1-6) TIMER* to be used and displayed.

***INFLUENCE OUTSIDE TEMPERATURE VARIABLE STAGE***

This parameter enables or disables the influence of the outside temperature on the operation of variable stages

***VARIABLE STAGE INLET REFERENCE SPEED***

This parameter allows *VARIABLE STAGE (1-6) MINIMUM SPEED REFERENCE FOR INLET* to be used and displayed.

***COLD SECURITY VARIABLE STAGES***

This parameter enables or disables the cold security on the variable stages.

***HOT SECURITY VARIABLE STAGES***

This parameter enables or disables the hot security on the variable stages.

***COLD SECURITY VARIABLE STIR FANS***

This parameter enables or disables the cold security on the variable stir fans.

***HOT SECURITY VARIABLE STIR FANS***

This parameter enables or disables the hot security on the variable stir fans.

***VARIABLE STIR FANS CO2 INFLUENCE***

This parameter allows *VARIABLE STIR FANS # MINIMUM/MAXIMUM CO2 INFLUENCE*, *VARIABLE STAGE # CO2 DIFFERENTIAL* and *VARIABLE STAGE # MINIMUM/MAXIMUM CO2 COMPENSATION* to be used and displayed.

***VARIABLE STIR FANS TIMER***

This parameter allows *VARIABLE STIR FAN (1-6) MINIMUM VENTILATION TIMER* to be used and displayed.

***ON/OFF STAGE TIMER***

This parameter allows *ON/OFF STAGE (1-10) TIMER* to be used and displayed.

***HEATER HIGH TEMPERATURE SHUTOFF***

This parameter allows *HEATER (1-6) HIGH TEMPERATURE SHUTOFF* to be used and displayed.

***HEATER DEHUMIDIFICATION***

This parameter allows *HEATER HUMIDITY SETPOINT*, *HEATER HUMIDITY TIMER ON TIME*, *HEATER HUMIDITY TIMER OFF TIME*, *OUTSIDE SETPOINT HUMIDITY DEACTIVATION* and *HEATER VENTILATION STAGE STOP DEHUMIDIFICATION* to be used and displayed.

***CLOCK MODE***

This parameter is used to choose the operating mode for the clock output. If Mode 1 is chosen, the clock output will activate according to *CLOCK (1-4) START TIME CYCLE (1-15)*, *CLOCK (1-4) STOP TIME CYCLE (1-15)* or *CLOCK (1-4) RUN TIME CYCLE (1-15)* according to *CLOCK CYCLE MODE (1-4)*. If Mode 2 is chosen, the clock output will activate according to *CLOCK (1-4) START TIME CYCLE (1-3)*, *CLOCK (1-4) DURATION CYCLE (1-3)*, *CLOCK (1-4) REPETITION CYCLE(1-3)* and *CLOCK (1-4) NUMBER OF REPETITIONS CYCLE (1-3)*.

### ***CLOCK CYCLE MODE***

This parameter is used to choose the operating mode for the clock cycles. If Time is chosen, the clock output will activate according to *CLOCK (1-4) START TIME CYCLE (1-15)* and *CLOCK (1-4) STOP TIME CYCLE (1-15)*. If Run Time is chosen, the output will activate according to *CLOCK (1-4) START TIME CYCLE (1-15)* and *(1-4) RUN TIME CYCLE (1-15)*.



### ***LIGHT STIMULATION***

This parameter allows *LIGHT NUMBER OF STIMULATIONS*, *LIGHT STIMULATION INTENSITY* and *LIGHT STIMULATION DURATION* to be used and displayed.

### ***INFLATABLE CURTAIN DRAINAGE***

This parameter allows *INFLATABLE CURTAIN (1-8) DRAINING TIME* and *INFLATABLE CURTAIN (1-8) DURATION* to be used and displayed.

### ***INFLATABLE CURTAIN TUNNEL DRAINAGE***

This parameter allows *INFLATABLE CURTAIN (1-8) STOP ON/OFF STAGE IN TUNNEL DRAINAGE* and *INFLATABLE CURTAIN (1-8) STOP VARIABLE STAGE IN TUNNEL DRAINAGE* to be used and displayed.

### ***WIND/RAIN COMPENSATION INFLATABLE CURTAIN***

This parameter allows *INFLATABLE CURTAIN (1-8) RAIN/WIND COMPENSATION*, *INFLATABLE CURTAIN (1-8) WIND COMPENSATION DIRECTION*, *INFLATABLE CURTAIN (1-8) WIND COMPENSATION SPEED*, *INFLATABLE CURTAIN (1-8) RAIN/WIND COMPENSATION STOP DELAY* and *INFLATABLE CURTAIN (1-8) NUMBER OF BLOWERS COMPENSATION* to be used and displayed.

### ***INLET DEFROST***

This parameter is used to activate or deactivate inlet defrosting.

### ***INLET MINIMUM VENTILATION***

This parameter is used to activate or deactivate inlet minimum ventilation.

## **TEST MODE**

### ***OPTION***

This parameter is used to activate or deactivate the test mode. When this parameter is set to ON, all inside probe readings will be replaced by the *TEST MODE TEMPERATURE*. This parameter will reset itself to OFF if *TEST MODE TEMPERATURE* is not changed throughout a 10-minute delay.

### ***TEMPERATURE***

This parameter is used to adjust the test mode temperature; all temperature sensors will be overridden by this parameter if *TEST MODE OPTION* is set to ON. This parameter is adjusted in 0.1° increments from -3.9°F to 139.9°F (-19.9°C to 54.9°C).

### ***ALTERNATING TIMER***

This parameter is used to activate the alternating timers for the ventilation timers. While alternating timers are active, it will be possible to select the timer cycle that the respective logic will use.

### **WATER METER**

#### **WATER METER**

This parameter displays the amount of water counted by the water meter for the current day. The amount of water read is displayed to the nearest unit (litre or gallon) from 0 to 30000.

#### ***WATER METER ADJUSTMENT***

This parameter is used to adjust the water meter by adding or reducing percentage. These parameters are adjusted in 1% increments from -100% to 100%.

#### ***WATER METER 1-PULSE CALIBRATION***

This parameter is used to set the number of units (litres or gallons) counted each time a pulse is read at the water counter input. This number may be set to any value from 1 unit (litre or gallon) from 0.01 to 99.99 units (litres or gallons).

#### **REINITIALIZE WATER METERS**

This parameter is used to reset the actual water meter count. If this parameter is pressed, WATER METER will be reset to zero

### **GENERIC COUNTER**

#### **GENERIC COUNTER**

These parameters display the amount counted by each of the generic counter for the current day.

#### ***1-PULSE CALIBRATION***

These parameters are used to set the number of units counted each time a pulse is read by a generic counter input.

#### **REINITIALIZE GENERIC COUNTER VALUES**

These parameters are used to reset each generic counter. If this parameter is pressed, GENERIC COUNTER will be reset to zero.

### **ENERGY COUNTER**

#### **ENERGY COUNTER**

This parameter displays the energy measured by the energy counter for the current day.

#### ***1-PULSE CALIBRATION***

This parameter is used to set the energy counted each time a pulse is read by the energy counter input.

#### **REINITIALIZE ENERGY COUNTER VALUE**

This parameter is used to reset the energy counter. If this parameter is pressed, ENERGY COUNTER will be reset to zero.

## **FEEDERS**

### **FEEDER RUN TIME**

These parameters display the amount of time during which the feeder has been activated for the current day.

### **FEEDER INPUT STATE**

These parameters display the requested state of the feeder input. The feeder input can be ON or OFF.

### **FEEDER OUTPUT STATE**

These parameters display the requested state of the feeder outputs. Each feeder output can be ON or OFF.

### **REINITIALIZATION**

These parameters are used to reset the actual feeder count. If this parameter is pressed, FEEDER RUN TIME will be reset to zero.

## **FEEDER SETTINGS**

### **FEEDER RUN TIME**

These parameters display the amount of time for which the feeder has been activated for the current day.

### **FEEDER INPUT STATE**

These parameters display the requested state of the feeder input. The feeder input can be ON or OFF.

### **FEEDER OUTPUT STATE**

These parameters display the requested state of the feeder outputs. Each feeder output can be ON or OFF.

### ***START TIME CYCLE #***

These parameters are used to set the time at which the feeder cycle will begin. When the time of day reaches this time, the feeder outputs will activate.

### ***STOP TIME CYCLE #***

These parameters are used to set the time at which the feeder cycle will end. When the time of day reaches this time, the feeder output will deactivate.

### ***RUN TIME CYCLE #***

These parameters are used to set the time at which the feeder cycle will run. When the time of day reaches *FEEDER START TIME CYCLE # + FEEDER RUN TIME CYCLE #*, the feeder output will deactivate.

## **FEEDER OPTIONS**

### ***NUMBER OF CYCLES***

This parameter is used to set the number of cycles that are used and displayed when using mode 1. The cycles with a number lower than the number adjusted here will disappear and not be considered.

### ***FEEDER CYCLE MODE***

This parameter is used to choose the operating mode for the feeder cycles. If Time is chosen, the feeder output will activate according to *FEEDER START TIME CYCLE #* and *FEEDER STOP TIME CYCLE #*. If Run Time is chosen, the feeder output will activate according to *FEEDER START TIME CYCLE #* and *FEEDER RUN TIME CYCLE #*.

### **FEEDER ALARMS**

#### ***FEEDER STOP LIMIT (Curve available)***

These parameters are used to set the amount of time after which the feeder can be inactive for a cycle. If the feeder is not activated for the time set here during a feeder activation period, an alarm will occur. Setting this parameter to OFF deactivates the alarm.

#### ***FEEDER MAXIMUM LIMIT***

These parameters are used to set the amount of time after which the feeder will activate the alarm if it is activated continuously. If the feeder is active for the time set here, an alarm will occur. Furthermore, when this alarm occurs, feeder relays will be deactivated. Setting this parameter to OFF deactivates the alarm.

#### ***FEEDER STOP LIMIT CURVE***

These parameters are used to activate or deactivate the *ALARM FEEDER STOP LIMIT Growth Function*. If the curve option is set to ON and *GROWTH DAY* is not set to OFF the *ALARM FEEDER STOP LIMIT* will follow its **Growth Curve**.

### **REINITIALIZATION FEEDER**

This parameter is used to reinitialize the feeder alarms. When a feeder alarm situation occurs, it will remain active until this parameter is pressed. When there is no feeder alarm, pressing on this parameter will only reinitialize the feeder alarm's actual counts and timers.

#### ***ALARM RELAY FOR MAX FEEDER/***

This parameter is used to determine if the alarm relay will be activated when a maximum feeder alarm condition occurs. If this option is set to ON, the alarm relay will activate on this condition. If this option is set to OFF, the alarm relay will not activate on this condition. In both cases, the concerned output that has triggered the alarm will deactivate and a message will be logged in the alarm history.

### **FEED AUGERS**

#### **FEED AUGER RUN TIME**

These parameters display the amount of time for which the feed auger has been activated for the current day.

#### **FEED AUGER INPUT STATE**

These parameters display the requested state of the feed auger input. The feed auger input can be ON or OFF.

#### **FEED AUGER OUTPUT STATE**

These parameters display the requested state of the feed auger outputs. Each feed auger output can be ON or OFF.

## **QUANTITY**

This parameter displays the amount of feed counted by the feed auger according to its run time and calibration.

## **ACTUAL CONDITION**

These parameters display the actual condition of the feed auger. Conditions can be:

- No Demand: the feed auger does not have an activation demand.
- Activation Demand: the feed auger receives an activation demand and no other condition prevents its activation.
- Maximum Alarm Stop: the feed auger has an activation demand, but the maximum alarm condition cancels this activation

## **VALUE REINITIALIZATION**

These parameters are used to reset the actual feed auger count. If this parameter is pressed, FEED AUGER RUN TIME will be reset to zero.

## **ALARM REINITIALIZATION**

This parameter is used to reinitialize the feed auger alarms. When a feed auger alarm situation occurs, it will remain active until this parameter is pressed. When there is no feed auger alarm, pressing on this parameter will only reinitialize the feed auger alarm's actual counts and timers.

## **FEED AUGER SETTINGS**

### **FEED AUGER RUN TIME**

These parameters display the amount of time for which the feed auger has been activated for the current day.

### **FEED AUGER INPUT STATE**

These parameters display the requested state of the feed auger input. The feed auger input can be ON or OFF.

### **FEED AUGER OUTPUT STATE**

These parameters display the requested state of the feed auger outputs. Each feed auger output can be ON or OFF.

## **QUANTITY**

This parameter displays the amount of feed counted by the feed auger according to its run time and calibration.

### ***START TIME CYCLE #***

These parameters are used to set the time at which the feed auger cycle will begin. When the time of day reaches this time, the feed auger outputs will activate.

### ***STOP TIME CYCLE #***

These parameters are used to set the time at which the feed auger cycle will end. When the time of day reaches this time, the feed auger output will deactivate.

### ***RUN TIME CYCLE #***

These parameters are used to set the time for which the feed auger cycle will run. When the time of day reaches *FEED AUGER START TIME CYCLE # + FEED AUGER RUN TIME CYCLE #*, the feed auger output will deactivate.

### ***STOP QUANTITY CYCLE #***

These parameters are used to adjust the amount of feed that must be distributed for the feed auger cycle to stop. This value can use the **Growth Function** if *CURVE OPTION WEIGHT CYCLE* is set to ON and the **Growth Day** is not set to OFF.

### ***CURVE OPTION WEIGHT CYCLE***

These parameters are used to activate or deactivate the **Growth Function** for *STOP QUANTITY CYCLE*. If this curve option is set to ON and the **Growth Day** is not set to OFF, the *STOP QUANTITY CYCLE #* will follow its **Growth Curve**.

## **FEED AUGER OPTIONS**

### ***FEED AUGER CYCLE MODE***

This parameter is used to choose the operating mode for the feed auger cycles. If Time is chosen, the feed auger output will activate according to *FEED AUGER START TIME CYCLE #* and *FEED AUGER STOP TIME CYCLE #*. If Run Time is chosen, the feed auger output will activate according to *FEED AUGER START TIME CYCLE #* and *FEED AUGER RUN TIME CYCLE #*.

### ***NUMBER OF CYCLES***

This parameter is used to set the number of cycles that are used and displayed when using mode 1. The cycles with a number lower than the number adjusted here will disappear and not be considered.

## **BIN SCALES**

### **STATUS**

These parameters display the actual status of the respective bin scale.

### **ACTUAL WEIGHT**

These parameters display the current weight measured for the respective bin. The current weight is the gross weight of the bin, minus the tare weight of that bin. If the tare weight has never been established, this value will be equal to the gross weight. If there is a communication problem with the bin's module, the weight read is not stable enough or a load cell is defective, the associated parameter will display ---.

### **CONSUMPTION**

These parameters display the consumption of the respective bin.

### **FILL TIME OF DAY**

These parameters display the time of day at which the last fill occurred for the respective bin. If no fill has been detected since the last initialization, this parameter will display --/--/--.

### **FILL DATE**

These parameters display the date at which the last fill occurred for the respective bin. If no fill has been detected since the last initialization, this parameter will display --/--/--.



### **FILL WEIGHT**

This parameter displays the total amount that has been measured for all fills that were done at the FILL DATE. If no fill has been detected since the last initialization, this parameter will display ---.

### **TOTAL BATCH FILL WEIGHT**

This parameter displays the total amount that has been measured for all fills since the beginning of the batch for the respective bin. If no fill has been detected since the last initialization, this parameter will display ---.

### **EMPTY TIME OF DAY**

This parameter displays the time at which the bin scale became empty. If the bin scale has not been empty during the day, this parameter will display ---.

### **COMBINED WEIGHT (1-2)**

These parameters display the total weight of the bin scales selected in *COMBINED WEIGHT BIN SCALE SELECTION (1-2)*. This parameter will only be visible if bin scales are selected in the associated *COMBINED WEIGHT BIN SCALE SELECTION (1-2)* parameter.

### **COMBINED CONSUMPTION (1-2) TOTAL START**

These parameters display the cumulative consumption, since the beginning of the breeding, of several bins selected in the parameter *COMBINED WEIGHT BIN SCALE SELECTION (1-2)*. This parameter will not be visible if no bin is selected in the associated *COMBINED WEIGHT BIN SCALE SELECTION (1-2)* parameter.

### **REINITALISE CONSUMPTION**

These parameters are used to reinitialise the respective bin consumption value. When this parameter is pressed, the BIN # CONSUMPTION value will be reset to zero.

## **BIN SCALE SETTINGS**

### ***ALARM OPTION***

This parameter is used to determine if the alarm can be triggered by a bin scale problem or not. If this parameter is set to ON, the alarm will sound when a problem is detected on a bin scale. If this parameter is set to OFF, only a message will be logged when a problem is detected on a bin scale.

### ***TOLERANCE***

This parameter is used to set the tolerance of the bin. The tolerance is the value used to validate a tare sequence, to end a fill sequence and accept an unexpected weight increase. This parameter is adjusted in 1kg (1lb) increments from 10kg (10lb) to 999kg (999lb).

### ***FILL THRESHOLD***

This parameter is used to set the weight increase that will trigger a fill sequence. When the weight of the bin increases by this value within a time period of *FILL TIME*, the fill sequence will begin. This parameter is adjusted in 1kg (1lb) increments from 50kg (50lb) to 999kg (999lb).

### ***FILL TIME***

This parameter is used to set the time within which the weight must increase to trigger a fill sequence, or remain stable to end the fill sequence. When the weight of the bin increases by *FILL THRESHOLD* within this time period, the fill sequence will begin. When the weight of the bin does not increase by *TOLERANCE* within this time period, the fill sequence will end. This parameter is adjusted in 1-minute increments from 5 to 10 minutes.

### **TARE**

These parameters are used to activate the tare sequence on the respective bin. If this parameter is pressed, the tare sequence will begin. This parameter displays the state of the tare sequence. When the tare sequence begins, this message will appear and display PLEASE WAIT..., indicating that the tare sequence is being performed. If a communication error occurs during the tare sequence this message will display ERROR(Comm.). If a load cell is defective during the tare sequence this message will display ERROR(LC). When the tare sequence ends, this message will display ERROR(Tol.), if the weight variation was too great during the tare sequence, or SUCCESS, if the tare sequence has successfully been completed. This message will remain displayed for a few seconds after the tare sequence ends. When the tare sequence has successfully been completed, the tare weight will be recorded in the controller and used to calculate the actual weight of the contents of the bin.

### **LAST TARE DATE**

This parameter displays the date of the last tare sequence. When a tare sequence has been successfully completed, this parameter will display the date at which it was performed. If no tare has been performed since the last initialization, this parameter will display --/--/--.

### **LAST TARE TIME**

This parameter displays the time of the last tare sequence. When a tare sequence has been successfully completed, this parameter will display the time at which it was performed. If no tare has been performed since the last initialization, this parameter will display --.

### **LOAD CELL GAIN**

These parameters are used to set the gain of the load cells of the respective bin scale. This value is the gain in mV for each Volt of excitement and must correspond to the load cell manufacturer's specifications. These parameters are adjusted in 1mV increments from 0mV to 781mV.

### **LOAD CELL MAXIMUM WEIGHT**

These parameters are used to set the maximum weight of the load cells of the respective bin scale. This value is the greatest weight the load cell can read and must correspond to the load cell manufacturer's specifications. These parameters are adjusted in 1kg increments from 0kg to 32767kg.

### **COMBINED WEIGHT BIN SCALE SELECTION (1-2)**

These parameters are used to select which bin scales will be included in the evaluation of the combined weight. For *COMBINED WEIGHT 1 BIN SCALE SELECTION* to be visible, at least two (2) bin scales need to be in use. For *COMBINED WEIGHT 2 BIN SCALE SELECTION* to be visible, four (4) bin scales need to be in use.



### **TURKEY/CHICKEN SCALES**

#### **STATUS**

This parameter displays the actual status of the scale.

#### **NUMBER WEIGHED**

This parameter displays the amount of birds weighed recorded by the controller for the current day. A weight is only recorded if it is between respective *SCALE # TARGET WEIGHT +/- SCALE # HIGH/LOW TOLERANCE*. The amount of birds weighed is displayed to the nearest 1 birds weighed from 0 to 9999 birds weighed.

#### ***MANUEL AVERAGE WEIGHT***

This parameter allows the user to enter the weight of the birds manually. If a non-compatible scale is used to measure bird weight, the user can still enter a weight value in order to allow calculations that are made according to it possible. This value returns to « --- » automatically when the date changes to indicate that no weight value has been entered for the day. However, the controller considers the last entered weight to perform its calculations. To use this parameter, *WEIGHT ACQUIREMENT METHOD* must be set to Manual.

#### **LAST MANUAL ENTRY**

This parameter displays the date at which the last manual entry was made. If no entry has been made, this parameter will display ---.

#### **DAY AVERAGE WEIGHT**

These parameters display the average weight of the respective scale recorded for the actual day. If a scale has not recorded a weight during the actual day, the respective parameter will display ----.

#### **AVERAGE WEIGHT EVALUATION PERIOD**

These parameters display the average weight of the respective scale recorded for the evaluation period, as defined by *SCALE # TARGET EVALUATION FREQUENCY*. If a scale has not recorded a weight during the actual evaluation period, the respective parameter will display ----.

#### **ACTUAL WEIGHT**

This parameter displays the actual weight read by the bird scale module. The scale must have been calibrated to obtain a significant value.

### TARGET WEIGHT

This parameter displays the actual target weight of the scale. The target weight can be determined by DAY AVERAGE WEIGHT, AVERAGE WEIGHT EVALUATION PERIOD or the *GROUPE # START WEIGHT* of its associated group. When a batch is started, the target weight will be set to *GROUPE # START WEIGHT*. If *AVERAGE WEIGHT TARGET EVALUATION* is set to Day, the target weight will be DAY AVERAGE WEIGHT, increased according to the respective *SCALE # CURVE ADD WEIGHT AGE (0-249)* parameter. This value will be evaluated at a frequency determined by *SCALE # TARGET EVALUATION FREQUENCY*. If *AVERAGE WEIGHT TARGET EVALUATION* is set to Period, the target weight will be AVERAGE WEIGHT EVALUATION PERIOD. If the flock of the respective scale has not been started, this parameter will display ----.

### ACTUAL GAIN

This parameter displays the weight gain. The weight gain is the difference between SCALE # YESTERDAY AVERAGE WEIGHT and today's average weight. If a scale has not recorded a weight during the actual day or the preceding one, the gain cannot be calculated and the respective parameter will display ----.

### UNIFORMITY

This parameter displays the uniformity calculated by the respective scale module for the current day. The uniformity represents the percentage of the birds that are within 10% of the SCALE # TARGET WEIGHT. If the version of the scale is 7 or higher, the uniformity represents the percentage of birds that are within SCALE # TARGET WEIGHT +/- SCALE # HIGH/LOW TOLERANCE. If no birds have been weighed during the current day, this parameter displays ---. Otherwise, the uniformity is displayed to the nearest 1% from 0% to 100%.

### STANDARD DEVIATION

This parameter displays the standard deviation calculated by the respective scale. The standard deviation is a measure of the uniformity of a group of birds. For example, if a standard deviation of 30.0 grams is calculated, this indicates that 68% of the birds have a weight within 30.0 grams of the SCALE # AVERAGE WEIGHT. This value also indicates that 95% have a weight within 60.0 grams (standard deviation x2) of the SCALE # AVERAGE WEIGHT. If less than two birds have been weighed during the current day, this parameter displays -----.

### REINITIALIZE

This parameter is used to reinitialize all values for the respective scale. When this button is pressed, actual values of the respective scale will be reinitialized.

### WEIGHT AVERAGE (1-4)

These parameters display the average weight of the selected scales. If a scale has not recorded a weight during the actual day, the respective parameter will display ----.

### **CHICKEN/TURKEY SCALE SETTINGS**

#### ***LOW TOLERANCE***

This parameter is used to set the valid low weight limits for the scale. To make sure all weights recorded are valid, the scale will only record weights that are within the actual target weight - *SCALE # TOLERANCE LOW* and the actual target weight + *SCALE # TOLERANCE HIGH*. This parameter is adjusted in 1% increments from 20% to 40% (or 10% to 40% if the scale version is 7 or superior).

#### ***HIGH TOLERANCE***

This parameter is used to set the valid high weight limits for the scale. To make sure all weights recorded are valid, the scale will only record weights that are within the actual target weight - *SCALE # TOLERANCE LOW* and the actual target weight + *SCALE # TOLERANCE HIGH*. This parameter is adjusted in 1% increments from 20% to 40% (or 10% to 40% if the scale version is 7 or superior).

#### ***LOW UNIFORMITY***

This parameter is used to set the uniform low weight limits for the scale. The scale will only consider the weight of a bird uniform only if it is within the actual target weight - *SCALE # UNIFORMITY LOW* and the actual target weight + *SCALE # UNIFORMITY HIGH*. This parameter is adjusted in 1% increments from 0% to 40%. This parameter is only visible if the scale is version 7 or superior.

#### ***HIGH UNIFORMITY***

This parameter is used to set the uniform low weight limits for the scale. The scale will only consider the weight of a bird uniform only if it is within the actual target weight - *SCALE # UNIFORMITY LOW* and the actual target weight + *SCALE # UNIFORMITY HIGH*. This parameter is adjusted in 1% increments from 0% to 40%. This parameter is only visible if the scale is version 7 or superior.

#### ***CORRECTION FACTOR***

This parameter is used to fix the percentage that will be added to the average weight measured by the respective scale when flock age reaches *SCALE # CORRECTION FACTOR AGE*.

#### ***CORRECTION FACTOR AGE***

This parameter is used to set the age at which *SCALE # CORRECTION FACTOR* will be applied on average weight measured by the scale. When flock reaches this age, the average weight recorded will be the weight measured by the scale, added by this percentage.

#### ***EVALUATION OF WEIGHT METHOD***

This parameter is used to select the method used to determine the SCALE (1-2) TARGET WEIGHT. If the Evolution method is used, the target weight will be equal to last period's average weight (or the target weight adjusted by the user when flock is started) plus the respective *SCALE # CURVE ADD WEIGHT AGE (0-249)*. If the Chart method is used, the target weight for a given age will be determined by the corresponding weight adjusted in the growth curve of the respective scale. This parameter may only be adjusted when all scales are deactivated.

### ***AVERAGE WEIGHT TARGET EVALUATION***

This parameter is used to determine how the TARGET WEIGHT will be assigned. If this parameter is set to Day, the target weight will be DAY AVERAGE WEIGHT, increased according to the respective *SCALE # CURVE ADD WEIGHT AGE (0-249)* parameter. This value will be evaluated at a frequency determined by *SCALE # TARGET EVALUATION FREQUENCY*. If this parameter is set to Period, the target weight will be AVERAGE WEIGHT EVALUATION PERIOD. In both cases, there must have been a number of birds weighed equal to or above *MINIMUM NUMBER WEIGHED TARGET EVALUATION* in order to change the target weight.

### ***TARGET EVALUATION FREQUENCY***

These parameters are used to set the time rate at which the SCALE # TARGET WEIGHT of the respective scale will be evaluated during the day. The day will be divided into periods defined by the respective parameter. If the SCALE # NUMBER WEIGHED has reached the *SCALE # MINIMUM NUMBER WEIGHED TARGET EVALUATION*, the SCALE # TARGET WEIGHT will be evaluated according to the actual SCALE # AVERAGE WEIGHT and the corresponding *SCALE # ADD WEIGHT AGE (0-249)*. Each time a new period of the day is entered, the evaluation will be performed once again. These parameters can be set to 1h, 2h, 4h, 6h, 12h or 24h.

### ***MINIMUM NUMBER WEIGHED TARGET EVALUATION***

These parameters are used to set the minimum number of weights required to evaluate the SCALE # TARGET WEIGHT during the day. If the SCALE # NUMBER WEIGHED has not reached this amount, the SCALE # TARGET WEIGHT will not be evaluated when a new time period, defined by *SCALE # TARGET EVALUATION FREQUENCY* is reached. These parameters are adjusted in 1-weight increments from 5 weights to 100 weights.

### ***CALIBRATION WEIGHT***

This parameter allows the user to set the weight used for the calibration process. When calibrating the gain, the weight on the scale must be exactly the same as the one set here. The heavier the weight is, the better the precision will be. This parameter is adjusted according to the *POULTRY WEIGHT UNIT* in 1-unit increments from 1000 to 22000 units.

### ***ZERO CALIBRATION***

This parameter allows the user to start a calibration process that will determine the weight at which the scale will consider the weight to be zero (grams or pounds). To correctly evaluate the weight on the scale, the exact weight read when nothing is on the scale must be known. The scale must be emptied of all matter and press on this parameter. At this moment, the message at this parameter will change to indicate the status of the zero calibration sequence.

### **GAIN CALIBRATION**

This parameter allows the user to start a calibration process that will determine the gain of the scale. To correctly evaluate the gain of the scale, the variation of the electrical signal according to two known weights must be known; i.e. weight when the scale is empty and the *SCALE # CALIBRATION WEIGHT*. A weight precisely equal to the *SCALE # CALIBRATION WEIGHT* must be placed on the scale and press on this parameter to start a gain calibration sequence. At this moment, the message at this parameter will change to indicate the status of the gain calibration.

### ***WEIGHING START TIME***

This parameter is used to set the time at which weighing will be allowed for the respective poultry scale. When the time of day reaches this value, the poultry scale will register weights and will cease to record them when time of day reaches *CHICKEN/TURKEY SCALE # WEIGHING END TIME*. Setting this value to the same value as *CHICKEN/TURKEY SCALE # WEIGHING END TIME*, will remove weighing time restrictions.

### ***WEIGHING END TIME***

This parameter is used to set the time at which weighing will no longer be allowed for the respective poultry scale. When the time of day reaches this value, the poultry scale will cease to register weights. It will record weights once again when time of day reaches *CHICKEN/TURKEY SCALE # WEIGHING START TIME*. Setting this value to the same value as *CHICKEN/TURKEY SCALE # WEIGHING START TIME*, will remove weighing time restrictions.

### ***MANUAL TARGET WEIGHT***

This parameter is used to set the target weight manually. If anomalies occur during the breeding, it may be necessary to set the target weight to a different value. Setting this parameter to a value other than AUTO will set the target weight to that value. This parameter returns to AUTO when the date changes.

### ***FIX TARGET WEIGHT FOR THE FIRST WEEK***

This parameter is used to choose if the scale will use the poultry chart to determine its target weight. When this parameter is set to YES, the target weight will be determined by the poultry chart for the first week of the flock. When this parameter is set to NO, the chart will have no effect on the target weight.

### **CURVE CHICKEN/TURKEY SCALE #**

#### ***TARGET WEIGHT MALE AGE (0-249)***

These parameters allow the user to adjust the *SCALE # TARGET WEIGHT* of a male flock for a given age. Each weight can be individually adjusted to allow the user to create his customized target weight chart. If the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Evolution, this chart will only be used as a reference if the user desires so. However, if the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Chart, the *SCALE # TARGET WEIGHT* of a male birds of given age will be determined by this chart. These values are adjusted according to the *POULTRY WEIGHT UNIT* in 1-unit increments from 10 to 9999 units.



***TARGET WEIGHT FEMALE AGE (0-249)***

These parameters allow the user to adjust the SCALE # TARGET WEIGHT of a female flock for a given age. Each weight can be individually adjusted to allow the user to create his customized target weight chart. If the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Evolution, this chart will only be used as a reference if the user desires so. However, if the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Chart, the SCALE # TARGET WEIGHT of a female birds of given age will be determined by this chart. These values are adjusted according to the *POULTRY WEIGHT UNIT* in 1-unit increments from 10 to 9999 units.

***ADD WEIGHT MALE AGE (0-249)***

These parameters are used to calculate the SCALE # TARGET WEIGHT for male birds when the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Evolution. These values will be added to the SCALE # AVERAGE WEIGHT of the last evaluation period to define the new SCALE # TARGET WEIGHT for the actual day. If *SCALE # TARGET EVALUATION FREQUENCY* is set to a value other than 24h, the added weight will be divided by the number of evaluations per day. Each value should represent the anticipated weight increase for the respective day for male birds. These values are adjusted according to the *POULTRY WEIGHT UNIT* in 1-unit increments from 0 to 999 units.

***ADD WEIGHT FEMALE AGE (0-249)***

These parameters are used to calculate the SCALE # TARGET WEIGHT for female birds when the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Evolution. These values will be added to the SCALE # AVERAGE WEIGHT of the last evaluation period to define the new SCALE # TARGET WEIGHT for the actual day. If *SCALE # TARGET EVALUATION FREQUENCY* is set to a value other than 24h, the added weight will be divided by the number of evaluations per day. Each value should represent the anticipated weight increase for the respective day for female birds. These values are adjusted according to the *POULTRY WEIGHT UNIT* in 1-unit increments from 0 to 999 units.

**CURVE CHICKEN/TURKEY OPTIONS**

***WEIGHT ACQUIREMENT METHOD***

These parameters are used to determine by which method the bird weight will be acquired. If this parameter is set to Automatic, the bird weight will be obtained by using OPTI-GAIN 1 modules which will be required to be connected to the controller. If this parameter is set to Manual, the user will enter the weight to indicate to the controller which value to use for its calculations.

***WEIGHT AVERAGE SCALE SELECTION (1-4)***

These parameters are used to select which scale will be used to compute the weight average.

### **CHICKEN/TURKEY SCALE CHART**

#### ***TARGET WEIGHTAGE (0-7)***

These parameters are used by the user to set the different values of the scales chart. This is only use if *FIX TARGET WEIGHT FOR THE FIRST WEEK* is set to YES. When used, this chart has only effect the first 7 days of a flock. These values are adjusted according to the *POULTRY WEIGHT UNIT* in 1-unit increments from 0 to 999 units.

### **CURVE CHICKEN/TURKEY SCALE**

#### ***TARGET WEIGHT AGE (0-149)***

These parameters allow the user to adjust the SCALE # TARGET WEIGHT of a male flock for a given age. Each weight can be individually adjusted to allow the user to create his customized target weight chart. If the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Evolution, this chart will only be used as a reference if the user desires so. However, if the *SCALE # EVALUATION OF WEIGHT METHOD* is set to Chart, the SCALE # TARGET WEIGHT of a male birds of given age will be determined by this chart.

## SYSTEM CONFIGURATION



### TYPE OF BREEDING

This parameter is used to select the type of breeding that will be managed by the controller. The type of breeding will determine which options will appear throughout the configuration. The type of breeding can be Broiler Chicken, Broiler Turkey, Dairy Cow or Other.

**Poultry breeding table**

Name	Gain Chart	Ages	Day/Week	Poultry Scale	Egg Counter	Batch Weighing System
Broiler chicken	Yes	0-100	Day	Yes	No	No
Broiler turkeys	Yes	0-24	Week	Yes	No	No

**Bovine breeding table breeding table**

Name
Dairy Cows

### NUMBER OF ZONES

This parameter is used to select the number of zones that will be managed by the controller. If a zone is activated here, it will be visible and selectable throughout the configuration. If a zone is not activated here, it will not be displayed or selectable. This parameter can be adjusted from 1 to 4 zones.

### CONFIGURABLE VENTILATION STAGES

This parameter allows the user to activate the configurable ventilation stage feature. If this option is set to ON, the controller will consider outputs as ventilators instead of ventilation stages and the user will have to activate ventilation stages on the Options group of the respective zone and assign ventilators to every ventilation stage in order to activate the outputs.

### WATER METER UNIT

This parameter is used to select the water unit that will be used by the controller. The water meter unit can be either Litres or Gallons.

### CHANGE TEMPERATURE UNIT

This parameter is used to proceed with the temperature unit change. When the value of this parameter is changed, a confirmation question will appear. If the modification is confirmed, temperature unit change will be performed.

### CHANGE STATIC PRESSURE UNIT

This parameter is used to proceed with the static pressure unit change. When the value of this parameter is changed, a confirmation question will appear. If the modification is confirmed, static pressure unit change will be performed.

### WIND SPEED UNIT

This parameter is used to change the wind speed unit. The wind speed unit can be mph or km/h.

### **UNIT ID**

This parameter is used to set the identification number of the controller when used with remote access software. When *RF CHANNEL* is not set to OFF, this parameter will disappear. The unit identification number may be adjusted to any number from 1 to 250.

### **RF CHANNEL**

This parameter is used to select one of the 16 frequencies of the WiFarm network or deactivates wireless communication mode. If this parameter is set to OFF, other wireless communication parameters will disappear. This parameter can be adjusted to OFF, 1 to 16.

### **RF NETWORK**

This parameter is used to identify a WiFarm network. A WiFarm network is formed when the *RF NETWORK* is set to the same value as the of the RF communication card of the controller designated as the network master (ex. WebGate in most installations). Other controllers can join the existing network by adjusting *RF NETWORK* to the RF ADDRESS of that same network. When *RF CHANNEL* is set to OFF, this parameter will disappear. This parameter can be adjusted to any value from 00000 to 39999.

### **RF ADDRESS**

These parameters display the number (address) associated to the RF card inserted in the controller. A unique number is given to each RF card of the WiFarm network. The RF ADDRESS also appears on the sticker present on the RF card. When *RF CHANNEL* is set to OFF, this parameter will disappear. The address can be any value from 0 to 32767.

### **CONFIGURATION VERSION**

These parameters display the configuration version currently used.

### **PROCESSOR VERSION**

These parameters display the processor version currently used.

## **OUTPUT CONFIGURATION - MASTER RELAYS**



### ***(TYPE-ZONE) RELAY (1-16)***

These parameters are used to assign a type and a zone to the relay. The relay outputs that are not activated and their logics will be removed. The available outputs on all relays are: None, Ventilation Stage 1-10, Stir Fan 1-6, Heater 1-6, Clock 1-4, Sprinkler, Inflatable curtain 1-8 Blower 1-4, Blower Air Inlet 1-8, Relay Generic 1-4, Garage Door, Dust Removal and Lights 1-4. Odd numbered relays will also have Inlet 1-8 Open and Trap Door Open as available output types. When an odd numbered relay is assigned as one of these two output types, the next relay will automatically become the close relay of that output.

### **LOAD DELAY**

This parameter is used to adjust the load delay of all relays set to the types on/off ventilation stage or on/off stir fan. The load management prevents any two relays from activating at the same time. The amount of time adjusted for the load delay will separate the activation of two or more relays. This parameter is adjusted in 1-second increments from OFF, 1 to 60 seconds.



## **OUTPUT CONFIGURATION - SLAVE RELAYS**

### ***(TYPE-ZONE) RELAY (17-32)***

These parameters are used to assign a type and a zone to the relay. The relay outputs that are not activated and their logics will be removed. The available outputs on all relays are: None, Ventilation Stage 1-10, Stir Fan 1-6, Heater 1-6, Clock 1-4, Sprinkler, Inflatable curtain 1-8 Blower 1-4, Blower Air Inlet 1-8, Relay Generic 1-4, Garage Door, Dust Removal and Lights 1-4. Odd numbered relays will also have Inlet 1-8 Open and Trap Door Open as available output types. When an odd numbered relay is assigned as one of these two output types, the next relay will automatically become the close relay of that output.

## **OUTPUT CONFIGURATION - VARIABLE OUTPUTS**

### ***(TYPE-ZONE) VARIABLE (1-2) OUTPUT (1-4)***

This parameter is used to assign a type and a zone to the variable output. The outputs that are not activated and their logics will be removed. The available outputs on this board are: Unused, Variable Stage (1-6), Variable Stir Fan (1-6), Lights or Variable Heater (1-6).

### ***CURVE VARIABLE (1-2) OUTPUT (1-4)***

These parameters are used to change the motor curve of the variable output. Refer to annex section for more information on motor curves. Each of these parameters can be adjusted from 1 to 9.

## **OUTPUT CONFIGURATION - 0-10 VOLTS OUTPUTS**

### ***(TYPE-ZONE) INTERNAL 0-10V (1-4)***

This parameter is used to assign a type and a zone to the internal 0-10 Volts output. The outputs that are not activated and their logics will be removed. The available outputs on this board are: Unused, Variable Stage (1-6), Variable Stir Fan (1-6), Lights, Variable Heater (1-6) or Air Inlet (1-8).

### ***(TYPE-ZONE) EXTERNAL 0-10V (1-4)***

This parameter is used to assign a type and a zone to the external 0-10 Volts output. The outputs that are not activated and their logics will be removed. The available outputs on this board are: Unused, Variable Stage (1-6), Variable Stir Fan (1-6), Lights, Variable Heater (1-6) or Air Inlet (1-8).

### ***SLOPE***

This parameter is used to set the slope for the 0-10V output. If the slope is set to Positive, the output will modulate from 0V, at 0%, to 10V, at 100%. If the slope is set to Negative, the output will modulate from 10V, at 0%, to 0V, at 100%.

### **OUTPUT CONFIGURATION - OPTIONS**



#### ***NUMBER OF INTERNAL 0-10 VOLT OUTPUTS***

This parameter is used to select the number of internal 0-10Volt outputs that will be used.

#### ***EXTERNAL 0-10 VOLT MODULE USED***

This parameter is used to activate or deactivate the external 0-10Volt module.

#### ***VARIABLE MODULE OPTION (1-2)***

This parameter is used to deactivate or select the type of variable module that is used. The number of available variable outputs will be modified depending on the model selected here.

#### ***FULL SPEED START***

These parameters are used to determine if the variable ventilators will perform a full start upon activation. If this option is set to ON variable ventilators will be activated at full speed for the first few seconds following an activation demand.

#### ***RELAY MODULE OPTION***

This parameter is used to activate or deactivate the slave relay module that allows relays 17 to 32 to be used.

### **INPUT CONFIGURATION - MASTER CONTROLLER**

#### **MASTER BOARD (1-2)**



#### ***TEMPERATURE INPUT (PRB IN 1-4)***

These parameters are used to assign a type and a zone to the temperature input. A temperature input can be used as an inside probe # of an active zone (1-4) or as an outside temperature probe.

#### ***IMPULSE INPUT (PRB IN5)***

These parameters are used to assign a type to the impulse input. An impulse input can be used as a water counter.

#### ***DURATION INPUT (PRB IN6)***

These parameters are used to assign a type to the duration input. A duration input can be used as feeder or feed auger.

#### ***MULTIFUNCTION INPUT (PRB IN7-8)***

These parameters are used to assign a type and a zone to the multifunction input. A multifunction input can be used as an inside temperature probe # of an active zone (1-4), outside temperature probe, static pressure probe of an active zone (1-4), CO<sub>2</sub>, Ammonia or Lux Meter #.

## **INPUT CONFIGURATION - MGCB 8-INPUT BOARD #**



### ***INPUT MUTLIFONCTION PRB(1-6)***

These parameters are used to assign a type and a zone to the multifunction input. A multifunction input can be used as an inside temperature probe # of an active zone (1-4), an outside temperature probe, water meter, Garage Door Opened, Feeder, Feed Auger or as Garage Door Closed.

### ***INPUT MUTLIFONCTION 4-20MA PRB(7-8)***

These parameters are used to assign a type and a zone to the multifunction input. A multifunction input can be used as an inside temperature probe # of an active zone (1-4), an outside temperature probe, water meter, Garage Door Opened, Garage Door Closed, Feeder, Feed Auger, CO2 or as lux meter #, static pressure probe of a zone (A-D), ammonia #.



## **INPUT CONFIGURATION – PRESS+ PROBES**

### ***PRESS+ #(1-4)***

These parameters are used to assign a zone to the press+ inputs. The input type is not editable and is set to static pressure.

## **INPUT CONFIGURATION – INPUT OPTIONS**

### ***HUMIDITY PROBE ACTIVE***

This parameter is used to enable or disable humidity for the respective zone. If humidity is disabled in a zone, all humidity-related readings and logics will be removed from that zone.

### ***RP-16 (1-2) USED***

This parameter is used to activate or deactivate the toggle switch modules. The second RP-16 is used with relays 17 to 32 and hence requires the relay slave module to be enabled.

### ***WEATHER STATION USED***

This parameter is used to activate or deactivate the weather station.

### ***PRESS+ #***

These parameters are used to activate each Press+ modules and choose their communication ports. Port numbers are indicated on the board and on the wiring diagram in the Installation Guide.

### ***HUM+ #***

These parameters are used to activate or deactivate the respective HUM+ probe and choose its communication port.

## **SCALE CONFIGURATION**

### ***NUMBER OF POULTRY SCALES***

This parameter is used to set the amount of poultry scales that will be used by the controller. A deactivated poultry scale will not be shown through the configuration. The controller can use up to 4 poultry scales.

### ***NUMBER OF BIN SCALES***

This parameter is used to set the amount of bin scales that will be used by the controller. A deactivated bin scale will not be shown through the configuration. The controller can use up to 4 bin scales.

### ***POULTRY SCALE #***

This parameter is used to choose the respective poultry scale's communication port, communication speed and zone. The port number is indicated on the board and on the wiring diagrams in section A. The ID is defined by the jumper on the module and indicated on the wiring diagrams in section A. If the module is version 50 and higher, the communication speed is defined by a jumper on the module. If it's not, the module communication speed is 2400. The speed choices are 2400 and 19200.



### ***BIN SCALE #***

This parameter is used to choose the respective bin scale's communication port and ID. The port number is indicated on the board and on the wiring diagrams in section A. The ID is defined by the jumper on the module and indicated on the wiring diagrams in section A.

## **PASSWORD**

### **CHANGE PARAMETER STATE**

This parameter is used to change the parameter state from locked to unlocked or vice versa. When this parameter is pressed, *ENTER PASSWORD* will appear and the text displayed here will change to Validate Password. If the correct password is entered and this parameter is pressed, the parameter state will change from locked to unlocked or vice versa and the result of the operation will be displayed here. If an incorrect password is entered at *ENTER PASSWORD*, this parameter will display Wrong Password.

### ***ENTER PASSWORD***

This parameter is used to enter the password that is used to lock or unlock the parameters. When the user wants to change the parameter state, the password must be entered here and validated using CHANGE PARAMETER STATE. The default password is 0.

### **CHANGE PASSWORD**

This parameter is used to change the password that is used to lock or unlock the parameters. When this parameter is pressed, *ENTER NEW PASSWORD*, *CONFIRM NEW PASSWORD* and *ENTER ACTUAL PASSWORD* will appear and the text displayed here will change to Validate Changes. If the passwords entered at *ENTER NEW PASSWORD* and *CONFIRM NEW PASSWORD* are identical and the value entered at *ENTER ACTUAL PASSWORD* corresponds to the actual password, the password will be changed when this parameter is pressed. If the passwords entered at *ENTER NEW PASSWORD* and *CONFIRM NEW PASSWORD* are different or the value entered at *ENTER ACTUAL PASSWORD* is not the actual password, this parameter will display Wrong Password.

### ***ENTER NEW PASSWORD***

This parameter is used to enter the new password that will be recorded if the change is correctly completed.



***CONFIRM NEW PASSWORD***

This parameter is used to confirm the new password that will be recorded if the change is correctly completed.

***ENTER ACTUAL PASSWORD***

This parameter is used to validate the password change by entering the actual password.

### **TECH PARAM**

#### ***CODE 1-4***

These parameters are reserved for the manufacturer's technical support personnel.

### **TECH PARAM**

These parameters are reserved for the manufacturer's technical support personnel.



## Alarm Message Table

### Situational Alarm Message List

These alarms will activate the alarm relay when the condition is present and when the situation is corrected. A specific action must be performed to deactivate the alarm.	
Message	Cause
Zone # Temperature Too High	<ul style="list-style-type: none"> <li>- The ZONE (1-4) TEMPERATURE is above the ALARM HIGH ACTUAL TEMPERATURE.</li> <li>- The ZONE (1-4) TEMPERATURE is above OUTSIDE TEMPERATURE + <i>ALARM HIGH RELATIVE TEMPERATURE</i> and OUTSIDE TEMPERATURE is above the <i>MAIN SETPOINT</i>.</li> <li>- The ZONE (1-4) TEMPERATURE is above <i>ALARM HIGH CRITICAL TEMPERATURE</i>.</li> </ul>
Zone # Temperature Too Low	<ul style="list-style-type: none"> <li>- The AVERAGE TEMPERATURE is under ALARM LOW ACTUAL TEMPERATURE.</li> <li>- The ZONE (1-4) TEMPERATURE is under <i>ALARM LOW CRITICAL TEMPERATURE</i>.</li> </ul>
Zone # Probe # Too High	<ul style="list-style-type: none"> <li>- The probe is above the ALARM HIGH ACTUAL TEMPERATURE.</li> <li>- The probe is above the OUTSIDE TEMPERATURE + <i>ALARM HIGH RELATIVE TEMPERATURE</i> and the OUTSIDE TEMPERATURE is above the <i>MAIN SETPOINT</i>.</li> <li>- The probe is above the <i>ALARM HIGH CRITICAL TEMPERATURE</i> and the <i>ALARM CRITICAL</i> option is set to ON.</li> </ul>
Zone # Probe # Too Low	<ul style="list-style-type: none"> <li>- The probe is under the ALARM LOW ACTUAL TEMPERATURE.</li> </ul>
Probe # Defective	<ul style="list-style-type: none"> <li>- The probe is absent, not connected properly, or defective (short-circuit or open circuit).</li> </ul>
Out Probe Defect.	<ul style="list-style-type: none"> <li>- The outside temperature probe is absent, not connected properly or defective (short-circuit or open circuit).</li> </ul>
Inlet # Zone # Potentiometer Defective	<ul style="list-style-type: none"> <li>- The mentioned inlet's potentiometer has an out of range value or is unreadable and the <i>INLET (1-8) POTENTIOMETER ALARM</i> is set to ON.</li> </ul>
No Probe Assigned	<ul style="list-style-type: none"> <li>- At least one activated output has no probes assigned in its probe selection parameter.</li> </ul>
Problem Relay Control	<ul style="list-style-type: none"> <li>- The relay output control board has not communicated with the controller for 5 minutes.</li> </ul>
SL16 Not Responding	<ul style="list-style-type: none"> <li>- The SL16 slave relay module has not communicated with the controller for 5 minutes.</li> </ul>
RP-16 # Not Resp.	<ul style="list-style-type: none"> <li>- The RP-16 toggle switch module using the mentioned port and ID has not communicated with the controller for 5 minutes.</li> </ul>
RP-16 # Not Resp.	<ul style="list-style-type: none"> <li>- The RP-16 toggle switch module using the mentioned port and ID has not communicated with the controller for 5 minutes.</li> </ul>
V(4-2) # Module Not Resp.	<ul style="list-style-type: none"> <li>- The V4 or V2 variable output module using the mentioned port and ID has not communicated with the controller for 5 minutes.</li> </ul>
SM Not Responding	<ul style="list-style-type: none"> <li>- The SM weather station has not communicated with the controller for 5 minutes.</li> </ul>

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MS10 Not Responding	- MS10 external 0-10 Volt module has not communicated with the controller for 5 minutes.
8-Input MGCB Board Not Responding	- 8-Input module has not communicated with the controller for 5 minutes.
Press+ # Not Responding	- The Press+ # module has not communicated with the controller for 5 minutes.
HUM+ # Not Responding	- HUM+ probe is active and has not communicated with the controller for 5 minutes.
Error Code 1	- The system has rebooted 5 times within a 3-minute period or 10 times within a 15-minute period. This situation will be considered resolved if system does not reboot for 15 minutes. If this situation persists, contact your distributor.
Error Code 2-5	- If one or more of these error codes appear, contact your distributor.
Communication Error Bin #	- The mentioned bin module is activated and has not communicated with the main controller for a 5-minute period and <i>BIN SCALE # ALARM OPTION</i> is set to ON.
Problem Bin #	- The mentioned bin's FBT module cannot provide a stable weight value and <i>BIN SCALE # ALARM OPTION</i> is set to ON.
Load Cell # Bin # Defect	- The mentioned load cell of the mentioned bin is defective or unplugged for a 5-minute period and <i>BIN SCALE # ALARM OPTION</i> is set to ON.

### Continuous Alarm Message List

These alarms will activate the alarm relay when the condition is present and when the situation is corrected. A specific action must be performed to deactivate the alarm relay.

Message	Cause
High Alarm Water Meter #	- The amount of units counted by the water meter has exceeded the <i>ALARM WATER METER CALCULATED HIGH LIMIT</i> within the <i>ALARM WATER METER HIGH CHECK RATE</i> .
Low Alarm Water Meter #	- The amount of units counted by the water meter is under the <i>ALARM WATER METER CALCULATED LOW LIMIT</i> within the <i>ALARM WATER METER LOWCHECK RATE</i> .
Static Press Zone # Too High	- The static pressure of the zone has been above the <i>ALARM HIGH STATIC PRESSURE</i> throughout the <i>ALARM STATIC PRESSURE DELAY</i> .
Static Press Zone # Too Low	- The static pressure of the zone has been under the <i>ALARM HIGH STATIC PRESSURE</i> throughout the <i>ALARM STATIC PRESSURE DELAY</i> .
Feeder # Max Limit	- Feeder input has detected a consecutive amount of time above <i>ALARM FEEDER # MAXIMUM LIMIT</i> .
Feeder # Stop Limit	- The feeder input has not detected an activation for more than <i>ALARM FEEDER # STOP LIMIT</i> during a feeder activation period.
Feed Auger # Max Limit Zone #	- Feed auger input has detected a consecutive amount of time above <i>ALARM FEED AUGER # MAXIMUM LIMIT</i> .

Feed Auger # Stop Limit  
Zone #

- The feed auger input has not detected the feed auger for more than *ALARM FEED AUGER # STOP LIMIT* during a feeder auger activation period.

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### Situational Warning Message List

These entries are not alarms, but events that occurred at a given time and date.

Message	Cause
Humidity Probe Zone # Not Responding	- Humidity probe is unplugged. Check wiring. - Sensor & Comm. board is defective or unplugged.
Inlet # Zone # Cool Down	- The mentioned inlet's cool down function was activated at the specified date and time.
Inlet # Zone # Pot Defective	- The mentioned inlet's potentiometer has an out of range value or is unreadable and the <i>INLET (1-8) POTENTIOMETER ALARM</i> is set to OFF.
Power Failure	- The controller has recovered from a power failure at the mentioned date and time.
Alarm Relay Activated	- The <i>ALARM RELAY</i> was set to ON.
Alarm Relay Deactivated	- The <i>ALARM RELAY</i> was set to OFF.
Temp Test Mode Zone # Activated	- The <i>TEST MODE OPTION</i> was set to ON.
Temp Test Mode Zone # Deactivated	- The <i>TEST MODE OPTION</i> was set to OFF.
Scale # Not Responding	- The scale is active and has not communicated with the controller for 5 minutes.
Communication Error Bin #	- The mentioned bin module is activated and has not communicated with the main controller for a 5-minute period and <i>BIN SCALE # ALARM OPTION</i> is set to OFF.
Problem Bin #	- The mentioned bin's FBT module cannot provide a stable weight value and <i>BIN SCALE # ALARM OPTION</i> is set to OFF.
Load Cell # Bin # Defect	- The mentioned load cell of the mentioned bin is defective or unplugged for a 5-minute period and <i>BIN SCALE # ALARM OPTION</i> is set to OFF.
Poultry Scale # Not Responding	- The poultry scale is active and has not communicated with the controller for 5 minutes.

## SECTION C

**Motor Curve Table**

TYPE OF MOTOR				
CURVE	BRAND	MODEL	VOLTAGE	HEIGHT
1	Multifan	4E40	230 V.	16
2	Multifan	2E20	230 V.	8
2	Multifan	4E35	230 V.	14
2	Multifan	4E50	230 V.	20
2	Multifan	AF24M'E	230 V.	24
2	Multifan	6E63	230 V.	24
2	Multifan	6E71	230 V.	28
2	Multifan	8E92	230 V.	36
2	Ziehl		230 V.	
2	Performa	V52-7105P	230 V.	18
3	Multifan	2E30	230 V.	12
3	Multifan	4E45	230 V.	18
3	Multifan	6E56	230 V.	22
3	Multifan/AF	AF36M	230 V.	36
3	Aerotech-F	AT242	230 V.	24
3	Performa	V52-7106P	230 V.	20
3	Performa	V52-7108P	230 V.	24
4	Multifan	2E25	230 V.	10
4	Marathon 1/4HP		230 V.	16
4	Marathon 1/3HP		230 V.	18
4	Performa	V52-7102P	230 V.	12
5	GE Motor	5KCP39...	230 V.	12
5	Leeson 1/4HP	AF12L	230 V.	12
5	GE Motor	5KCP39...	230 V.	14
5	Emerson	K55HXJ...	230 V.	14
6	Oversized motors			
7	Multifan	4E30	230 V.	12
7	Multifan	2E35	230 V.	14
7	Performa	V52-7104P	230 V.	16
8	Multifan	4E25	230 V.	10
8	Performa	V52-7103P	230 V.	14

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## **LIMITED WARRANTY**

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

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

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

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

