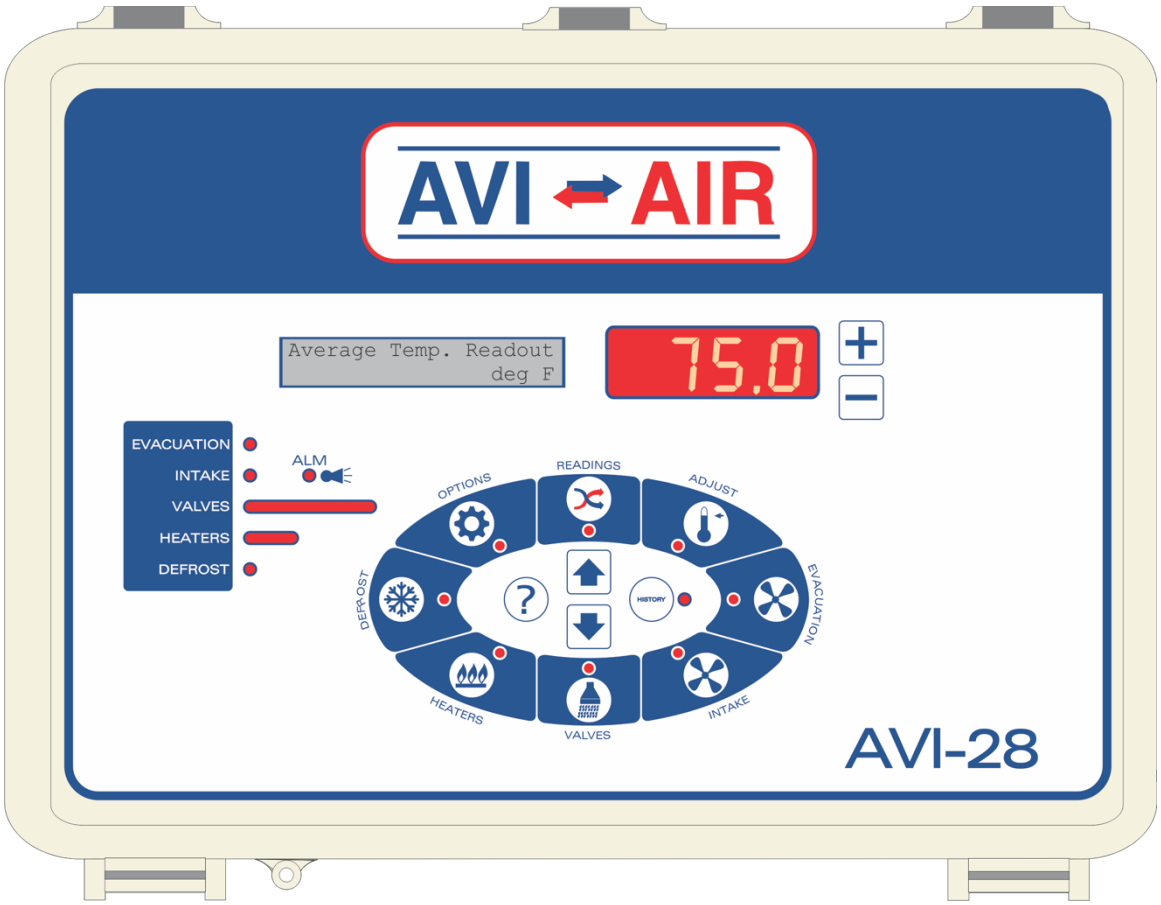
MANUAL
AVI-28



Installation / User's Guide

ATTENTION ELECTRICIAN
SEE WIRING DETAILS ON PAGES A-3 TO A-6 AND
ADDITIONAL INFORMATION IN SECTION B

WIRING DIAGRAM SECTION A
INSTALLATION GUIDE SECTION B
USER'S GUIDE SECTION C
INDEX / WARRANTY SECTION D

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.

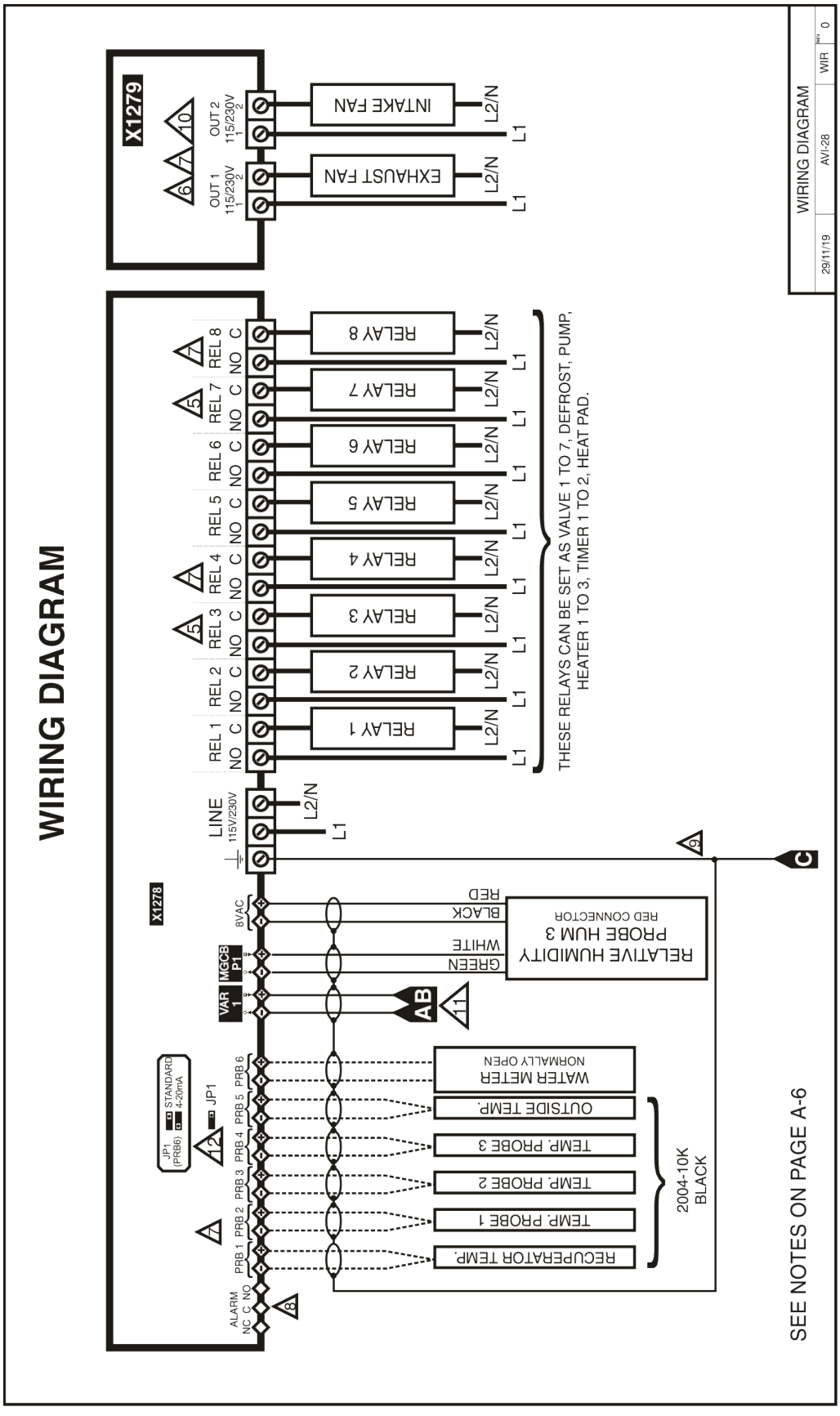
RECOMMENDATIONS

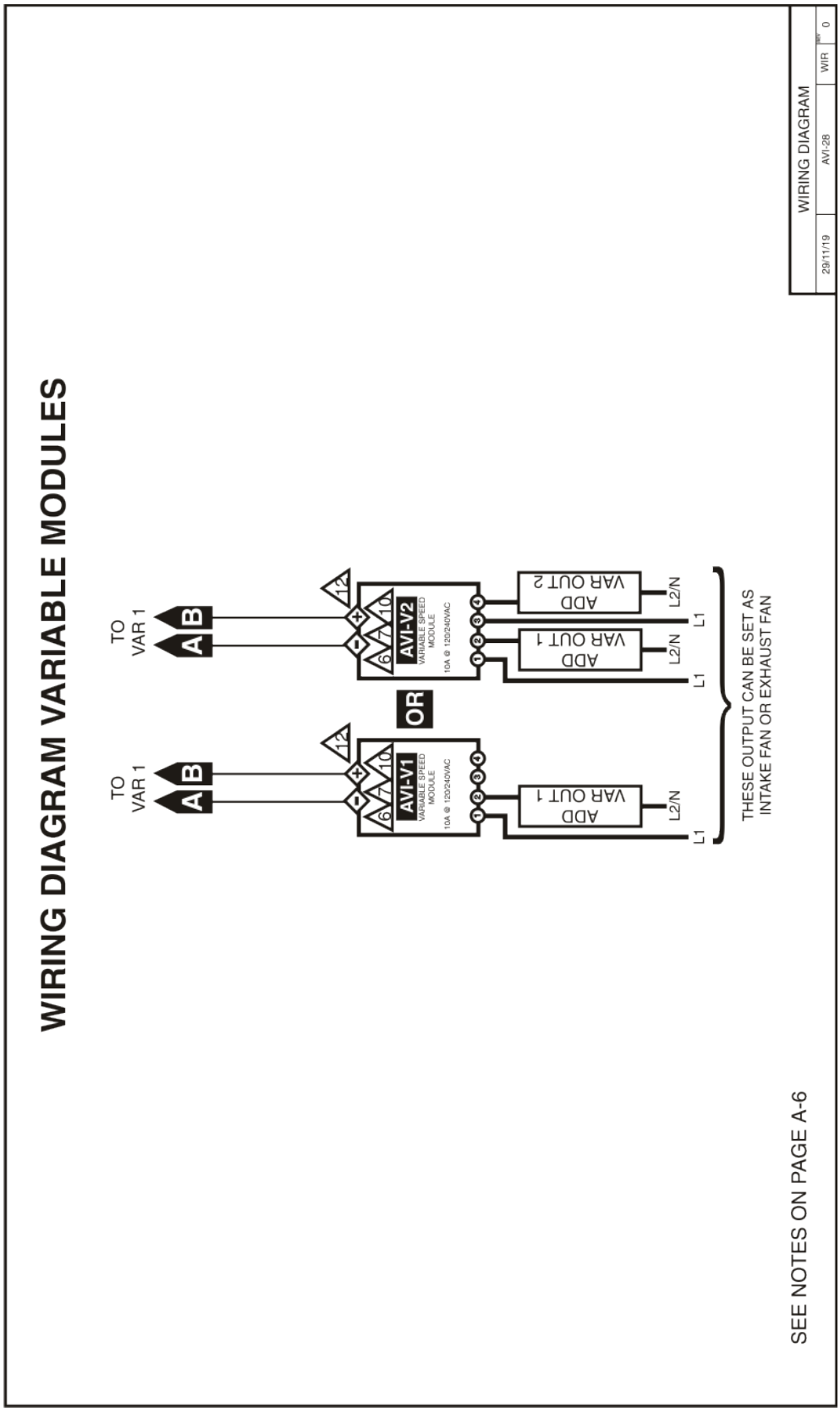
The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Furthermore the manufacturer recommends testing all the functions and equipment connected to the AVI-28, including the alarm system and backup devices, after 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
AVI-28
SECTION A

AVI-28 WIRING DIAGRAM




WIRING DIAGRAM VARIABLE MODULES
TO VAR 1
A B
AVI-V1
VARIABLE SPEED MODULE
10A @ 120/240VAC
OR
AVI-V2
VARIABLE SPEED MODULE
10A @ 120/240VAC
ADD VAR OUT 1
ADD VAR OUT 2
L1
L2/N
THESE OUTPUT CAN BE SET AS INTAKE FAN OR EXHAUST FAN
SEE NOTES ON PAGE A-6
WIRING DIAGRAM
29/11/19
AVI-28
WIR
0

AVI-28

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 LOW CAPACITANCE WIRE, (Capacitance between conductors @ 1Khz = 24pF/ft), TWISTED PAIR (8 twist/ft), AWG #22, 820ft (250m) MAX LENGTH (Ex.: BELDEN 8761).

3 ▬▬▬ HIGH VOLTAGE WIRE INSTALLED ACCORDING TO LOCAL WIRING CODE.

4 INSTALL LOW VOLTAGE WIRES (PROBES OR COMPUTER LINK) AT LEAST 12in. (30cm) AWAY FROM HIGH VOLTAGE WIRES (120/230VAC, 24VDC). ALWAYS CROSS HIGH AND LOW VOLTAGE WIRES AT A 90-DEGREE ANGLE.

△5 RELAYS: 10A @ 240VAC RESISTIVE, MOTOR 1HP @ 240VAC, 1/2HP @ 120VAC AT EACH OUTPUT.

△6 THE CURRENT SHALL NOT EXCEED 10A AT EACH OUTPUT.

△7 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.

△8 CHECK INSTALLATION GUIDE FOR ALARM WIRING.

△9 USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT THE SHIELD TO THE CONTROL CIRCUIT COMMON END ONLY ⏚. NEVER LEAVE THE SHIELD UNCONNECTED AT BOTH ENDS. NEVER CONNECT BOTH ENDS OF THE SHIELD TO COMMON ⏚. THE USE OF A SHIELD FOR ALL PROBES IS **MANDATORY**.

△10 THESE MODULES MUST BE ON SAME POWER PHASE AND LINE VOLTAGE AS THE CONTROLLER.

△11 COMMUNICATION WIRING SHIELDED, TWISTED PAIR (8 TWIST/ft), MAX LENGTH FOR 350pF/m CABLE: 160ft (50m), MAX LENGTH FOR 89pF/m CABLE: 650ft (200m).

△12 JP1 – JUMPER MUST BE INSTALLED ON PIN 1-2 = STANDARD

INSTALLATION
AVI-28
SECTION B

This section will inform the electrician on proper wiring and installation procedures for the AVI-28.

The manufacturer recommends that the following installation instructions to be followed 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 AVI-28 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 AVI-28 control
4 Brackets / 4 screws
1 2004-10K inside temperature probe
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

AVI-28 Control

- It is recommended to install the unit in a hallway to limit the AVI-28 exposure to noxious gases.
- In order to avoid condensation problems inside the controller, it is recommended to install the AVI-28 on an inside wall. If it is not possible, use spacers to have an air gap between the wall and the AVI-28.
- It is required to install the AVI-28 side up with the cable entry holes facing down.
- The enclosure is watertight, but do not spray water or immerse the AVI-28 in water. Cover it carefully with plastic when cleaning the room.
- The AVI-28 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 rear of the control.
- Do not install the AVI-28 control 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 AVI-28 power ground only, except for the cable connected to the optional PC interface. The shield is needed to protect the AVI-28 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 ground of the AVI-28.
- Use separate conduit 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

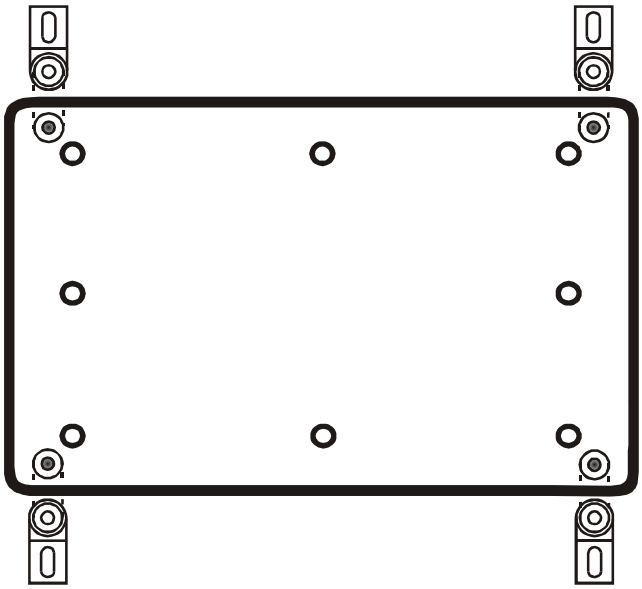
- Protection from electrical surge should be included in the planning of each installation.
- Every module should have a separate breaker to avoid unwanted consequences.
- The OUT1 and OUT2 outputs require the same phase and same voltage as the AVI-28 to operate.
- The AVI-V2 and AVI-V1 modules require the same phase and same voltage as the AVI-28 to operate.

- It is strongly recommended to have a backup power source to ensure life-sustaining conditions in case of power failure (see figure 5).
- It is also strongly recommended to put a backup thermostat to sufficient fan and heating system parallel to the AVI-28 module output (see figures 6 and 7).
- 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 right up against the wall.
- 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 also serve to adjust the position of the controller.
- Once you have adjusted the controller position, tighten the four mounting screws.

FIGURE NO. 1 Mounting Position and Devices



Connection Procedure

Detailed Wiring Diagrams

Typical Sensor Wiring for Probes

The inside temperature sensor should be located in the area which gives the most accurate temperature reading to achieve optimum ventilation. The sensor should also be connected to the AVI-28 with a shielded two-wire cable. It should be located in an area protected from operating machinery, animal bites, personnel or anything that could damage the sensor. See also "General installation guidelines".

The outside temperature sensor should be installed in a location which is not influenced by heat generated from inside the building or direct sunlight. It should also be protected from physical damage.

FIGURE NO. 2 Typical Temperature Probe Wiring

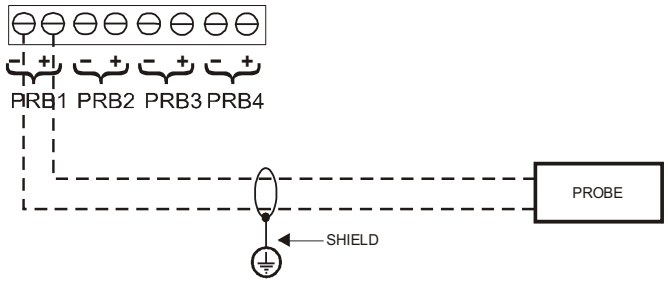
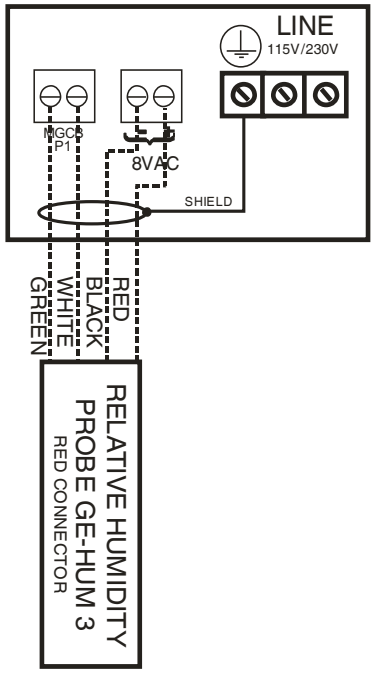


FIGURE NO. 3 Typical Humidity Probe Wiring

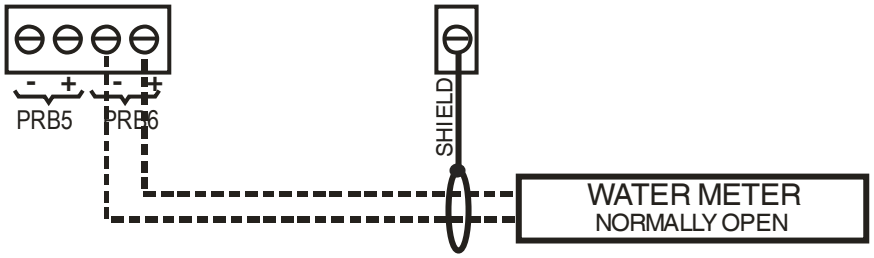


SECTION B

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.

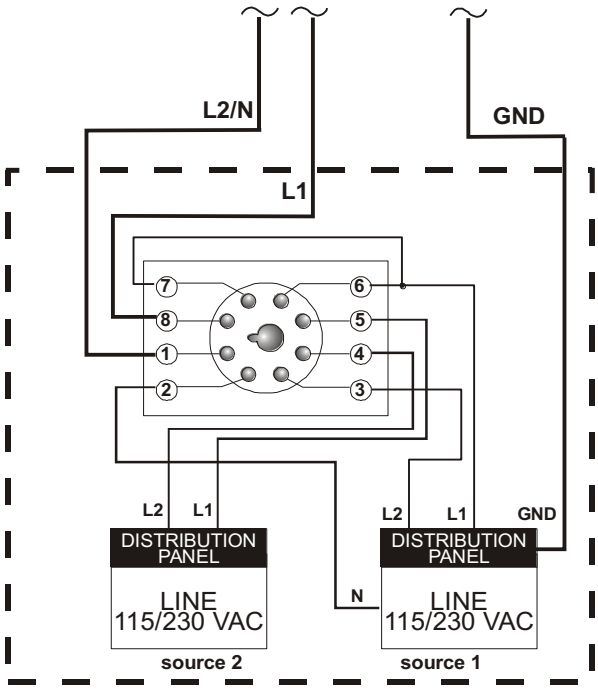
FIGURE NO. 4 Typical Water Meter Wiring

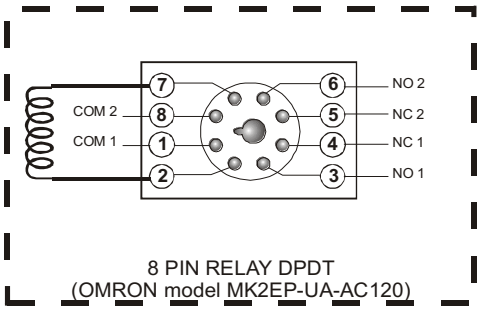


Typical Power Backup Wiring

A backup relay (DPDT) connects 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. 5 Typical Power Backup Wiring





Typical Thermostat Backup Wiring

If the Control 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 relative set point or 3 to 5 degrees under the heater relative set point.

FIGURE NO. 6 Typical Thermostat Backup Wiring on Relay

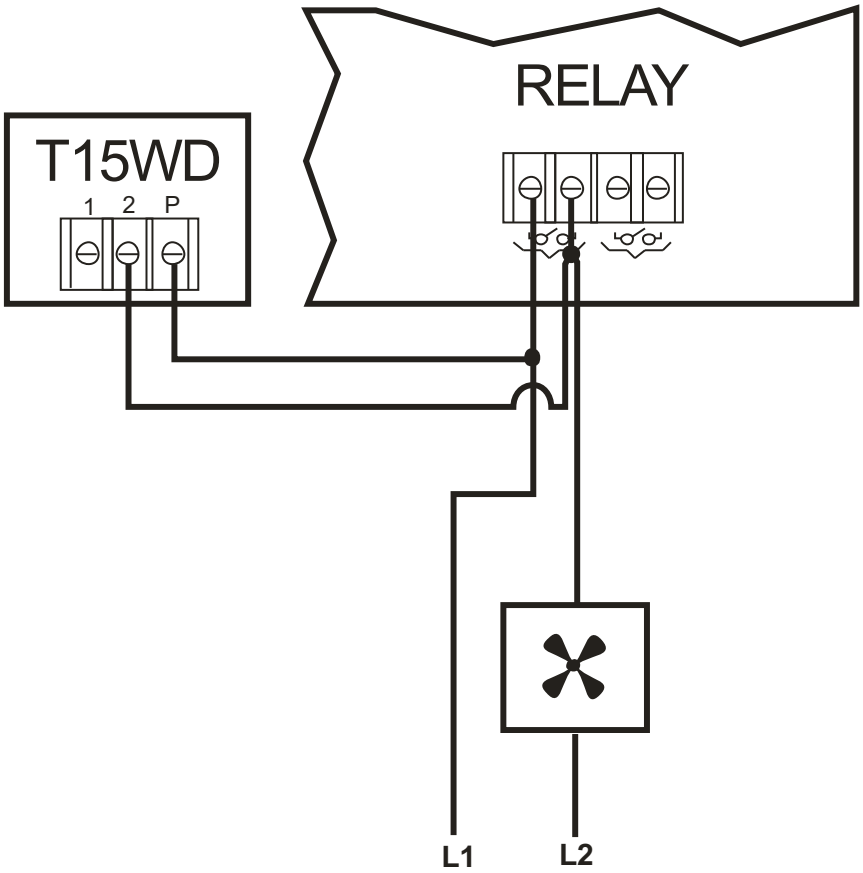
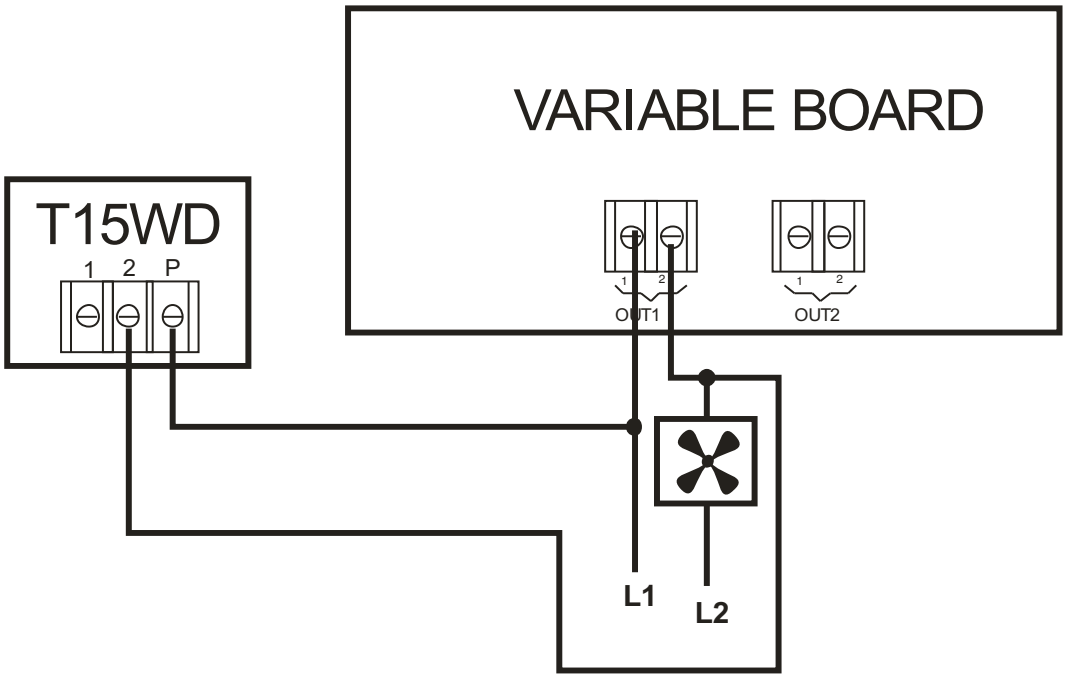


FIGURE NO. 7 Typical Thermostat Backup Wiring on Variable Stage



Typical Alarm Connection Wiring

The AVI-28 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 11 and 12.

The relay will activate 15-25 seconds after an alarm is triggered.

FIGURE NO. 8 Typical Alarm Connection Wiring

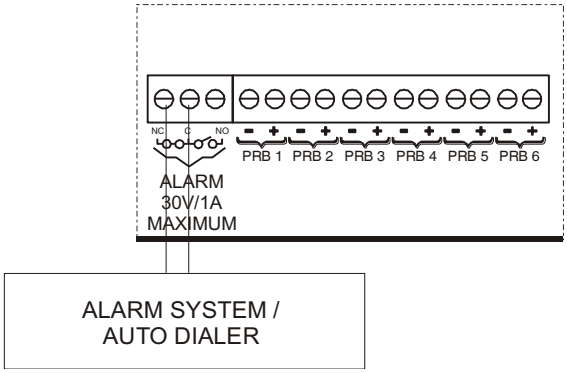
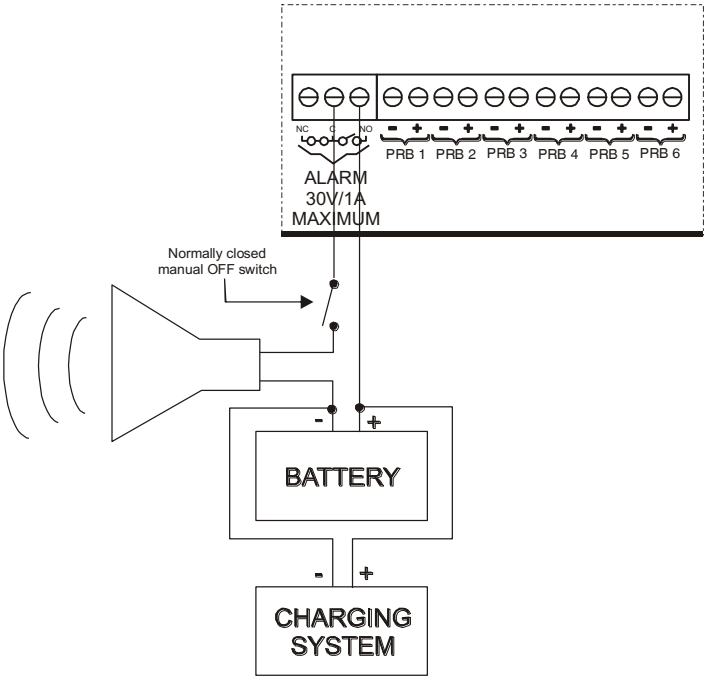


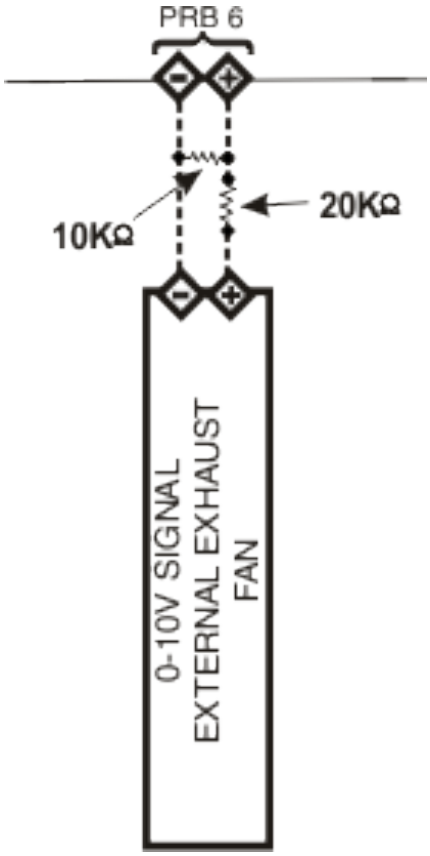
FIGURE NO. 9 Typical Siren Connection Wiring



External Exhaust Fan 0-10V signal wiring

The AVI-28 can use a 0-10V provided by an external exhaust fan. This signal must be connected to the input PRB6 of the AVI-28. This will limit the speed of the Intake Fan. **The JP1 jumper must be completely removed.**

FIGURE NO. 10 External Exhaust Fan 0-10V Signal Wiring



Powering Up Procedure

Once the AVI-28 is properly mounted on the wall and all modules and sensors connected to the terminal block, perform the following step:

Verify all Connections

Seal all cable entry holes.

Hermetically Close the AVI-28

Close the front panel and the lower access cover.

Put the power on

Secure the front panel with a lock

Download the Configuration (if necessary)

When upgrading your system with a new configuration, you will have to download the configuration.

There are two ways to download a configuration in the AVI-28 controller.

1) Downloading by powering down.

A. Ensure the power source of the AVI-28 is OFF (flip the circuit breaker on the distribution panel).
B. Remove the faceplate screws and lift up the cover.
C. Insert the configuration chip (MMX) into the socket of the main board.
D. Switch on the power source. The display on the front panel should indicate dnLd for approximately 15 seconds. If dnLd is not displayed, try one more time. If dnLd is still not displayed, remove and replace the configuration chip (MMX).
E. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the AVI-28 starts up and executes the configuration.

2) Downloading while the AVI-28 is powered up.

A. Remove the faceplate screws and lift up the cover.
B. Place the MMX chip into the socket of the main board. At this moment, the *MMX DETECTED* parameter will appear.
C. Adjust the *MMX DETECTED* parameter to DNLD and press the [+] and [–] buttons for two seconds. The display on the front panel should indicate [dnLd] for approximately 15 seconds. If [dnLd] is not displayed, try one more time. If [dnLd] is still not displayed, remove and replace the configuration chip (MMX).
D. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the AVI-28 starts up and executes the configuration.

WARNING: During this procedure, some components are live and can be dangerous if touched.

Uploading the Configuration

It is possible to upload a configuration into a configuration chip (MMX) in order to save parameters and setup or to backup the configuration.

Here's the procedure to upload a configuration.

A. Make sure that the AVI-28 is powered up.
B. Remove the faceplate screws and lift up the cover.
C. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.
D. Adjust the **MMX Detected** parameter to [UPLd] and press the [+] and [–] buttons for two seconds. The display on the front panel should indicate [UPLd] for approximately 15 seconds. If [UPLd] is not displayed, try one more time. If [UPLd] is still not displayed, remove and replace the configuration chip (MMX).
E. When the uploading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the AVI-28 will continue to execute the configuration.

WARNING: During this procedure, some components are live and can be dangerous if touched.

AVI-28 Compatible Probes

This is the list of all compatible probes that can be connected with AVI-28 control with a short description of their function.

Temperature probe 2004-10K (black cap)
Temperature probe with a temperature range of -58 to 140 °F (-50 to 60 °C).

Relative humidity probe HUM 3
Relative humidity probe with a measuring range of 0 to 100 RH% (red connector).

AVI-28 Compatible Modules

Variable speed module

- **AVI-V1** (1 Exhaust / Intake ventilator)
- **AVI-V2** (2 Exhaust / Intake ventilators)

Remote access

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

Specifications

Storage temperature	-4°F to 131°F (-20°C to 55°C)
Operating temperature	32°F to 122°F (0°C to 50°C)
Humidity	90% maximum Non-condensing
Weight	7,4 lb (3,4 kg)
Size	12 1/4" x 11" x 4 3/4" (32 cm x 28.8 cm x 11.5 cm)
Protection index	IP 66
Warranty	2 years
POWER SUPPLY	
Operational voltage range (SW1 @ 115V)	92 to 125VAC
Operational voltage range (SW1 @ 230V)	184 to 250VAC
Operational frequency range	45 to 65 Hz
Power supply circuit consumption (CPU Board)	20 W maximum
Fuse	250mA, 250VAC
SOURCE 8 VAC	
Voltage range	6.5 to 13VAC
Maximum current allowed	50mA
PROBE INPUTS	
Temperature probe	2004-10K
Maximum wire length	500 feet (150 m)
Recommended wires	2 strands, shielded, AWG #22
ALARM RELAY	
Maximum current	1 A at 30VDC
Delay before switching	15 to 25 seconds
Fuse	1A 250VAC
COMMUNICATIONS PORT (P1)	
Maximum wire length (2400 bps)	820 feet (250 m)
Recommended wire	2 strands, twisted pair, low capacity, shielded, AWG #22
OUTPUT RELAYS	
Maximum Current	1HP @ 240VAC, 1/2HP @ 120VAC, 10A@240VAC resistive
Caution Notice	These relays are rated by UL and CSA at 15A or 1HP. However, for outputs requiring frequent activation (ex: minimum ventilation fans working on a timer) it is recommended not to use more than 1/2 HP per relay (at 250 VAC)
VAR 1 OUTPUT	
Recommended wire	Communication wiring shielded, twisted pair (8 twist /ft), max length for 350pF/m cable : 160ft (50m), max length for 89Pf/m cable : 650ft (200m).
VARIABLE OUTPUTS (OUT1 and OUT2)	
Maximum Allowable Current (Fuse value)	15A, 250VAC
Recommended maximum current for incandescent lighting / heating	13,5A, 120 / 208 / 240VAC
Recommended maximum current for fans	12A, 120 / 208 / 240VAC
Minimum load	300mA @ 230VAC 150mA @ 115VAC

AVI-28 INSTALLATION

Important Notice:

- It is important to have a backup system in case of a system failure.
- Low-voltage and high-voltage wire must be passed through different conducts 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.

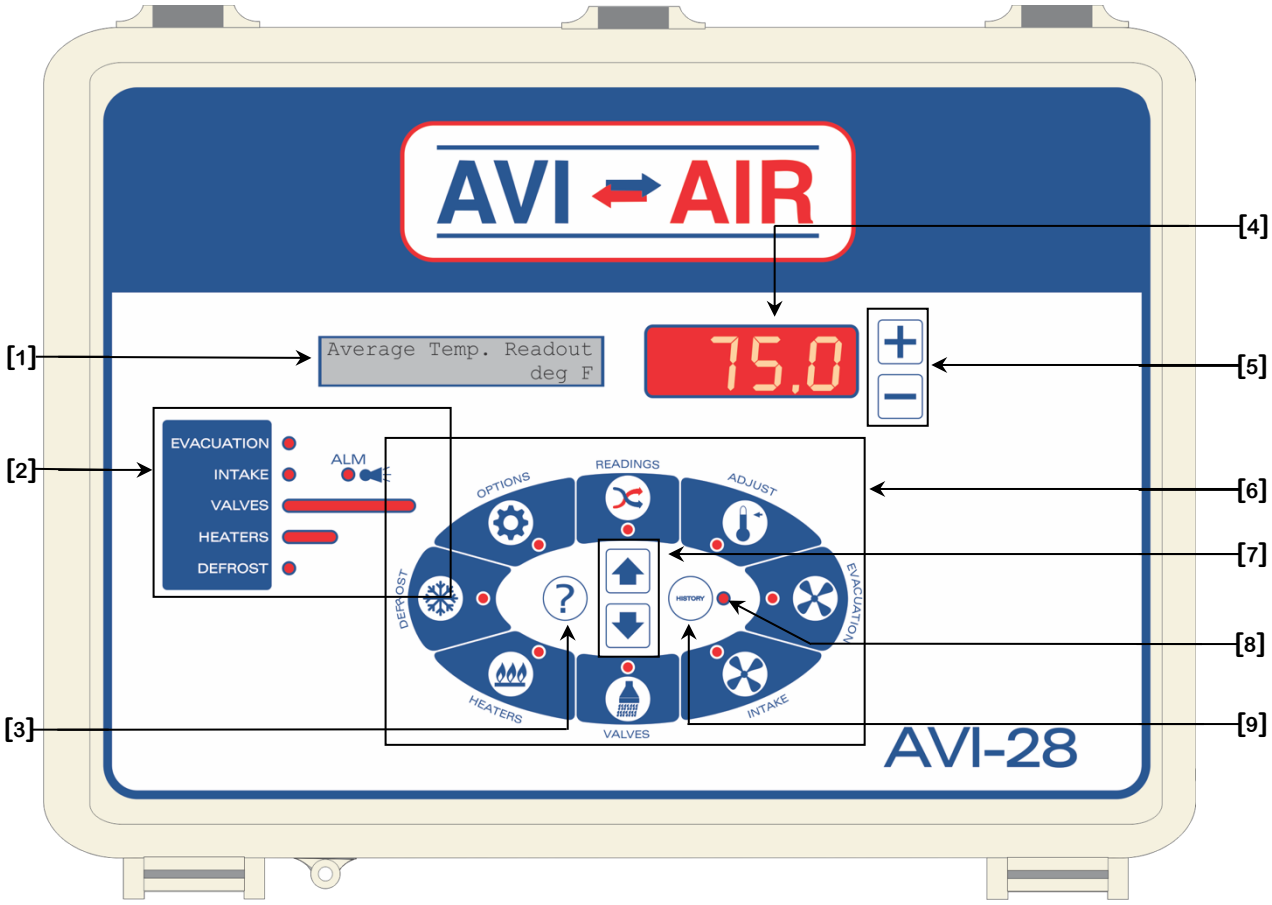
Troubleshooting

SYMPTOM	CAUSE	REMEDY
Temperature probe reads *LO*	Temperature is below -58.0°F (-50.0°C). Probe is disconnected or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Temperature probe reads *HI*	Temperature is above 140.0°F (60.0°C). Probe is short circuited or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Displays are blank	AVI-28 is not powered. Flat cable between the main and top boards of the AVI-28 is disconnected.	Make sure the control is powered. Make sure the fuse is correct. Make sure the flat cable is connected.

SECTION C

USER'S GUIDE
AVI-28
SECTION C

Control Description



SECTION C

1. LCD Display
The LCD display is a user-friendly device which allows users to visualize and modify settings rapidly and efficiently.

2. Outputs List With LED
On the left-hand side of the faceplate appears a list of multi-purpose outputs vertically aligned, next to which is a LED list. A LED comes ON whenever the respective output is active or in alarm. A LED will flash when an output is activated manually by the configuration or when the alarm relay is deactivated.

3. Help Button
This button gives information about the selected parameter.

4. LED Status Windows
The LED status window features a 5 digit LED readout display of temperature in Fahrenheit or Celsius, or other programmable settings. After a setting is selected, its value appears on the LED display. If the value is flashing, it can be changed with the value setting buttons (⊟ and ⊞).

5. Value Setting Buttons (⊟ and ⊞)
The value buttons appear as 2 squares with a + and - sign on them. They are used to increase or decrease the value on the LED window. Press the button once and release it to increase or decrease the value by one increment. The value may be changed quickly by keeping your finger on either button.

6. Settings Group List
On the center of the faceplate appear 8 parameter groups. The LED that is list indicates which parameter group is selected.

7. Parameter Buttons (⇩and ⇧)
The parameter buttons are represented by 2 squares with arrows on them. Pressing the upper (⇧) or down arrow (⇩) will move up or down the parameter list as indicated by the LCD display.

8. History LED
The history LED light up when the current setting offers history options.

9. History Button
The history button allows you to see historical values of history up to 90 days.

Glossary

Throughout this document, the following terminology is used.

MSP Main Set Point. This is the Temperature goal for the room and it is also the reference temperature for all relative settings. Note that the MSP is affected by the growth curve function.

RSP Number of degrees relative to the MSP where a function begins.

Differential Number of degree changed before stopping the output. For example, with a differential = 1°F, the control turns on a fan at 70.0°F when temperature increases, but it will shut it off only at 69.0°F when the room is cooling down. The differential is necessary to avoid oscillations.

Bandwidth Number of degrees a variable speed fan takes to reach its full speed.

Expressions in *ITALICS* are user's parameters. Expressions in CAPITALS represent non-adjustable readings.

Input/Output Table

Inputs	Qty	Outputs	Qty
Recuperator Temperature	Up to 1	Exhaust Ventilator	Up to 1
Inside Temperature	1 to 3	Intake Ventilator	Up to 1
Outside Temperature	Up to 1	Valve	Up to 7
Humidity	Up to 1	Defrost	Up to 1
Water Meter	Up to 1	Pump	Up to 1
		Heater	Up to 3
		Heat Pad	Up to 2
		Timer Output	Up to 2
		Alarm	1

Equipment

Item	Description	Qty
AVI-28	AVI Control, 2 variable / 8 On/Off outputs	1
2004-10k	Temperature Sensor (-58°F to 140°F) (-50°C to 60°C)	1 to 5
HUM3	Humidity Sensor – Red Connector (0RH% to 100RH%)	Up to 1
AVI-V1	1-Variable Speed Module	Up to 1
AVI-V2	2-Variable Speed Module	Up to 1

Configuration Versions

Version	Date	Minimum Processor Version	Modification
V0	28/11/2019	6	New.
V1	20/12/2019	6	- Add Farmquest support. - Modification of the timer 2 acquisition display condition.
V2	01/12/2020	6	- Add external exhaust fan support.

Ventilation system overview

This configuration is used to control up to 1 Exhaust Ventilator, up to 1 Intake Ventilator, up to 7 valves, up to 1 defrost, up to 1 pump, up to 3 heaters, up to 2 heat pad and up to 2 timer outputs. Exhaust ventilator, heaters and heat pads will follow temperature of probes that are assigned to them. The intake ventilator follows the recuperator temperature. An alarm check will be made to check for high and low temperatures and defective probes.

Parameter description

PARAMETER GROUP # 1: READINGS

Probes that are not used will not appear in this group. See the ALARMS group for details. Inside temperature probes not used in *AVERAGE PROBE SELECT* or for an output will not appear in this group.

RECUPERATOR TEMPERATURE READOUT (History Available)
This parameter displays the actual recuperator temperature. The RECUPERATOR TEMPERATURE READOUT is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

AVERAGE TEMPERATURE READOUT (History Available)
This parameter displays the actual average temperature. The average is made from the inside temperature probes selected in *AVERAGE PROBE SELECT*. The AVERAGE TEMPERATURE READOUT is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

PROBE (1-3) READOUT (History Available)
This parameter displays the actual probe (1-3) temperature. The PROBE (1-3) READOUT is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

OUTSIDE PROBE READOUT (History Available)
This parameter displays the actual outside probe temperature. This reading may affect the high alarm threshold. The OUTSIDE PROBE READOUT is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

HUMIDITY PROBE READOUT (History Available)
This parameter displays the actual humidity probe reading. This parameter will display ERR if the HUM3 has not communicated with the AVI-28 controller for 5 minutes. The HUMIDITY PROBE READOUT is displayed to the nearest 1RH% from 0RH% to 100RH%.

RECUPERATOR TEMPERATURE LOW (History Available)
This parameter displays the lowest value reached by the RECUPERATOR TEMPERATURE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual RECUPERATOR TEMPERATURE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The RECUPERATOR TEMPERATURE LOW is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

AVERAGE TEMPERATURE LOW (History Available)
This parameter displays the lowest value reached by the AVERAGE TEMPERATURE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual AVERAGE TEMPERATURE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The AVERAGE TEMPERATURE LOW is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

PROBE (1-3) LOW (History Available)
This parameter displays the lowest value reached by the PROBE (1-3) READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual PROBE (1-3) READOUT, press the [+] and [–] buttons simultaneously for two seconds. The PROBE (1-3) LOW is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

OUTSIDE PROBE LOW (History Available)
This parameter displays the lowest value reached by the OUTSIDE PROBE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual OUTSIDE PROBE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The OUTSIDE PROBE LOW is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

HUMIDITY PROBE LOW (History Available)
This parameter displays the lowest value reached by the HUMIDITY PROBE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual HUMIDITY PROBE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The HUMIDITY PROBE LOW is displayed to the nearest 1RH% from 0RH% to 100RH%.

RECUPERATOR TEMPERATURE HIGH (History Available)
This parameter displays the highest value reached by the RECUPERATOR TEMPERATURE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual RECUPERATOR TEMPERATURE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The RECUPERATOR TEMPERATURE HIGH is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

AVERAGE TEMPERATURE HIGH (History Available)
This parameter displays the highest value reached by the AVERAGE TEMPERATURE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual AVERAGE TEMPERATURE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The AVERAGE TEMPERATURE HIGH is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

PROBE (1-3) HIGH (History Available)
This parameter displays the highest value reached by the PROBE (1-3) READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual PROBE (1-3) READOUT, press the [+] and [–] buttons simultaneously for two seconds. The PROBE (1-4) HIGH is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

OUTSIDE PROBE HIGH (History Available)
This parameter displays the highest value reached by the OUTSIDE PROBE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual OUTSIDE PROBE READOUT, press the [+] and [–] buttons simultaneously for two seconds. The OUTSIDE PROBE HIGH is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

HUMIDITY PROBE HIGH (History Available)
This parameter displays the highest value reached by the HUMIDITY PROBE READOUT since the AVI-28 was powered up or since this parameter was last cleared. To reset this value to the actual HUMIDITY PROBE READOUT, press the + and – buttons simultaneously for two seconds. The HUMIDITY PROBE HIGH is displayed to the nearest 1RH% from 0RH% to 100RH%.

WATER METER (History Available)
This parameter displays the amount of water units (gallons or litres) counted by the water meter input for the current day. The WATER METER is displayed to the nearest unit (gallon or litre) from 0 to 20000 units (gallons or litres).

WATER METER LAST 24 HOURS (History Available)
This parameter displays the amount of water units (gallons or litres) counted by the water meter input in the last 24 hours. The WATER METER LAST 24 HOURS is displayed to the nearest unit (gallon or litre) from 0 to 20000 units (gallons or litres).

PARAMETER GROUP # 2: ADJUST

MAIN SET POINT (MSP)

This is the temperature goal for the room and used as reference for all relative temperature. The *MSP* will follow its growth curve when the *GROWTH DAY* is not OFF. The growth curve is composed of six day-points and six temperature-points. To adjust these points, press the [+] and [–] buttons simultaneously. Then select the point to adjust using the [↑] and [↓] buttons and adjust it with the [+] and [–] buttons. See the parameters section for more information on the growth curve. The *MSP* is adjusted in 0.1° increments from -40.0°F to 100.0°F (-40.0°C to 37.8°C).

GROWTH DAY

This parameter is used to adjust the growth day of the AVI-28 controller. If this parameter is not set to OFF, it will determine the value of the *MSP* according to the day and temperature points of the growth curve. The *GROWTH DAY* is adjusted in 1-day increments from OFF, day -10 to day 365.

MAIN SET POINT OFFSET

This parameter is used to add or subtract a value to the **MSP**. The offset is useful when the user would like to adjust the **MSP** without modifying other adjustments, such as the **MSP Growth Curve**.

NIGHT SET POINT OPTION

This parameter is used to activate or deactivate the night compensation. If this parameter is set to No, the *MAIN SET POINT* will be the value used anytime. If this parameter is set to Yes, when the *NIGHT SET POINT TIME BEGIN*, the ACTUAL MAIN SET POINT will modulate from *MAIN SET POINT* to reach *NIGHT SET POINT TEMPERATURE* when the *NIGHT SET POINT TRANSITION* delay is done. When time reaches *NIGHT SET POINT TIME END – NIGHT SET POINT TRANSITION TIME*, the ACTUAL MAIN SET POINT will modulate to reach *MAIN SET POINT* when time reaches *NIGHT SET POINT TIME END*.

ACTUAL MAIN SET POINT

This parameter displays the **MSP** actually used by the controller. This value can be either *MAIN SET POINT*, the *NIGHT SET POINT* or, while a transition delay, a value between these two set points.

NIGHT SET POINT TEMPERATURE

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 SET POINT*. The night set point is adjusted in 0.1° increments from *MAIN SET POINT* - 40.0°F to *MAIN SET POINT* + 40.0°F (*MAIN SET POINT* - 22.2°C to *MAIN SET POINT* + 22.2°C).

NIGHT SET POINT 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 SET POINT will begin to modulate towards the *NIGHT SET POINT TEMPERATURE* if *NIGHT SET POINT OPTION* is set to On.

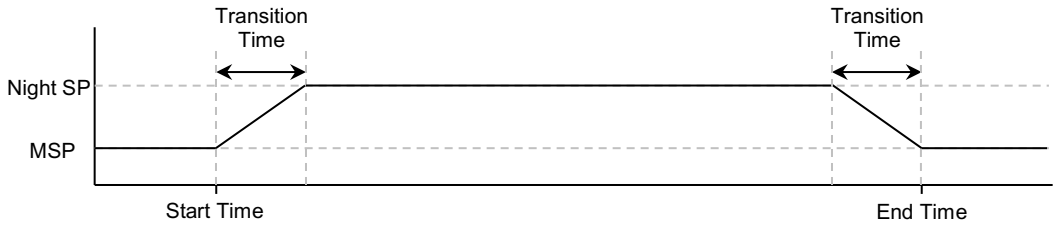
NIGHT SET POINT TIME END

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

NIGHT SET POINT TRANSITION TIME

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

Example of night compensation:



PARAMETER GROUP # 3: EVACUATION

REQUESTED STATE (History Available)
This parameter displays the requested speed of the exhaust ventilator. This parameter is displayed to the nearest 1% from OFF, 12% to 100%.

READ STATE (History Available)
This parameter displays the read speed of the external exhaust ventilator activated instead of the internal exhaust ventilator by setting the PROBE 6 OPTION to EXST. When the external exhaust ventilator is used, the settings of the internal exhaust ventilator are no longer available. This parameter is displayed to the nearest 1% from OFF, 12% to 100%.

START TEMPERATURE **(History Available)**
This parameter is used to set the temperature at which the exhaust ventilator will be activated continuously to *MINIMUM SPEED*. A fixed **Differential** of 0.3° is used with this logic. As the temperature of the probes selected in *EXHAUST VENTILATOR PROBE SLECT* increases, the speed will increase until *END TEMPERATURE* is reached. This parameter is adjusted in 0.1° increments from *MSP* - 40.0°F to *MSP* + 40.0°F (*MSP* - 22.2°C to *MSP* + 22.2°C).

END TEMPERATURE **(History Available)**
This parameter is used to set the temperature at which the exhaust ventilator will be activated at *MAXIMUM SPEED*. This parameter is adjusted in 0.1° increments from *START TEMPERATURE* + 0.4°F to *START TEMPERATURE* + 40.0°F (*START TEMPERATURE* + 0.2°C to *START TEMPERATURE* + 22.2°C).

STOP TEMPERATURE **(History Available)**
This parameter is used to set the drop temperature at which the exhaust ventilator will deactivate. The exhaust ventilator will no longer be allowed to operate according to its *MINIMUM SPEED* when the temperature of the *EXHAUST VENTILATOR PROBE SLECT* is equal to or below this set point. This parameter is adjusted in 0.1° increments from *START TEMPERATURE* - 40.0°F to *START TEMPERATURE* - 0.4°F (*START TEMPERATURE* - 22.2°C to *START TEMPERATURE* - 0.2°C).

MINIMUM SPEED **(History Available)**
This parameter is used to adjust the minimum speed of the exhaust ventilator. This speed is used when the average temperature of the probes selected in *EXHAUST VENTILATOR PROBE SLECT* is equal or less than *START TEMPERATURE* and greater than *STOP TEMPERATURE*. The humidity may affect the actual minimum speed. This parameter is adjusted in 1% increments from 12% to 100%.

MAXIMUM SPEED **(History Available)**
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 PROBE SLECT* reaches the *END TEMPERATURE*. The humidity may affect the actual maximum speed. This parameter is adjusted in 1% increments from 12% to 100%.

DEHUMIDIFCATION SETPOINT **(History Available)**
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. This parameter is adjusted in 1RH% increments from 0RH% to 99RH%, OFF.

DEHUMIDIFCATION SPEED COMPENSATION **(History Available)**
This parameter is used to adjust the speed increase applied on the exhaust ventilator for dehumidification. When the actual humidity reaches *DEHUMIDIFCATION SETPOINT + DEHUMIDIFICATION MODULATION BAND*, the exhaust ventilator's speed will be increased by this value. Dehumidification will not force the exhaust ventilator to activate if it does not have a temperature demand. This parameter is adjusted in 1% increments from 0% to 100%.

DEHUMIDIFICATION MODULATION BAND **(History Available)**
This parameter is used to adjust the range of humidity through which the speed increase for dehumidification will go from 0% to *DEHUMIDIFCATION SPEED COMPENSATION*. When humidity reaches *DEHUMIDIFCATION SETPOINT*, the speed increase for dehumidification will be 0%. As humidity rises, the speed increase will modulate to reach *DEHUMIDIFCATION SPEED COMPENSATION* at *DEHUMIDIFCATION SETPOINT + DEHUMIDIFICATION MODULATION BAND*. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

MANUAL OVERRIDE **(History Available)**
This parameter is used to operate the exhaust ventilator manually. If this parameter is set to AUTO, the exhaust ventilator will be activated according to the configuration's calculated speed. If this parameter is set to OFF, the exhaust ventilator will be deactivated. If this parameter is set to any other value, the exhaust ventilator will be activated at the adjusted speed.

PARAMETER GROUP # 4: INTAKE

REQUESTED STATE (History Available)
This parameter displays the requested speed of the intake ventilator. This parameter is displayed to the nearest 1% from OFF, 12% to 100%.

START TEMPERATURE **(History Available)**
This parameter is used to set the temperature at which the intake ventilator will be activated continuously with a speed equal to *MINIMUM SPEED*. A fixed **Differential** of 0.3° is used with this logic. As the temperature of the *RECUPERATOR PROBE* increases, the speed will increase until *END TEMPERATURE* is reached. This parameter is adjusted in 0.1° increments from *MSP* - 40.0°F to *MSP* + 40.0°F (*MSP* - 22.2°C to *MSP* + 22.2°C).

END TEMPERATURE **(History Available)**
This parameter is used to set the temperature at which the intake ventilator will be activated at *MAXIMUM SPEED*. This parameter is adjusted in 0.1° increments from *START TEMPERATURE* + 0.4°F to *START TEMPERATURE* + 40.0°F (*START TEMPERATURE* + 0.2°C to *START TEMPERATURE* + 22.2°C).

ANTI-FREEZE SETPOINT **(History Available)**
This parameter is used to set the drop temperature at which the intake ventilator will deactivate. The intake ventilator will no longer be allowed to operate according to its *MINIMUM SPEED* when the temperature of the *RECUPERATOR PROBE* is equal to or below this set point. This parameter is adjusted in 0.1° increments from *START TEMPERATURE* - 40.0°F to *START TEMPERATURE* - 0.4°F (*START TEMPERATURE* - 22.2°C to *START TEMPERATURE* - 0.2°C).

INSIDE TEMPERATURE STOP **(History Available)**
This parameter is used to set the average temperature at which the intake ventilator will deactivate. The intake ventilator will no longer be allowed to operate when the AVERAGE TEMPERATURE is equal to or below this set point. This parameter is adjusted in 0.1° increments from *MSP* - 40.0°F to *MSP* + 40.0°F (*MSP* - 22.2°C to *MSP* + 22.2°C).

MINIMUM SPEED **(History Available)**
This parameter is used to adjust the minimum speed of the intake ventilator. This speed is used in timer mode and when the temperature of *RECUPERATOR PROBE* is equal to *START TEMPERATURE*. In timer mode, this speed will be used when the temperature of *RECUPERATOR PROBE* reaches *RECUPERATOR TIMER SET POINT*. The humidity may affect the intake ventilator's speed. This parameter is adjusted in 1% increments from 12% to 100%.

MAXIMUM SPEED **(History Available)**
This parameter is used to adjust the maximum speed of the intake ventilator. This speed will be reached when the average temperature of the probes selected in *RECUPERATOR*

PROBE reaches the *END TEMPERATURE*. The humidity may affect the intake ventilator's speed. This parameter is adjusted in 1% increments from 12% to 100%.

DEHUMIDIFCATION SETPOINT **(History Available)**
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. This parameter is adjusted in 1RH% increments from 0RH% to 99RH%, OFF.

DEHUMIDIFCATION SPEED COMPENSATION **(History Available)**
This parameter is used to adjust the speed increase applied on the intake ventilator for dehumidification. When the actual humidity reaches *DEHUMIDIFCATION SETPOINT + DEHUMIDIFICATION MODULATION BAND*, the intake ventilator's speed will be increased by this value. Dehumidification will not force the intake ventilator to activate if it does not have a temperature demand. This parameter is adjusted in 1% increments from 0% to 100%.

DEHUMIDIFICATION MODULATION BAND **(History Available)**
This parameter is used to adjust the range of humidity through which the speed increase for dehumidification will go from 0% to *DEHUMIDIFCATION SPEED COMPENSATION*. When humidity reaches *DEHUMIDIFCATION SETPOINT*, the speed increase for dehumidification will be 0%. As humidity rises, the speed increase will modulate to reach *DEHUMIDIFCATION SPEED COMPENSATION* at *DEHUMIDIFCATION SETPOINT + DEHUMIDIFICATION MODULATION BAND*. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

RECUPERATOR TIMER SET POINT **(History Available)**
This parameter is used to set the temperature at which the intake ventilator will use its mode timer. The intake ventilator will use the mode timer when the *RECUPERATOR PROBE* temperature is equal to or greater than this set point but lower than *START TEMPERATURE*. This parameter is adjusted in 0.1° increments from -40.0°F to 120.0°F (-40.0°C to 48.9°C).

RECUPERATOR TIMER ON TIME **(History Available)**
This parameter is used to set the ON time of the timer. When the timer mode is used, the intake ventilator will activate for this amount of time, then deactivate for *RECUPERATOR TIMER OFF TIME*. This parameter is adjusted in 1 minute increments from 0 minutes to 900 minutes.

RECUPERATOR TIMER OFF TIME **(History Available)**
This parameter is used to set the OFF time of the timer. When the timer mode is used, the intake ventilator will activate for *RECUPERATOR TIMER ON TIME*, then deactivate for this amount of time. This parameter is adjusted in 1 minute increments from 0 minutes to 900 minutes.

OUTSIDE SET POINT INFLUENCE MINIMUM SPEED **(History Available)**

This parameter is used to set outside set point to control the speed at which the intake ventilator operates at low outside temperatures. When the outside temperature is less or equal to this set point, the speed of the intake ventilator will equal to the *MINIMUM SPEED OUTSIDE INFLUENCE.* There is a fixed **Differential** of 2° used with this logic. This parameter is adjusted in 0.1° increments from -40.0°F to 120.0°F (-40.0°C to 48.9°C).

MINIMUM SPEED OUTSIDE INFLUENCE **(History Available)**
This parameter is used to adjust the speed at which the intake ventilator operates at low outside temperatures. This speed is taken when the outside temperature is less than or equal to the *OUTSIDE SET POINT INFLUENCE MINIMUM SPEED*. This parameter is adjusted in 1% increments from 12% to 100%.

MANUAL OVERRIDE **(History Available)**
This parameter is used to operate the intake ventilator manually. If this parameter is set to AUTO, the intake ventilator will be activated according to the configuration's calculated speed. If this parameter is set to OFF, the intake ventilator will be deactivated. If this parameter is set to any other value, the intake ventilator will be activated at the adjusted speed.

PARAMETER GROUP # 5: VALVES

The parameters of the valves, pump and timers that are not used will not appear in this group. See the ALARMS group for details.

PUMP REQUESTED STATE (History Available)
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.

VALVE (1-7) REQUESTED STATE (History Available)
This parameter displays the requested state of the respective valve.

***CYCLES PER DAY* (Curve Available)**
This parameter is used to adjust the number of cycles per day of the valves. When the *GROWTH DAY* is not OFF, this parameter follows its growth curve. The growth curve is composed of six day-points and six cycle-points. To adjust these points, press the [+] and [–] buttons simultaneously. Then select the point to adjust using the [↑] and [↓] buttons and adjust it with the [+] and [–] buttons. If the *GROWTH DAY* is set to OFF, this parameter is adjustable in 1cycle increments from 0 cycles to 24 cycles.

TIME BETWEEN VALVES
This parameter is used to set the time to wait to start the next valve after the previous one is stopped. The valves operate in order. When the valve run time is set to 0 minutes, this valve will not be considered during the operating cycles of the valves. This parameter is adjustable in 1 minute increments from 0 minutes to 30 minutes.

***VALVE (1-7) RUN TIME* (History Available)**
This parameter is used to set the run time of the respective valve. When a start time of a cycle is reached, the valves will be active in order, each one during its time set in this parameter. Only one valve can be active at once and no valve can be activated during *TIME BETWEEN VALVES*. When the valve run time is set to 0 minutes, the valve will not be considered during the operating cycles of the valves. This parameter is adjustable in 1 minute increments from 0 minutes to 300 minutes.

STOP VENTILATION
This parameter is used to stop the intake and exhaust ventilators during valve operation. When this parameter is set to Yes, no ventilator can operate during valve activation. This parameter can be set to Yes or No.

***PUMP MANUAL OVERRIDE* (History Available)**
This parameter is used to operate the pump manually. If this parameter is set to AUTO, the pump will be activated 5 seconds after each valve's activation and will be deactivated 5 seconds before deactivation of the active valve. If this parameter is set to OFF, the pump will be deactivated. If this parameter is set to ON, the pump will be activated.

***VALVE (1-7) MANUAL OVERRIDE* (History Available)**
These parameters are used to operate the valves manually. When one of these parameters is set to AUTO, the corresponding valve will operate according to the cycles, *VALVE (1-*

7) RUN TIME and *TIME BETWEEN VALVES* configuration. When it's set to OFF, the valve will be deactivated. If it's set to ON, the valve will be activated.

TIMER (1-2) CYCLE (1-6) ON **(History Available)**
This parameter is used to set the time at which a timer output cycle will activate. When the CLOCK reaches the time set here, the timer (1-2) output will activate until the CLOCK reaches the corresponding *TIMER (1-2) CYCLE (1-6) OFF*. If this parameter and the corresponding *TIMER (1-2) CYCLE (1-6) OFF* are set to the same time, the timer (1-2) output cycle will never activate. This parameter is adjusted in 1minute increments from 12:00AM to 11:59PM.

TIMER (1-2) CYCLE (1-6) OFF **(History Available)**
This parameter is used to set the time at which timer (1-2) output cycle will deactivate. When the CLOCK reaches the time set here, the timer (1-2) output will deactivate until the CLOCK reaches *TIMER (1-2) CYCLE (1-6) ON*. If this parameter and the corresponding *TIMER (1-2) CYCLE (1-6) ON* are set to the same time, the timer (1-2) output cycle will never activate. This parameter is adjusted in 1 minute increments from 12:00AM to 11:59PM.

TIMER (1-2) MANUAL OVERRIDE **(History Available)**
This parameter is used to operate the timer (1-2) manually. If this parameter is set to AUTO, the timer (1-2) will be activated according to the configuration's calculated demand. If this parameter is set to OFF, the timer (1-2) will be deactivated. If this parameter is set to ON, the timer (1-2) will be activated.

PARAMETER GROUP # 6: HEATERS

The parameters of the heaters that are not used will not appear in this group. See the ALARMS group for details.

***HEATER (1-3) RSP* (History Available)**
This parameter is used to set the heater (1-3) activation temperature RSP. Heater (1-3) will activate when the temperature of the probes selected in *HEATER (1-3) PROBE SELECT* is equal to or below *HEATER (1-3) RSP*. Heater (1-3) will deactivate when the temperature of the probes selected in *HEATER (1-3) PROBE SELECT* is equal to or above *HEATER (1-3) RSP + HEATER (1-3) DIFFERENTIAL*. This parameter is adjusted in 0.1° increments from *MSP* - 30.0°F to *MSP* + 20.0°F (*MSP* - 16.7°C to *MSP* + 11.1°C).

***HEATER (1-3) DIFFERENTIAL* (History Available)**
This parameter is used to set the differential that will be used with *HEATER (1-3) RSP*. Heater (1-3) will deactivate when the temperature of the probes selected in *HEATER (1-3) PROBE SELECT* is equal to or above *HEATER (1-3) RSP + HEATER (1-3) DIFFERENTIAL*. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

***HEATER (1-3) MANUAL OVERRIDE* (History Available)**
This parameter is used to operate the respective heater manually. If this parameter is set to AUTO, the heater will be activated according to the configuration's calculated demand. If this parameter is set to OFF, the heater will be deactivated. If this parameter is set to ON, the heater will be activated.

***HEAT PAD (1-2) SET POINT* (History Available)**
This parameter is used to set the heat pad (1-2) activation temperature set point. Heat pad (1-2) will activate when the temperature of the probes selected in *HEAT PAD (1-2) PROBE SELECT* is equal to or below *HEAT PAD (1-2) SET POINT*. Heat pad (1-2) will deactivate when the temperature of the probes selected in *HEAT PAD (1-2) PROBE SELECT* is equal to or above *HEAT PAD (1-2) SET POINT + HEAT PAD (1-2) DIFFERENTIAL*. This parameter is adjusted in 0.1° increments from 0.0°F to 120.0°F (-17.8°C to 48.9°C).

***HEAT PAD (1-2) DIFFERENTIAL* (History Available)**
This parameter is used to set the differential that will be used with *HEAT PAD (1-2) SET POINT*. Heat pad (1-2) will deactivate when the temperature of the probes selected in *HEAT PAD (1-2) PROBE SELECT* is equal to or above *HEAT PAD (1-2) SET POINT + HEAT PAD (1-2) DIFFERENTIAL*. This parameter is adjusted in 0.1° increments from 0.5°F to 20.0°F (0.3°C to 11.1°C).

***HEAT PAD (1-2) ON TIME* (History Available)**
This parameter is used to set the active portion of the heat pad (1-2) timer. Heat pad (1-2) output will activate for this amount of time and deactivate for *HEAT PAD (1-2) OFF TIME* when the temperature of the probes selected in *HEAT PAD (1-2) PROBE SELECT* is equal to or below *HEAT PAD (1-2) SET POINT*. This parameter is adjusted in 1 second increments from 0 seconds to 999 seconds.

HEAT PAD (1-2) OFF TIME **(History Available)**
This parameter is used to set the inactive portion of the heat pad (1-2) timer. Heat pad (1-2) output will activate for *HEAT PAD (1-2) ON TIME* and deactivate for this amount of time when the temperature of the probes selected in *HEAT PAD (1-2) PROBE SELECT* is equal to or below *HEAT PAD (1-2) SET POINT*. This parameter is adjusted in 1 second increments from 0 seconds to 999 seconds.

HEAT PAD (1-2) MANUAL OVERRIDE **(History Available)**
This parameter is used to operate the heat pad (1-2) manually. If this parameter is set to AUTO, the heat pad (1-2) will be activated according to the configuration's calculated demand. If this parameter is set to OFF, the heat pad (1-2) will be deactivated. If this parameter is set to ON, the heat pad will be activated.

HEAT PAD (1-2) STATUS **(History Available)**
This parameter displays the heat pad (1-2) output status. This parameter will display ON if the heat pad (1-2) output is activated, otherwise it will display OFF.

PARAMETER GROUP # 7: DEFROST

Some parameters will not appear in this group if the corresponding option is not activated.

INTAKE VENTILATOR MANUAL DEFROST

This parameter is used to operate the defrost manually, when this parameter is set to ON, during *MANUAL DEFROST OFF TIME* the defrost output activates and the intake ventilator keeps its calculated speed. After that, during 5 seconds the defrost output and intake ventilator deactivate. During *MANUAL DEFROST ON TIME* the defrost output deactivates and the intake ventilator operates at its full speed. Finally, for 5 seconds, the defrost output activates while the intake ventilator deactivates. When this parameter is set to OFF, the defrost will follow its set point. If the intake ventilator operates manually, the defrost output remains active and the defrost can't operate.

MANUAL DEFROST ON TIME

This parameter is used to set the active portion of the defrost timer. The defrost will activate for this amount of time and deactivate for *MANUAL DEFROST OFF TIME.* This parameter is adjusted in 1 second increments from 0 seconds to 18000 seconds.

MANUAL DEFROST OFF TIME

This parameter is used to set the inactive portion of the defrost timer. The defrost will deactivate for this amount of time and activate for *MANUAL DEFROST ON TIME.* This parameter is adjusted in 1 minute increments from 0 seconds to 18000 minutes.

DEFROST (1-5) INFLUENCE SET POINTS

These parameters establish the set points for the defrost influence when *INTAKE VENTILATOR MANUAL DEFROST* is set to OFF. When the outside temperature drops to the value adjusted here, the times for the intake ventilator defrost function will be equal to the corresponding *DEFROST (1-5) ON TIME*. These temperatures must be set in descending order. These parameters are adjusted in 0.1° increments from -40°F to 100.0°F (-40.0°C to 37.8°C).

DEFROST (1-5) ON TIME

When the *INTAKE VENTILATOR MANUAL DEFROST* is set to OFF, these parameters will be used to set the ON times of the intake ventilator defrost timer. If the outside temperature drops to *DEFROST (1-5) INFLUENCE SET POINTS*, the intake ventilator defrost will be activated for the amount time set in these parameters. These parameters are adjusted in 1 second increments from 0 seconds to 18000 seconds.

DEFROST (1-5) OFF TIME

When the *INTAKE VENTILATOR MANUAL DEFROST* is set to OFF, these parameters will be used to set the OFF times of the intake ventilator defrost timer. If the outside temperature drops to *DEFROST (1-5) INFLUENCE SET POINTS*, the intake ventilator defrost will be deactivated for the amount time set in these parameters. These parameters are adjusted in 1 minute increments from 0 minute to 18000 minute.

PARAMETER GROUP # 8: OPTIONS

Some parameters will not appear in this group if the corresponding option is not activated.

LOW ALARM RSP

This parameter is used to establish the temperature RSP at which a low temperature alarm condition will occur. When AVERAGE TEMPERATURE READOUT is below the *LOW ALARM RSP*, a low temperature alarm condition will occur. This parameter is adjusted in 0.1° increments from *MSP* - 40.0°F to *MSP* - 0.5°F (*MSP* - 22.2°C to *MSP* - 0.3°C).

HIGH ALARM RSP

This parameter is used to establish the temperature RSP at which a high temperature alarm condition will occur when the OUTSIDE PROBE READOUT is not above the *MSP*. When the *OUTSIDE TEMPERATURE OFFSET ALARM* is OFF or OUTSIDE PROBE READOUT is not above the *MSP* and the AVERAGE TEMPERATURE READOUT is above the *HIGH ALARM RSP*, a high temperature alarm condition will occur. This parameter is adjusted in 0.1° increments from *MSP* + 0.5°F to *MSP* + 40.0°F (*MSP* + 0.3°C to *MSP* + 22.2°C).

CRITICAL TEMPERATURE HIGH ALARM

This parameter is used to establish the temperature set point at which a high temperature alarm condition will occur regardless of the OUTSIDE PROBE READOUT. When the AVERAGE TEMPERATURE READOUT is above this parameter, a high temperature alarm condition will occur. Setting this parameter to OFF will deactivate the critical high alarm check. This parameter is adjusted in 0.1° increments from -40.0°F to 119.9°F (-40.0°C to 48.8°C), OFF.

OUTSIDE TEMPERATURE OFFSET

This parameter is used to establish the temperature that will be added to the OUTSIDE PROBE READOUT to create the high alarm threshold. When the OUTSIDE PROBE READOUT is above the *MSP*, the high alarm condition will occur if the AVERAGE TEMPERATURE READOUT is above OUTSIDE PROBE READOUT + *OUTSIDE TEMPERATURE OFFSET ALARM*. This will override the *HIGH ALARM RSP*. If this parameter is set to OFF, the high alarm threshold will not be affected by the OUTSIDE PROBE READOUT. This parameter is adjusted in 0.1° increments from 0.5°F to 40.0°F (0.2°C to 22.2°C), OFF.

WATER METER HIGH LIMIT

This parameter is used to establish the maximum amount of water units (gallons or litres) that may be counted within the *WATER METER HIGH LIMIT CHECK RATE* without triggering the alarm. When this limit is exceeded, the overflow water alarm will activate. Setting this parameter to OFF will deactivate the overflow water alarm. This parameter is adjusted in 1 unit (gallon or litre) increments from OFF, 1 to 999 units (gallons or litres).

WATER METER HIGH LIMIT CHECK RATE

This parameter is used to establish the time span within which the overflow water alarm is verified. If the amount of water units (gallons or litres) counted within this period exceeds *WATER METER HIGH LIMIT* the overflow water alarm will activate. This parameter is adjusted in 1 minute increments from OFF, 1 to 9999 minutes.

WATER METER NO PULSE CHECK RATE

This parameter is used to establish the time span within which the no pulse water alarm is verified. If no water units (gallons or litres) are counted within this period, the no pulse water alarm will activate. Setting this parameter to OFF will deactivate the no pulse water alarm. This parameter is adjusted in 1 minute increments from OFF, 1 to 9999 minutes.

REINITIALIZE WATER ALARM

This parameter is used to reinitialize all water alarm conditions. Pressing the + and – buttons for two seconds will clear all water alarm conditions and reset all current water alarm counts.

WATER METER CALIBRATION

This parameter is used to calibrate the water meter by setting the number of units (gallons or litres) that are counted each time a pulse is read by the water meter input. This setting must be adjusted to match the water meter's specifications. This parameter is adjusted in 0.01 unit increments from 0.01 to 99.99 units (gallons or litres).

WATER METER UNIT

This parameter is used to select the water meter unit. The unit may be the gallon or the litre.

LAST ALARM CODE

This parameter displays the last alarm that occurred since the last reset. The code refers to the following table:

Alarm Code	Description
----	No alarm
1	Wrong Module on P1
5	High Limit Water Alarm
6	No Pulse Water Alarm
7	Recuperator Probe Too High
8	Probe 1 Too High
9	Probe 2 Too High
10	Probe 3 Too High
11	Recuperator Probe Too Low
12	Probe 1 Too Low
13	Probe 2 Too Low
14	Probe 3 Too Low
15	Recuperator Probe Defective
16	Probe 1 Defective
17	Probe 2 Defective
18	Probe 3 Defective
19	Outside Probe Defective
20	Error Code 1
21	Error Code 3
22	Error Code 4

ALARM RELAY
This parameter is used to activate or to deactivate the alarm relay. If this parameter is set to OFF, the alarm relay will not activate when an alarm condition occurs. A warning message will appear on the LCD display to remind the user that the alarm relay is not allowed to activate.

TEST MODE
This parameter is used to activate or to deactivate the test mode as well as to adjust the test mode temperature. The test mode may be activated or deactivated by pressing the + and – buttons simultaneously for two seconds. All inside temperature probe readings will be replaced by the test mode value and a warning message will blink on the LCD display. Each time the test mode is activated, it will take the value of the *MSP*. The test mode will automatically be reset to OFF if the test mode temperature has not changed for 10 minutes. The test mode is adjusted in 0.1° increments from -3.8°F to 130.8°F (-19.9°C to 54.9°C).

TEMPERATURE UNIT
This parameter is used to select the temperature unit used throughout the configuration. The temperature unit can be set to Fahrenheit or Celsius.

AVERAGE PROBE SELECT
This parameter is used to select the probes that will be used to calculate the AVERAGE TEMPERATURE READOUT. Any probe combination may be selected in this parameter.

TEMPERATURE ALARM PROBE SELECT
This parameter is used to select the probes that can trigger the alarm. When a probe is selected at this parameter and is below *LOW ALARM RSP* or above *LOW ALARM RSP*, the alarm will trigger. When a probe is not selected here, it will not trigger the alarm. Any probe combination may be selected in this parameter.

PROBE 6 OPTION
This parameter is used to activate either the water meter or the external exhaust ventilator input type on the probe 6 input. If this parameter is set to OFF, the water meter and the external exhaust ventilator logic will deactivate and their parameters will disappear. This parameter can be set to OFF, WATER or EXST.

RECUPERATOR PROBE CALIBRATION
This parameter is used to adjust the value that will be added to the recuperator probe's reading to match an external reference. This parameter is adjusted in 0.1° increments from -20.0°F to 20.0°F (-11.1°C to 11.1°C).

PROBE (1-3) CALIBRATION
This parameter is used to adjust the value that will be added to the inside probe's reading to match an external reference. This parameter is adjusted in 0.1° increments from -20.0°F to 20.0°F (-11.1°C to 11.1°C).

OUTSIDE PROBE CALIBRATION
This parameter is used to adjust the value that will be added to the outside probe's reading to match an external reference. This parameter is adjusted in 0.1° increments from -20.0°F to 20.0°F (-11.1°C to 11.1°C).

HUMIDITY PROBE CALIBRATION
This parameter is used to adjust the value that will be added to the outside probe's reading to match an external reference. This parameter is adjusted in 1RH% increments from -20RH% to 20RH%.

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***.**

PORT P1 OPTION
This parameter is used to activate the humidity probe on the communication port P1. If this parameter is not set to RH, all humidity parameters will disappear and all humidity logics will be deactivated. This parameter can be adjusted to None or RH.

ADDITIONAL VARIABLE MODULE
This parameter is used to activate or deactivate the additional variable module (AVI-V1 or AVI-V2 module. When the additional variable module is activated, an output type must be selected in *ADDITIONAL VARIABLE OUT (1-2) LOGIC*. If this parameter is set to OFF, all AVI-V(1-2) outputs will remain OFF.

ADDITIONAL VARIABLE OUT (1-2) LOGIC
This parameter is used to select the logic that will determine the state of the AVI-V(1-2) outputs. The AVI-V(1-2) output will follow the parameters associated to the type of output selected. This parameter can be adjusted to None, Exst or Intak.

EXHAUST VENTILATOR MOTOR CURVE
This parameter is used to modify the motor curve of the exhaust ventilator. The relation between the voltage supplied to a motor and its operation speed is defined by the motor curve. This curve may vary according to the brand and the capacity of the motor. The motors available in the industry have been regrouped in categories and a different curve has been programmed in the controller for each category. The appropriate curve must be chosen for each motor to ensure a correct relation between the voltage supplied and the desired speed. Refer to the curve table in the attachment section for the list of different motor curves and their associated fans. These parameters may be set to any value from 1 to 9.

INTAKE VENTILATOR MOTOR CURVE
This parameter is used to modify the motor curve of the intake ventilator. The relation between the voltage supplied to a motor and its operation speed is defined by the motor curve. This curve may vary according to the brand and the capacity of the motor. The motors available in the industry have been regrouped in categories and a different curve has been programmed in the controller for each category. The appropriate curve must be chosen for each motor to ensure a correct relation between the voltage supplied and the desired speed. Refer to the curve table in the attachment section for the list of different motor curves and their associated fans. These parameters may be set to any value from 1 to 9.

HEATER (1-3) PROBE SELECT
This parameter is used to select the probes that will be used to determine temperature heater (1-3) will follow. Any probe combination may be selected in this parameter.

HEAT PAD (1-2) PROBE SELECT
This parameter is used to select the probes that will be used to determine temperature heat pad (1-2) will follow. Any probe combination may be selected in this parameter.

ADDITIONAL HEATER HISTORY FORMAT
This parameter is used to select the additional history format that will be recorded for heaters. If this parameter is set to OFF, there will be no additional history unit. If this parameter is set to BTU (British Thermal Unit) or M3H (Cubic Meters per Hour), the heater consumption will be recorded according to *HEATER (1-3) CONSUMPTION* and the activation time of the respective heater. The additional history data is accessible only via remote access software.

HEATER (1-3) CONSUMPTION
These parameters are used to adjust the consumption of each heater. The consumption is the amount of units (BTU or m^3h) that the heater will consume in an hour. This value will affect the history the additional format is used. These parameters are adjusted in 1x1000 BTU increments, from 0 to 30000x1000 BTU or in 0.01 m^3h increments, from de 0.00 to 99.99 m^3h.

RELAY (1-8) SETUP
This parameter is used to select the type of output that relay (1-8) will be. Available choices for a relay are Val1-Val7 (Valve 1-7), Defr (Defrost), Pmp (Pump), Heat1-Heat3 (Heaters 1-3), HtP 1- HtP 2 (Heat pad 1-2) and Tim 1- Tim 2 (Timer 1-2).

LANGUAGE DISPLAY
This parameter is used to select the language used by the AVI-28. If this parameter is set to ENG, the configuration will use the English language. If this parameter is set to FRA, the configuration will use the French language.

COMMUNICATION FILTER
This parameter is reserved for the manufacturer's technical support personnel.

CLOCK
This parameter gives the time of day in format AM/PM. To adjust the time of day, simultaneously press the [+] and [–] buttons for two seconds. At this moment, the minutes will be adjustable. Press the [↑] or [↓] buttons to toggle between hour and minute adjustments.

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] (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 RF ADDRESS 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. This parameter is adjusted digit-by-digit, allowing faster modification for very high numbers. Press the [+] and [–] buttons for two seconds so that the parameter's first digit blinks. Modify that digit using the [+] and [–] buttons. Press the [↑] or [↓] buttons to navigate through the different digits. Press the [+] and [–] buttons for two seconds once again or press any parameter button to end parameter modification. This parameter can be adjusted to any value from 0 to 32767.

RF ADDRESS
This parameter displays the number (address) associated to RF card inserted in the controller. A unique number is given to each RF card of the WiFarm network. There is a unique RF ADDRESS associated to each RF card. The RF ADDRESS also appears on the sticker present on the RF card. The address can be any value from 0 to 32767.

UNIT ID
This parameter is used to select the identification number that will be used when communicating with the remote access software. Each controller must have a unique identification number. This parameter may be adjusted to any value from 1 to 250.

TECH PARAM DISPLAY
This parameter is reserved for the manufacturer's technical support personnel.

MAX VOLTS EXTERNAL EXHAUST FAN
This parameter is reserved for the manufacturer's technical support personnel.

TECH PARAM RESULT
This parameter is reserved for the manufacturer's technical support personnel.

CONFIGURATION VERSION
This parameter displays the version of the configuration actually used.

PROCESSOR VERSION
This parameter displays the version of the processor actually used.

SUPERVISOR CODE
This parameter is used to activate or deactivate the supervisor lock. The supervisor lock may prevent modification of any parameters, except the *MSP*, when it is activated. To modify the supervisor lock's state, enter the code's value and press the [+] and [–] buttons for two seconds. If the correct value was entered, the message "Parameters Locked" or "Parameters Unlocked" will appear on the LCD display to indicate the new state of the supervisor lock.

MODIFY SUPERVISOR CODE
This parameter is used to display or hide supervisor code modification parameters. If this parameter is set to ON, *ACTUAL SUPERVISOR CODE, NEW SUPERVISOR CODE* and *CONFIRM NEW SUPERVISOR CODE* parameters will appear.

ACTUAL SUPERVISOR CODE
This parameter is one of the three parameters used to modify the supervisor code. Enter the actual supervisor code here, the new supervisor code at *NEW SUPERVISOR CODE* and at *CONFIRM NEW SUPERVISOR CODE*, then press the + and – buttons for two seconds to modify the supervisor code.

NEW SUPERVISOR CODE
This parameter is one of the three parameters used to modify the supervisor code. Enter the actual supervisor code at *ACTUAL SUPERVISOR CODE*, the new supervisor code here and at *CONFIRM NEW SUPERVISOR CODE*, then press the + and – buttons for two seconds to modify the supervisor code.

CONFIRM NEW SUPERVISOR CODE
This parameter is one of the three parameters used to modify the supervisor code. Enter the actual supervisor code at *ACTUAL SUPERVISOR CODE*, the new supervisor code at *NEW SUPERVISOR CODE* and here, then press the + and – buttons for two seconds to modify the supervisor code.

Parameter Table

	Parameters ↑↓	Factory Setting	Range of Values
READINGS (with 90 day history for Recuperator temp, Average Temp, Individual probes, Outside Temp, Humidity, and Water Meter) 	Recuperator Temp. Readout	—	-58.0 to 140.0°F (-50.0 to 60.0°C)
	Average Temp. Readout		
	Probe 1 Readout		
	Probe 2 Readout		
	Probe 3 Readout		
	Outside Probe Readout		
	Humidity Probe Readout		0 to 100 RH%
	Recuperator Temperature Low		-58.0 to 140.0°F (-50.0 to 60.0°C)
	Average Temperature Low		
	Probe 1 Low		
	Probe 2 Low		
	Probe 3 Low		
	Outside Probe Low		
	Humidity Probe Low		0 to 100 RH%
	Recuperator Temperature High		-58.0 to 140.0°F (-50.0 to 60.0°C)
	Average Temperature High		
	Probe 1 High		
	Probe 2 High		
	Probe 3 High		
	Outside Probe High		
	Humidity High		0 to 100 RH%
	Water Meter		0 to 20000 (Gallons / Litres)
	Water Meter Last 24 Hours		
ADJUST 	Main Set Point (6 pts ramping)	75.0°F (23.9°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
	Growth Day	OFF	OFF, -10 to 365
	Main Set Point Offset	0.0	-20.0 to 20.0°F (-11.1 to 11.1°C)
	Night Set Point Option	OFF	ON/OFF
	Actual Main Set Point	-	-99.9 to 160.0°F (-73.3 to 71.1°C)
	Night Set Point Temperature	24.5°C (76.0°F)	*MSP* - 40.0°F to *MSP* + 40.0°F (*MSP* - 22.2°C to *MSP* + 22.2°C).
	Night Set Point Time Begin	6:00PM	12:00AM to 11:59PM
	Night Set Point Time End	6:00AM	
	Night Set Point Transition Time	20 minutes	0 to 60 minutes

EVACUATION (with 90 day history per exhaust ventilator) 	Requested State	—	OFF, 12 to 100%
	Read State	—	OFF, 12 to 100%
	Start Temperature	MSP	MSP - 40.0°F to MSP + 40.0°F (MSP - 22.2°C to MSP + 22.2°C)
	End Temperature	Start T° + 2.0°F (Start T° + 1.1°C)	Start T° + 0.4°F to Start T° + 40.0°F (Start T° + 0.2°C to Start T° + 22.2°C)
	Stop Temperature	Start T° - 2.0°F (Start T° - 1.1°C)	Start T° - 40.0°F to Start T° - 0.4°F (Start T° - 22.2°C to Start T° - 0.2°C)
	Minimum Speed	40	12 to 100%
	Maximum Speed	100	
	Dehumidification Set Point	65	0 to 99 %RH, OFF
	Dehumidification Speed Compensation	20	0 to 100%
	Dehumidification Modulation Bande	10	0 to 100 %RH
	Manual Override	AUTO	AUTO, OFF, 12 to 100%
INTAKE (with 90 day history per intake ventilator) 	Requested State	—	OFF, 12 to 100%
	Start Temperature	MSP	MSP - 40.0°F to MSP + 40.0°F (MSP - 22.2°C to MSP + 22.2°C)
	End Temperature	Start T° + 2.0°F (Start T° + 1.1°C)	Start T° + 0.4°F to Start T° + 40.0°F (Start T° + 0.2°C to Start T° + 22.2°C)
	Anti-Freeze Set Point	Start T° - 2.0°F (Start T° - 1.1°C)	Start T° - 40.0°F to Start T° - 0.4°F (Start T° - 22.2°C to Start T° - 0.2°C)
	Stop Indoor Temperature	MSP	MSP - 40.0°F to MSP + 40.0°F (MSP - 22.2°C to MSP + 22.2°C)
	Minimum Speed	40	12 to 100%
	Maximum Speed	100	
	Dehumidification Set Point	65	0 to 99 %RH, OFF
	Dehumidification Speed Compensation	20	0 to 100%
	Dehumidification Modulation Bande	20	0 to 100 %RH
	Recuperator Timer Set Point	32.0°F (0.0°C)	-40.0 to 120.0°F (-40.0 to 48.9°C)
	Recuperator Timer On Time	0	0 to 900 minutes
	Recuperator Timer Off Time		
	Outside Set Point Influence Minimum Speed	32.0°F (0.0°C)	-40.0 to 120.0°F (-40.0 to 48.9°C)
	Minimum Speed Outside Influence	25	12 to 100%
	Manual Override	AUTO	AUTO, OFF, 12 to 100%

VALVES (with 90 day history for valve 1-7, pump and timer 1-2) 	Pump Requested State	—	OFF or ON
	Valve 1 Requested State		
	Valve 2 Requested State		
	Valve 3 Requested State		
	Valve 4 Requested State		
	Valve 5 Requested State		
	Valve 6 Requested State		
	Valve 7 Requested State		
	Cycles Per Day (6 pts ramping)	5	0 to 24
	Time Between Valves	2	1 to 30 minutes
	Valve 1 Run Time	1	0 to 300 minutes
	Valve 2 Run Time		
	Valve 3 Run Time		
	Valve 4 Run Time		
	Valve 5 Run Time		
	Valve 6 Run Time		
	Valve 7 Run Time		
	Stop Ventilation	No	Yes or No
	Pump Manual Override	AUTO	AUTO, OFF, ON
	Valve 1 Manual Override		
	Valve 2 Manual Override		
	Valve 3 Manual Override		
	Valve 4 Manual Override		
	Valve 5 Manual Override		
	Valve 6 Manual Override		
	Valve 7 Manual Override		
	Timer 1 Cycle 1 On	12:00AM	12:00AM to 11:59PM
	Timer 1 Cycle 1 Off		
	Timer 1 Cycle 2 On		
	Timer 1 Cycle 2 Off		
	Timer 1 Cycle 3 On		
	Timer 1 Cycle 3 Off		
	Timer 1 Cycle 4 On		
	Timer 1 Cycle 4 Off		
	Timer 1 Cycle 5 On		
	Timer 1 Cycle 5 Off		
	Timer 1 Cycle 6 On		
	Timer 1 Cycle 6 Off		
	Timer 1 Manual Override	AUTO	AUTO, OFF, ON
	Timer 2 Cycle 1 On	12:00AM	12:00AM to 11:59PM
	Timer 2 Cycle 1 Off		
	Timer 2 Cycle 2 On		
	Timer 2 Cycle 2 Off		
	Timer 2 Cycle 3 On		
	Timer 2 Cycle 3 Off		
	Timer 2 Cycle 4 On		
	Timer 2 Cycle 4 Off		
	Timer 2 Cycle 5 On		
	Timer 2 Cycle 5 Off		
	Timer 2 Cycle 6 On		
	Timer 2 Cycle 6 Off		

	Timer 2 Manual Override	AUTO	AUTO, OFF, ON
HEATERS (with 90 day history per heater for heaters 1-3 and heat pad 1-2. For heaters, history can be in BTUx1000, M3H as well as in time) 	Heater 1 RSP	*MSP* - 3.0°F (*MSP* - 1.7°C)	*MSP* - 30.0 to *MSP* + 20.0°F (*MSP* -16.7 to *MSP* + 11.1°C)
	Heater 1 Differential	2.0°F (1.1°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	Heater 1 Manual Override	AUTO	AUTO, OFF, ON
	Heater 2 RSP	*MSP* - 3.0°F (*MSP* - 1.7°C)	*MSP* - 30.0 to *MSP* + 20.0°F (*MSP* -16.7 to *MSP* + 11.1°C)
	Heater 2 Differential	2.0°F (1.1°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	Heater 2 Manual Override	AUTO	AUTO, OFF, ON
	Heater 3 RSP	*MSP* - 3.0°F (*MSP* - 1.7°C)	*MSP* - 30.0 to *MSP* + 20.0°F (*MSP* -16.7 to *MSP* + 11.1°C)
	Heater 3 Differential	2.0°F (1.1°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	Heater 3 Manual Override	AUTO	AUTO, OFF, ON
	Heat Pad 1 Set Point	67.0°F (19.4°C)	0.0 to 120.0°F (-17.8 to 48.9°C)
	Heat Pad 1 Differential	1.0°F (0.6°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	Heat Pad 1 On Time	60	0 to 999 seconds
	Heat Pad 1 Off Time		
	Heat Pad 1 Manual Override	AUTO	AUTO, OFF, ON
	Heat Pad 1 Status	—	OFF or ON
	Heat Pad 2 Set Point	67.0°F (19.4°C)	0.0 to 120.0°F (-17.8 to 48.9°C)
	Heat Pad 2 Differential	1.0°F (0.6°C)	0.5 to 20.0°F (0.3 to 11.1°C)
	Heat Pad 2 On Time	60	0 to 999 seconds
	Heat Pad 2 Off Time		
	Heat Pad 2 Manual Override	AUTO	AUTO, OFF, ON
	Heat Pad 2 Status	—	OFF or ON
DEFROST 	Intake Ventilator Manual Defrost	OFF	OFF or ON
	Manual Defrost On Time	240	0 to 18000 seconds
	Manual Defrost Off Time	240	0 to 18000 minutes
	Defrost 1 Influence Set Point	32.0°F (0.0°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
	Defrost 1 On Time	180	0 to 18000 seconds
	Defrost 1 Off Time	1435	0 to 18000 minutes
	Defrost 2 Influence Set Point	23.0°F (-5.0°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
	Defrost 2 On Time	240	0 to 18000 seconds
	Defrost 2 Off Time	715	0 to 18000 minutes
	Defrost 3 Influence Set Point	14.0°F (-10.0°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
	Defrost 3 On Time	300	0 to 18000 seconds
	Defrost 3 Off Time	475	0 to 18000 minutes
	Defrost 4 Influence Set Point	5.0°F (-15.0°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
	Defrost 4 On Time	420	0 to 18000 seconds
	Defrost 4 Off Time	350	0 to 18000 minutes
	Defrost 5 Influence Set Point	-4.0°F (-20.0°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)
	Defrost 5 On Time	480	0 to 18000 seconds
	Defrost 5 Off Time	280	0 to 18000 minutes

OPTIONS 	Low Alarm RSP	*MSP* - 10.0°F (*MSP* - 5.6°C)	*MSP* - 40.0 à *MSP* - 0.5°F (*MSP* - 22.2 à *MSP* - 0.3°C)
	High Alarm RSP	*MSP* + 12.0°F (*MSP* + 6.7°C)	*MSP* + 0.5 à *MSP* + 40.0°F (*MSP* + 0.3 à *MSP* + 22.2°C)
	Critical Temperature High Alarm	95.0°F (35.0°C)	-40.0 à 119.9°F (-40.0 à 48.8°C), OFF
	Outside Temperature Offset Alarm	12.0°F (6.7°C)	0.5 à 40.0°F (0.3 à 22.2°C), OFF
	Water Meter High Limit	20	OFF, 1 to 999 (gallons / litres)
	Water Meter High Limit Check Rate	10	OFF, 1 to 9999 minutes
	Water Meter No Pulse Check Rate		
	Reinitialize Water Alarm	*****	*****
	Water Meter Calibration	1.00	0.01 to 99.99 (gallons / litres)
	Water Meter Unit	gallon	gallon or litre
	Last Alarm Code	----	----, 1 to 30
	Alarm Relay	ON	ON/OFF
	Test Mode	OFF	OFF, -3.8 à 130.8°F (OFF, -19.9 à 54.9°C)
	Temperature Unit	˚F	˚F or ˚C
	Average Probe Select	1 2 3	Any probe combination
	Temperature Alarm Probe Select		
	Probe 6 Option	OFF	OFF, WATER or EXST

OPTIONS 	Recuperator Probe Calibration	0.0	-20.0 to 20.0°F (-11.1 to 11.1°C)
	Probe 1 Calibration		
	Probe 2 Calibration		
	Probe 3 Calibration		
	Outside Probe Calibration		
	Humidity Calibration	0	-20RH% to 20RH%
	Exhaust Ventilator Probe Select	1 2 3	Any probe combination
	Port P1 Option	None	None or RH
	Additional Variable Module	OFF	ON/OFF
	Additional Variable Out1 Logic	None	None, Exst, Intak
	Additional Variable Out2 Logic		
	Exhaust Ventilator Motor Curve	7	1 to 9
	Intake Ventilator Motor Curve		
	Heater 1 Probe Select	1 - -	Any probe combination
	Heater 2 Probe Select	- 2 -	
	Heater 3 Probe Select	- - 3	
	Heat Pad 1 Probe Select	- - 3	
	Heat Pad 2 Probe Select		
	Additional Heater History Format	OFF	OFF, BTU, M3H
	Heater 1 Consumption	0 x1000BTU (0.00 M3H)	0 to 30000 x1000 BTU (0.00 to 99.99 M3H)
	Heater 2 Consumption		
	Heater 3 Consumption		
	Relay 1 Setup	None	None, Val1-7, Defr, Pmp, Heat1-3, HtP 1-2 or Tim 1-2
	Relay 2 Setup		
	Relay 3 Setup		
	Relay 4 Setup		
	Relay 5 Setup		
	Relay 6 Setup		
	Relay 7 Setup		
	Relay 8 Setup		

	Language Display	Eng	Eng, Fra
	Communication Filter	300	0 to 300
	Clock	*****	****
	RF Channel	OFF	OFF, 1 to 16
	RF Network	0	0 to 32767
	RF Address	*****	
	Unit ID	1	1 to 250
	Tech Param Display	OFF	OFF, 1 to 64
	Max Volts External Exhaust Fan	3.29 Volts	0 to 10.00 Volts
	Tech Param Result	*****	*****
	Configuration Version		
	Processor Version		
	Supervisor Code		
	Modify Supervisor Code	OFF	ON/OFF
	Actual Supervisor Code	*****	*****
	New Supervisor Code		
	Confirm New Supervisor Code		

Alarms

The alarm relay is normally activated, but it will deactivate 15 to 25 seconds of a power failure or after an alarm condition occurs.

Situational Alarm Message List

These alarms will activate the alarm relay and light up the alarm LED when the condition is present. When the situation is corrected, will deactivate the alarm relay and the alarm LED.

Message	Cause
Recuperator Probe Too High	- The RECUPERATOR TEMPERATURE READOUT is greater than *HIGH ALARM RSP* and the OUTSIDE TEMPERATURE is equal to or below the *MSP*. - The RECUPERATOR TEMPERATURE READOUT is greater than OUTSIDE TEMPERATURE + *OUTSIDE OFFSET ALARM* and the OUTSIDE TEMPERATURE is above the *MSP*. - The RECUPERATOR TEMPERATURE READOUT exceeds the limit *CRITICAL HIGH ALARM.*
Inside Probe (1-3) Too High	- The PROBE (1-3) READOUT is greater than *HIGH ALARM RSP* and the OUTSIDE TEMPERATURE is equal to or below the *MSP*. - The PROBE (1-3) READOUT is greater than OUTSIDE TEMPERATURE + *OUTSIDE OFFSET ALARM* and the OUTSIDE TEMPERATURE is above the *MSP*. - The PROBE (1-3) READOUT exceeds the limit *CRITICAL HIGH ALARM.*
Recuperator Probe Too Low	- The RECUPERATOR TEMPERATURE READOUT is lower than *LOW ALARM RSP*.
Inside Probe (1-3) Too Low	- The PROBE (1-3) READOUT is lower than *LOW ALARM RSP*.
Recuperator Probe Defective	- The recuperator probe used by the configuration becomes short or open circuit.
Inside Probe # Defective	- An inside sensor used by the configuration becomes short or open circuit.
Outside Probe Defective	- The outside probe is used by the configuration becomes short or open circuit.
Error Code 1	- The GE controller has reset 10 times and each reset was less than 15 minutes apart from the last one.
Wrong Module on P1	- The module connected to the P1 communication port does not correspond to the choice made in the *PORT P1 OPTION* parameter.

Continuous Alarm Message List These alarms will activate the alarm relay and light up the alarm LED when the condition is present and when the situation is corrected. The alarm must be reinitialized to deactivate the alarm relay and alarm LED.	
Message	**Cause**
High Limit Water Alarm	- The amount of water units (litres or gallons) counted has exceeded *WATER METER HIGH LIMIT* within the *WATER METER HIGH LIMIT CHECK RATE*.
No Pulse Water Alarm	- No water units (litres or gallons) have been counted throughout the *WATER METER NO PULSE CHECK RATE*.
Error Code 3-4	- If one or more of these error codes appear, contact your distributor.

Event Message List These messages are not alarms, but events or conditions that are signified to the user.	
Message	**Cause**
HUM 3 Probe Not Responding	- The humidity probe is activated and has not communicated with the controller for 5 minutes.
Alarm Relay Deactivated	- The *ALARM RELAY* is set to OFF.
Test Mode Activated	- All inside temperature readings are replaced by the *TEST MODE* parameter because it is not OFF.

Motor curve

TYPE OF MOTOR				
CURVE	**BRAND**	**MODEL**	**VOLTAGE**	**HEIGHT**
1	Multifan	4E40	230 V.	16"
2	Flex	FM0025	230 V.	18"
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.	
3	Flex	FM0024	230 V.	14"
3	Flex	FM0024	230 V.	16"
3	Flex	FM0026	230 V.	24"
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"
4	Multifan	2E25	230 V.	10"
4	Marathon 1/4HP		230 V.	16"
4	Marathon 1/3HP		230 V.	18"
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	Flex	FM0024	230 V.	12"
7	Flex	FM0026	230 V.	20"
7	Multifan	4E30	230 V.	12"
7	Multifan	2E35	230 V.	14"
8	Multifan	4E25	230 V.	10"

Additional information on parameters

The following is a more detailed description of general-purpose parameters.

Time of Day (time clock)

The AVI-28 comes with its own integrated time clock. This feature is appreciated by users who want to know the current time of day. Note that if a power failure occurs, the clock will not run and will start back at the time the power failure occurred. However, the time clock's main purpose is to allow ramping to operate.

The following instructions show how to change the time of day on the control:

The time is displayed in HH:MM format and does not flash. Press the [+] and [–] buttons to access clock adjustment mode. At this moment, the minutes will flash and be adjustable. Press the [↑] or [↓] buttons to toggle between hour and minute adjustments. Press the [+] and [–] buttons or any menu button to exit the clock adjustment mode.

Growth Day

The Growth Day plays an active part in the ramping settings. With this parameter, users can program the growth day of a growth curve. Day by day, the growth calendar's value will increase by increment of 1, from a minimum setting of -10 to a maximum setting of 365.

Ramping

The ramping parameter automatically will calculate and change its value every hour. The amount by which the parameter is changed is determined by the ramping curve.

Before the first point, the parameter takes the value entered for the first point. For example, point 1 is at 80°F at day #10. From day #1 to day #10, the value will be 80°F.

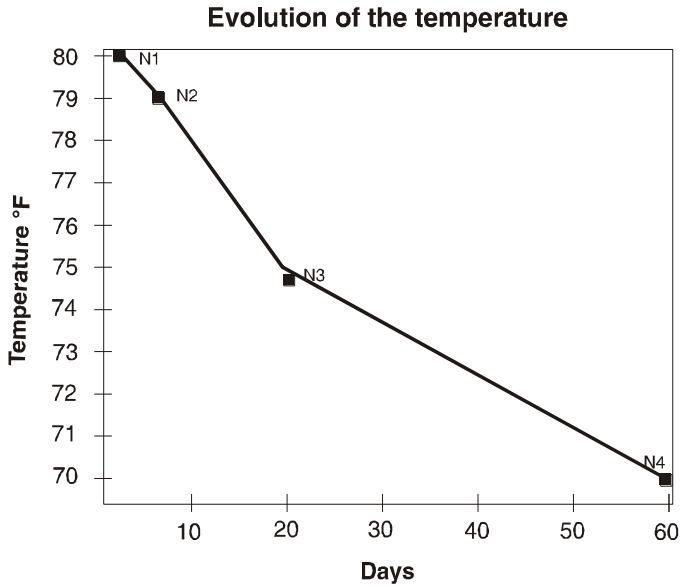
After the last point, the curve remains operational. While it continues to count days, the set point does not flash and cannot be changed. For example, the last point (day #40) is set at 70°F. After day #40 the parameter remains at 70°F, until ramping is deactivated, by setting the Growth Day to OFF.

The following instructions indicate how to set the Growth Day of a ramping curve:

Select the ramping parameter (ex: Main Set Point, Cycles Per Day, etc.). Make sure the Growth day is set to OFF. Press the [+] and [–] buttons simultaneously for two seconds. At this moment, the first day of the growth curve will be displayed.

When a day is displayed, pressing the [↓] button will display the associated value, whereas pressing the [↑] button will display the preceding value. When a value is displayed, pressing the [↓] button will display the next day, whereas pressing the [↑] button will display the associated day.

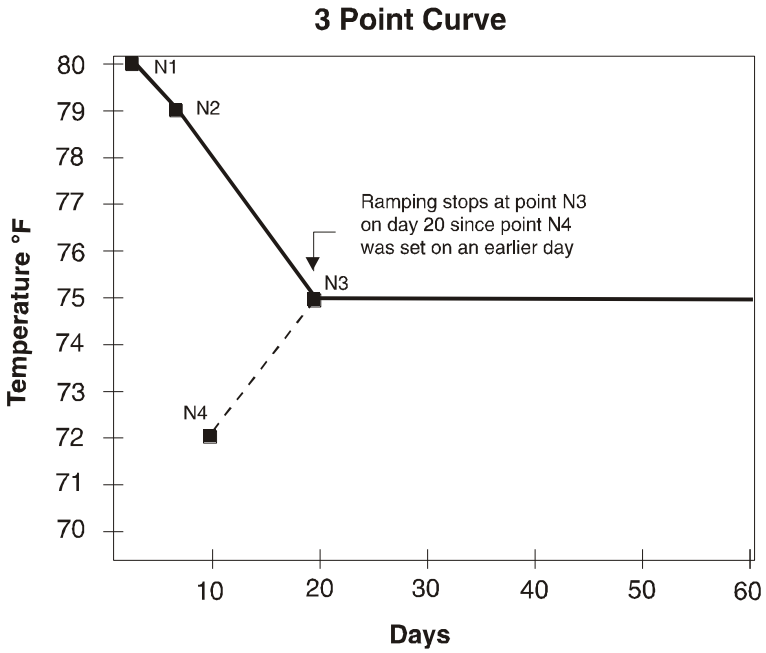
The following graph shows a typical ramping curve for the temperature.



This six points curve may be entered as follows:

1. Make sure the Growth Day is OFF.
2. Select the Ramping parameter with the parameter buttons and the [↑] and [↓] buttons.
3. The value on the LED display should be flashing.
4. Press the [+] and [–] buttons for two seconds. At this moment, the LCD display will show "Adjust (parameter name) Curve Day Point 1 (the first of the day point of the curve).
5. Set this value to 1 using the [+] and [–] buttons.
6. Press the [↓] button. The LCD display will show "Adjust (parameter name) Curve Value Point 1 (the first of the value point of the curve).
7. You may now enter the first temperature value for curve (80°F) using the [+] and [–] buttons.
8. Press the [↓] button. At this moment, the next day will be displayed and adjustable.
9. Repeat steps 5 to 8 for the rest of the curve points. In this example, the days are 1, 8, 20 and 60 and the value points are 80°F, 79°F, 75°F and 70°F.
10. Once the last value point is entered, press the [+] and [–] buttons for two seconds. You should now be back to a point where the LED display is flashing a temperature value.
11. The whole ramping curve is now set. To enable temperature ramping, simply set the Growth Day to any day value and the AVI-28 will follow the curve.

Ramping is interrupted when days fail to respect a chronological order or when to consecutive points have the same day. This characteristic may be useful to users unwilling to use all 4 "preset" ramping points. The following illustration shows how users can stop the curve without entering the last point.



INDEX / WARRANTY AVI-28 SECTION D

AVI-28 INDEX / WARRANTY

TABLE OF CONTENTS

Section A

WARNINGS AND PRECAUTIONS 2
Wiring Diagram 4
Wiring Diagram Variable Modules 5
Electrician's notes 6

TABLE OF CONTENTS

Section B

Unpacking 8
Mounting Hardware Required 8
General installation guidelines 9
- AVI-28 Control 9
- Electrical Cables 9
- Electrical Power 9
- Mounting 10

Connection Procedure 11
- Detailed Wiring Diagrams 11
  - Typical Sensor Wiring for Probes 11
  - Typical water meter wiring 12
  - Typical Power Backup Wiring 13
  - Typical Thermostat Backup Wiring 14
  - Typical Alarm Connection Wiring 16
  - External Exhaust Fan 0-10V signal wiring 17

Powering Up Procedure 18
- Verify all Connections 18
- Hermetically Close the AVI-28 18
- Put the power on 18
- Secure the front panel with a lock 18

Download the Configuration (if necessary) 18
Uploading the Configuration 19
AVI-28 Compatible Probes 20
AVI-28 Compatible Modules 20
Specifications 21
Troubleshooting 23

SECTION D

TABLE OF FIGURES

FIGURE NO. 1 Mounting Position and Devices 10
FIGURE NO. 2 Typical Temperature Probe Wiring 11
FIGURE NO. 3 Typical Humidity Probe Wiring 11
FIGURE NO. 4 Typical Water Meter Wiring 12
FIGURE NO. 5 Typical Power Backup Wiring 13
FIGURE NO. 6 Typical Thermostat Backup Wiring on Relay 14
FIGURE NO. 7 Typical Thermostat Backup Wiring on Variable Stage 15
FIGURE NO. 8 Typical Alarm Connection Wiring 16
FIGURE NO. 9 Typical Siren Connection Wiring 16
FIGURE NO. 10 External Exhaust Fan 0-10V Signal Wiring 17

TABLE OF CONTENTS

Section C

Control Description 25
Glossary 27
Input/Output Table 28
Equipment 28
Configuration Versions 28
Ventilation system overview 29
Parameter description 30
Parameter Group # 1: Readings 30
Parameter Group # 2: Adjust 33
Parameter Group # 3: Evacuation 35
Parameter Group # 4: Intake 37
Parameter Group # 5: Valves 40
Parameter Group # 6: Heaters 42
Parameter Group # 7: Defrost 44
Parameter Group # 8: Options 45
Parameter Table 52
Alarms 59
Motor curve 61
Additional information on parameters 62
Time of Day (time clock) 62
Growth Day 62
Ramping 62

TABLE OF CONTENTS

Section D

Limited Warranty 68

SECTION D

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.