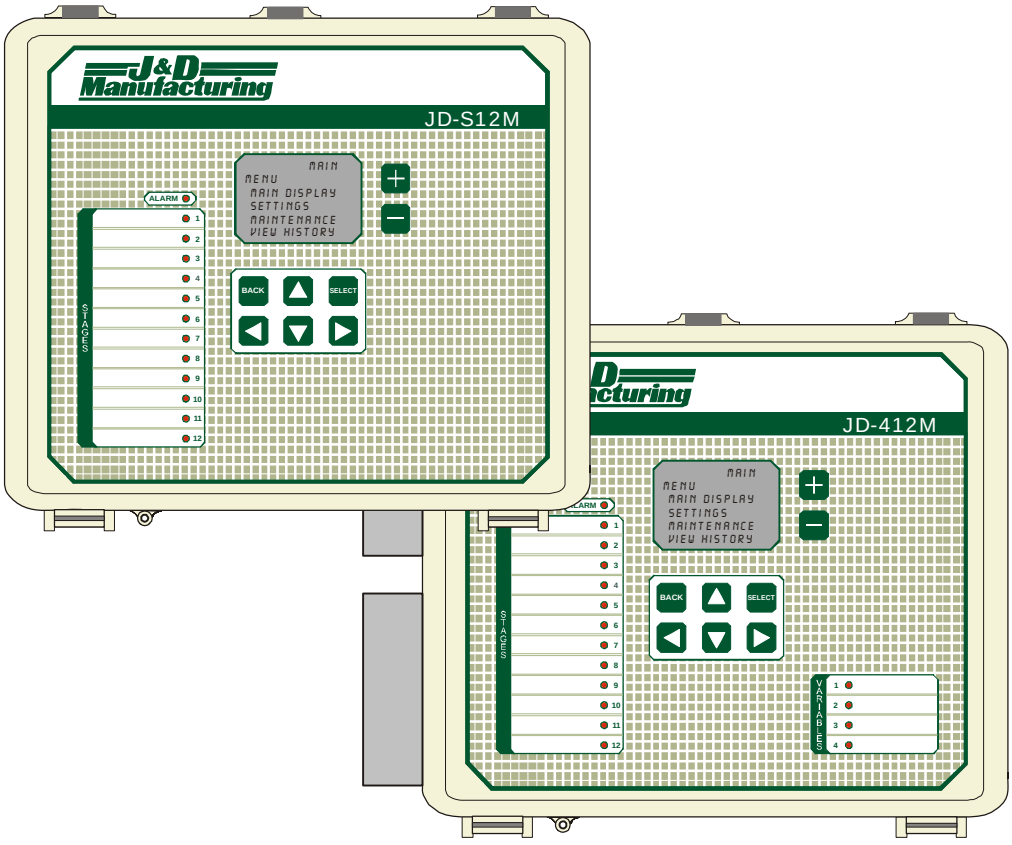
MANUAL
JD-412M, JD-S12M



Installation / User's Guide

ATTENTION ELECTRICIAN
SEE WIRING DETAILS ON PAGES A-3 TO A-11 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.

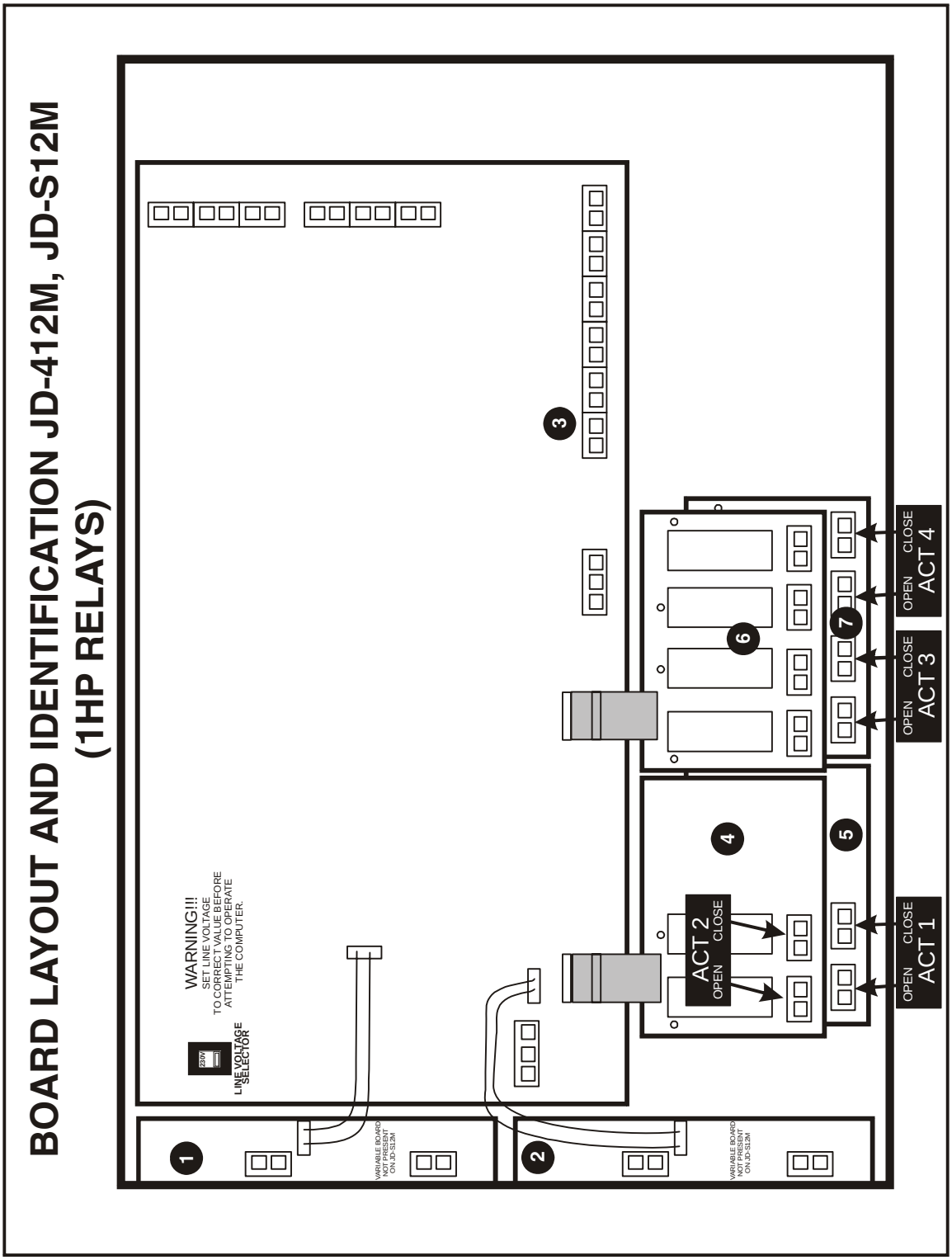
RECOMMENDATIONS

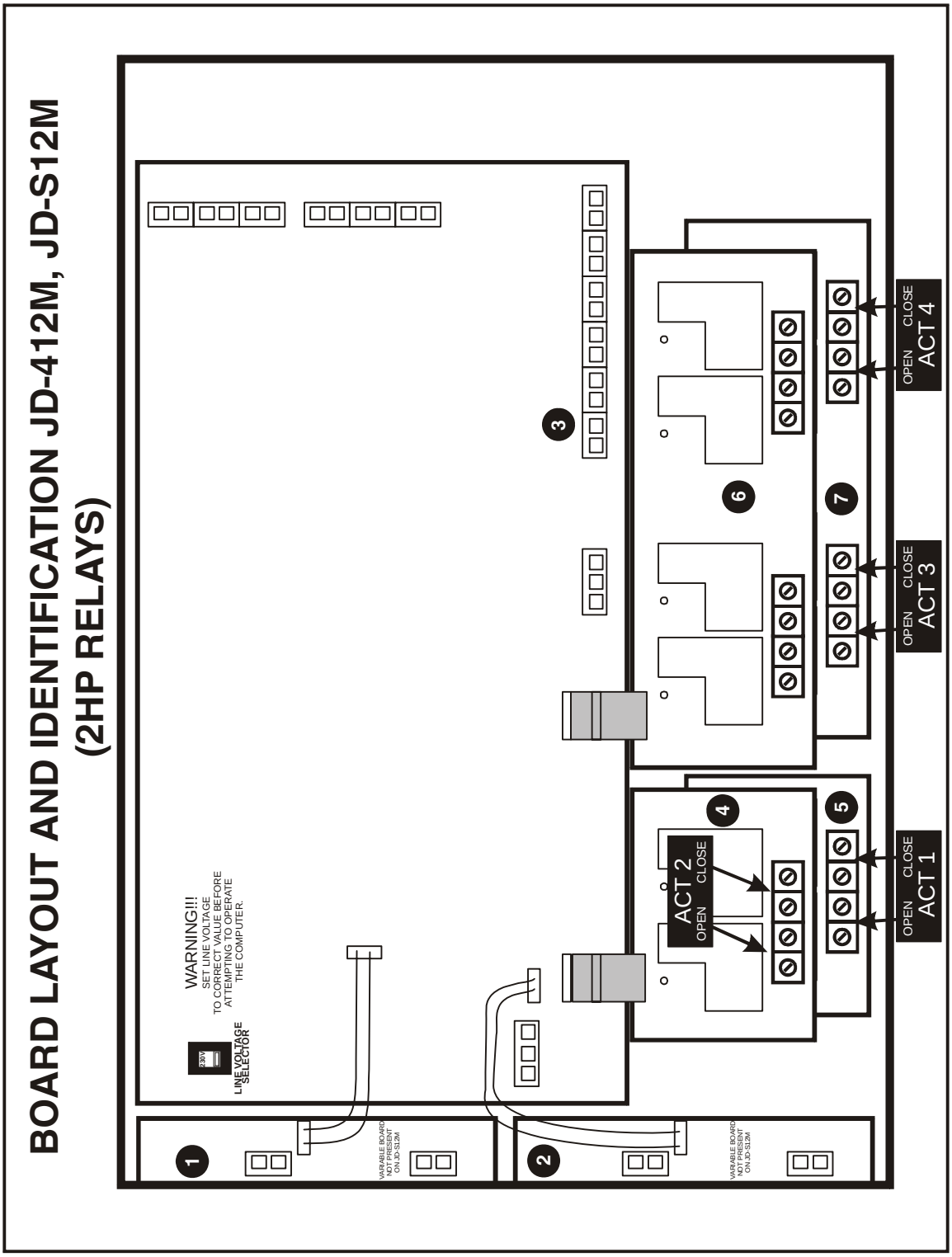
The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Furthermore the manufacturer recommends testing all the functions and equipment connected to the JD controller, including the alarm system and backup devices,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

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

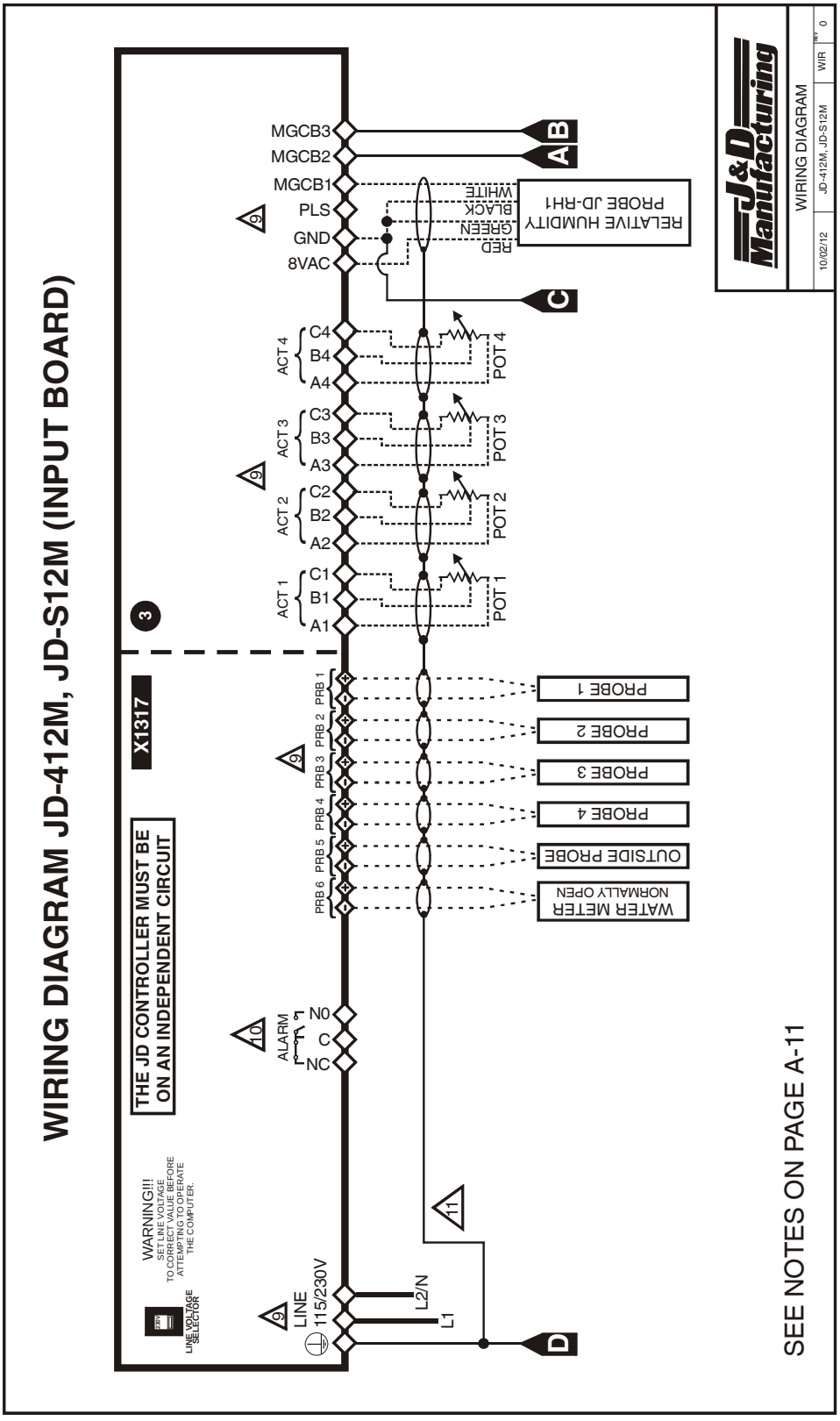
WIRING DIAGRAM JD-412M, JD-S12M SECTION A

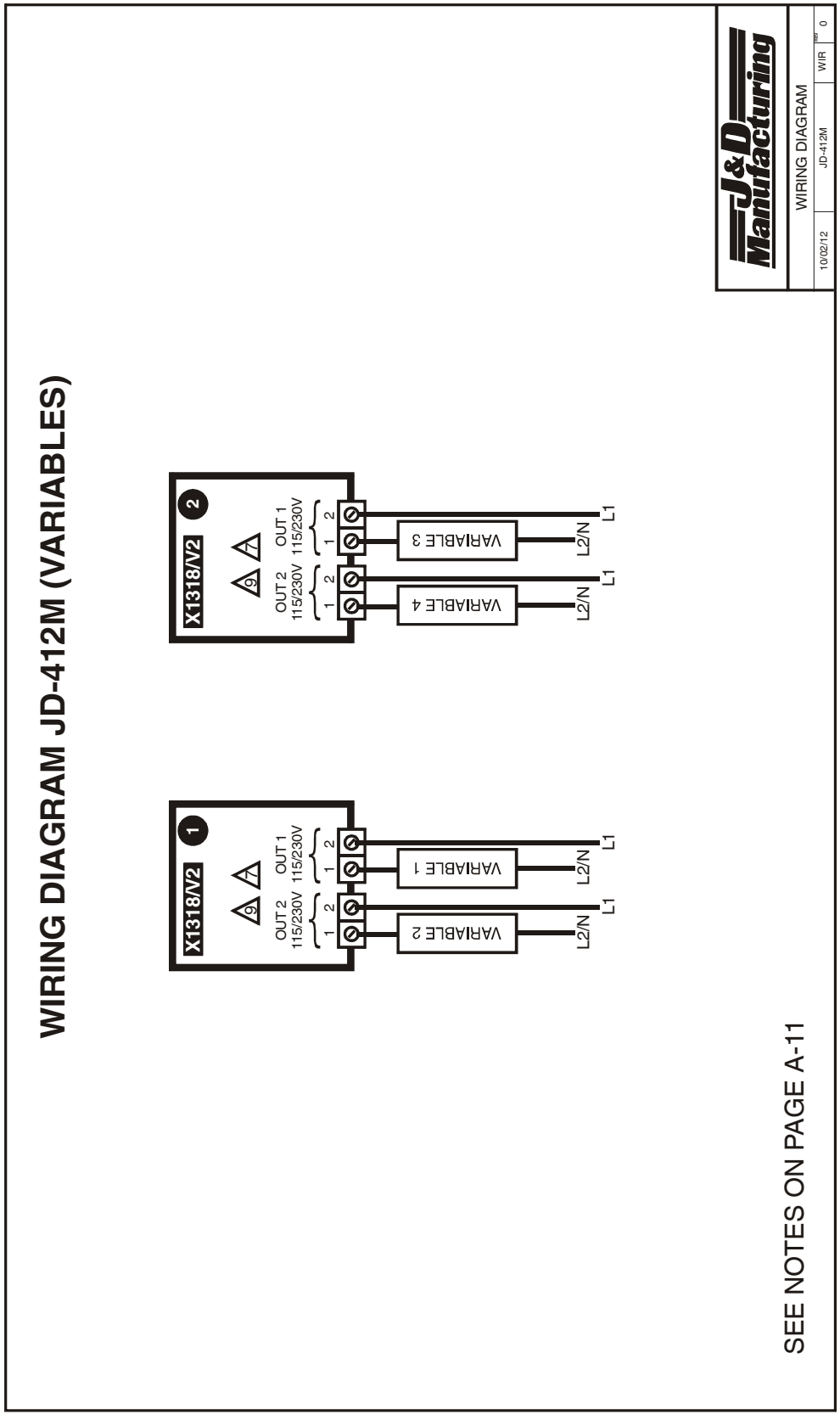
JD-412M, JD-S12M WIRING DIAGRAM



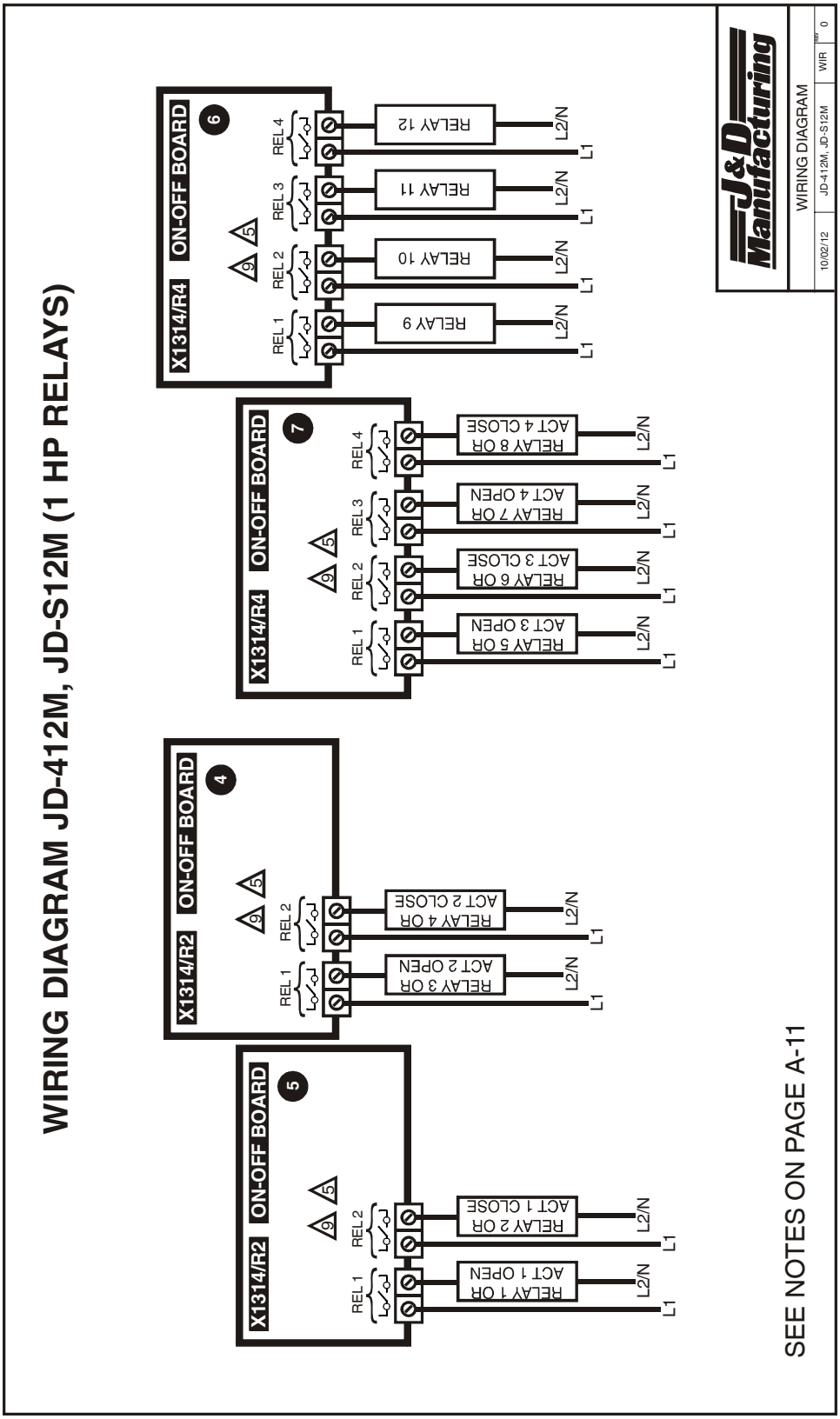

BOARD LAYOUT AND IDENTIFICATION JD-412M, JD-S12M
(2HP RELAYS)
WARNING!!!
SET LINE VOLTAGE
TO CORRECT VALUE BEFORE
ATTEMPTING TO OPERATE
THE COMPUTER.
LINE VOLTAGE
SELECTOR
230V
115V
VARIABLE BOARD
NOT PRESENT
ON JD-S12M
VARIABLE BOARD
NOT PRESENT
ON JD-S12M
1
2
3
4
5
6
7
ACT 2
OPEN CLOSE
OPEN CLOSE
ACT 1
OPEN CLOSE
ACT 3
OPEN CLOSE
ACT 4

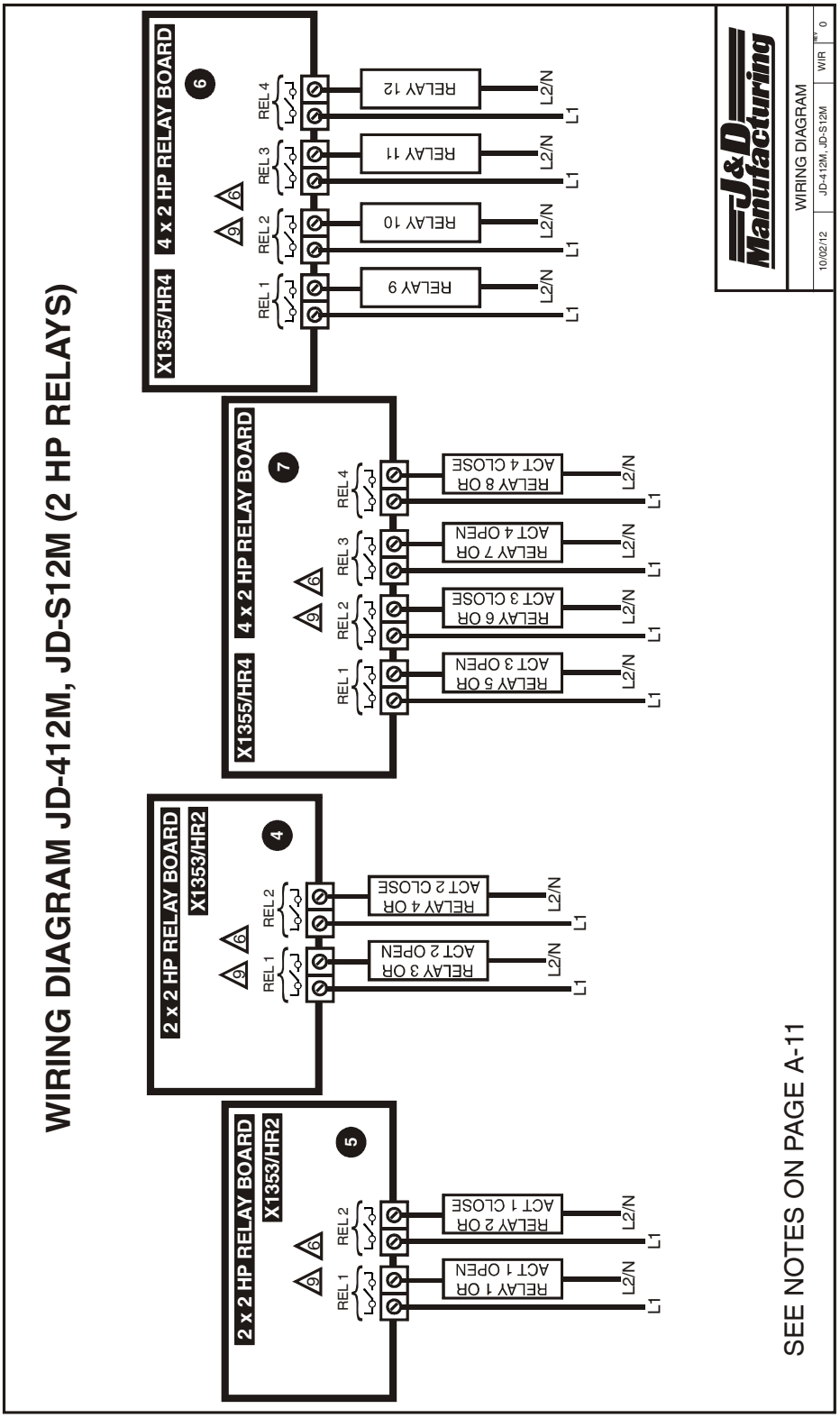
JD-412M, JD-S12M WIRING DIAGRAM



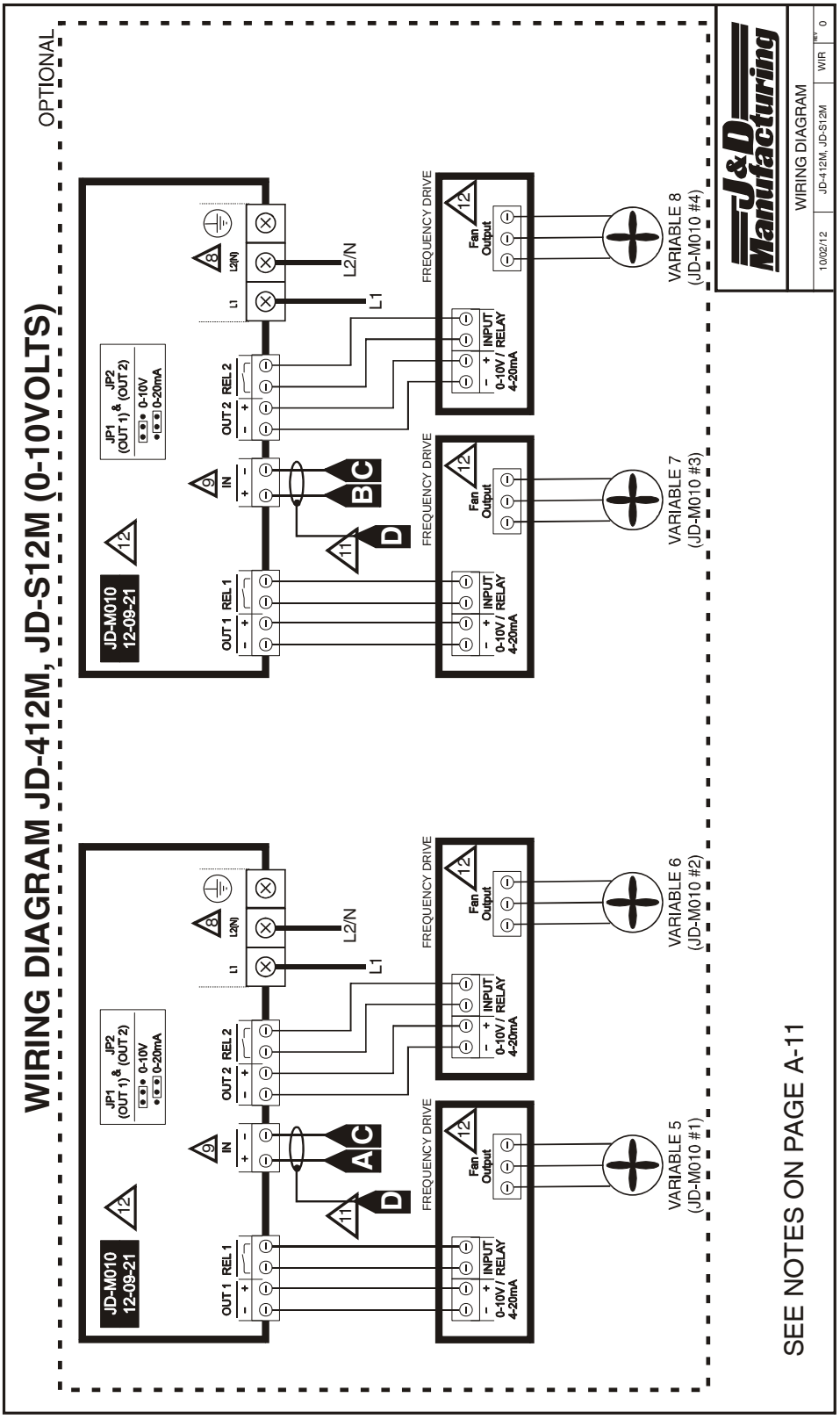

WIRING DIAGRAM JD-412M (VARIABLES)
X1318/V2
1
OUT 2 115/230V
OUT 1 115/230V
VARIABLE 1
VARIABLE 2
L1
L2/N
X1318/V2
2
OUT 2 115/230V
OUT 1 115/230V
VARIABLE 3
VARIABLE 4
L1
L2/N
SEE NOTES ON PAGE A-11
J&D Manufacturing
WIRING DIAGRAM
10/02/12
JD-412M
WIR
REV 0

JD-412M, JD-S12M WIRING DIAGRAM




WIRING DIAGRAM JD-412M, JD-S12M (2 HP RELAYS)
2 x 2 HP RELAY BOARD
X1353/HR2
5
REL 1
REL 2
RELAY 1 OR ACT 1 OPEN
RELAY 2 OR ACT 1 CLOSE
L2/N
L1
2 x 2 HP RELAY BOARD
X1353/HR2
4
REL 1
REL 2
RELAY 3 OR ACT 2 OPEN
RELAY 4 OR ACT 2 CLOSE
L2/N
L1
4 x 2 HP RELAY BOARD
X1355/HR4
7
REL 1
REL 2
REL 3
REL 4
RELAY 5 OR ACT 3 OPEN
RELAY 6 OR ACT 3 CLOSE
RELAY 7 OR ACT 4 OPEN
RELAY 8 OR ACT 4 CLOSE
L2/N
L1
4 x 2 HP RELAY BOARD
X1355/HR4
6
REL 1
REL 2
REL 3
REL 4
RELAY 9
RELAY 10
RELAY 11
RELAY 12
L2/N
L1
J&D Manufacturing
WIRING DIAGRAM
JD-412M, JD-S12M
WIR
0
10/02/12
SEE NOTES ON PAGE A-11

JD-412M, JD-S12M WIRING DIAGRAM



JD-412M, JD-S12M

Electrician's notes

1 ---------- (PROBE WIRING) SHIELDED WIRE AWG #22 WITH 16/30 STRANDING, 500ft (150m) MAXIMUM LENGTH (Ex.: DECA 73-310).
For other probe, refer to specific probe manual for appropriate maximum length and wire size or use AWG #22, 500ft (150m) MAXIMUM LENGTH.

2 ——— (COMMUNICATION WIRING) SHIELDED, TWISTED PAIR (8 TWIST/FT). MAX LENGTH FOR 350PF/M CABLE : 500FT (150M). MAX LENGTH FOR 89PF/M CABLE : 820FT (250M).

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

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

△5 RELAYS: 12A @ 240VAC RESISTIVE, MOTOR 1HP @ 240VAC, 1/2HP @ 120VAC AT EACH OUTPUT.

△6 RELAYS: 12A @ 240VAC RESISTIVE, MOTOR 2HP @ 240VAC, 1HP @ 120VAC AT EACH OUTPUT.

△7 TRIAC : THE CURRENT SHALL NOT EXCEED 8A AT EACH OUTPUT.

△8 MAXIMUM 2 WIRES OF SAME SIZE PER TERMINAL, NO BIGGER THAN AWG #12, NO SMALLER THAN AWG #22.

△9 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.

△10 CHECK INSTALLATION SECTION FOR ALARM WIRING.

△11 USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT 1 END AND 1 END ONLY OF THE SHIELD TO THE CONTROL CIRCUIT COMMON END⏚. NEVER LEAVE BOTH ENDS OF THE SHIELD UNCONNECTED. NEVER CONNECT BOTH ENDS OF THE SHIELD TO COMMON⏚. THE USE OF A SHIELD FOR ALL PROBES AND POTENTIOMETERS IS MANDATORY.

△12 FOR MORE DETAILS ON JD-M010. REFER TO THE JD-M010 INSTALLATION GUIDE.

SECTION B

INSTALLATION JD-412M, JD-S12M SECTION B

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

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

Unpacking

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

The package should contain the following standard items:
1 JD-412M or JD-S12M Control
4 Brackets / 4 Screws
1 2004-10K Temperature Probe (30 feet (9m) cable)
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

J&D Controller

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

Electrical cables

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

Electrical power

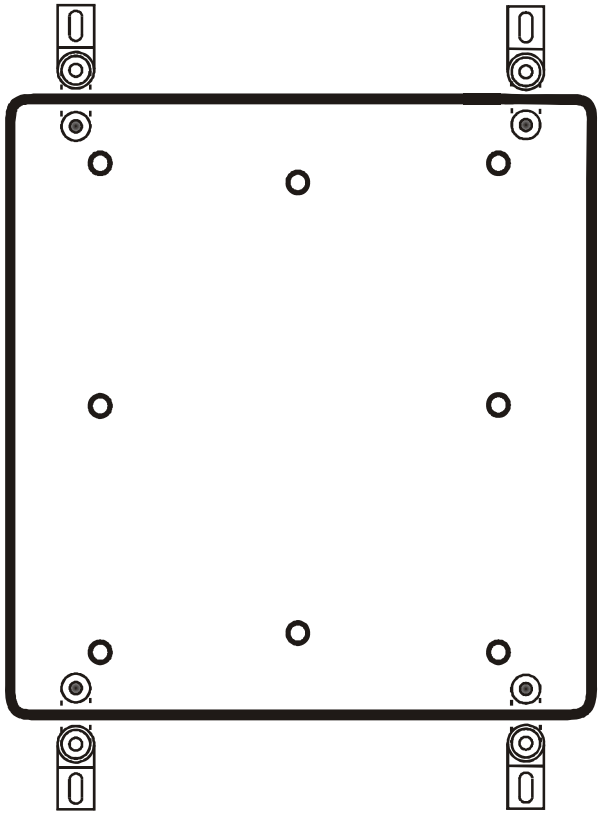
- Protection from electrical surges should be included in the planning of each installation.
- The OUT1 and OUT2 outputs require the same phase and same voltage as the J&D controller to operate.
- Every module should have a separate breaker to avoid unwanted consequences.

- It is strongly recommended to have a backup power source to ensure life-sustaining conditions in case of power failure (see figure 6).
- It is also strongly recommended to install a backup thermostat system parallel to the J&D controller module output (see figures 7 and 8) to supply sufficient airflow and heating.
- The backup system and alarm must be thoroughly tested and verified as working properly before using the ventilation system.

Mounting

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

FIGURE NO. 1 Mounting Position and Devices



Connection procedure

Detailed wiring diagrams

Typical sensor wiring for probes

An inside temperature sensor should be located in the area which gives the most accurate temperature reading to achieve optimum ventilation. The sensor should be connected to the J&D controller 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. Also see “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

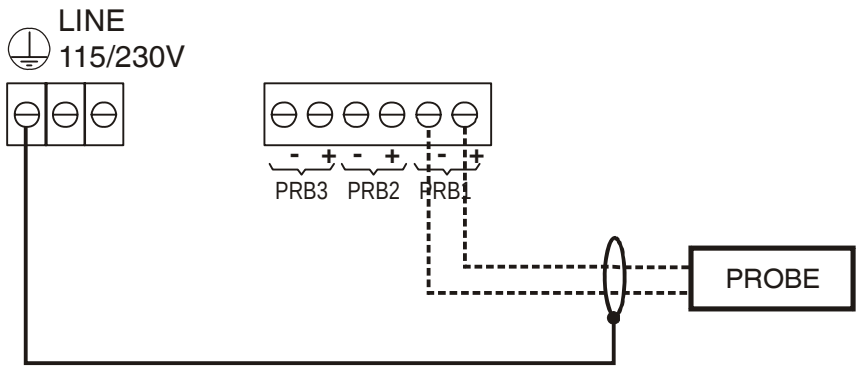
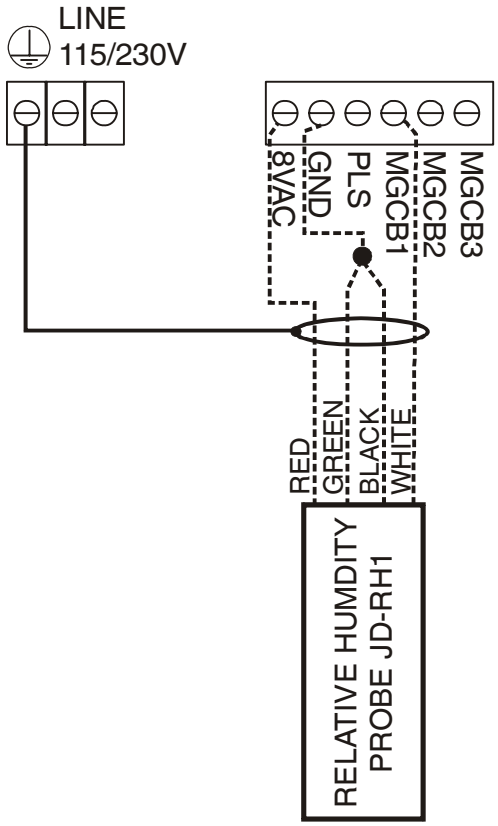


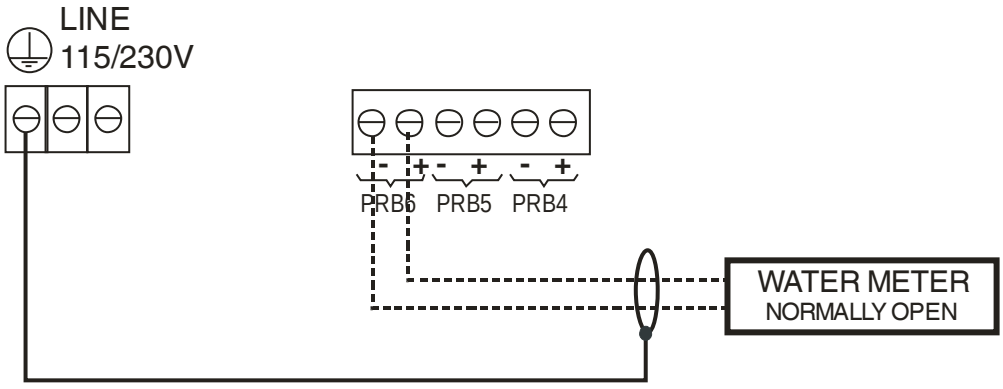
FIGURE NO. 3 Typical Humidity Probe Wiring



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.

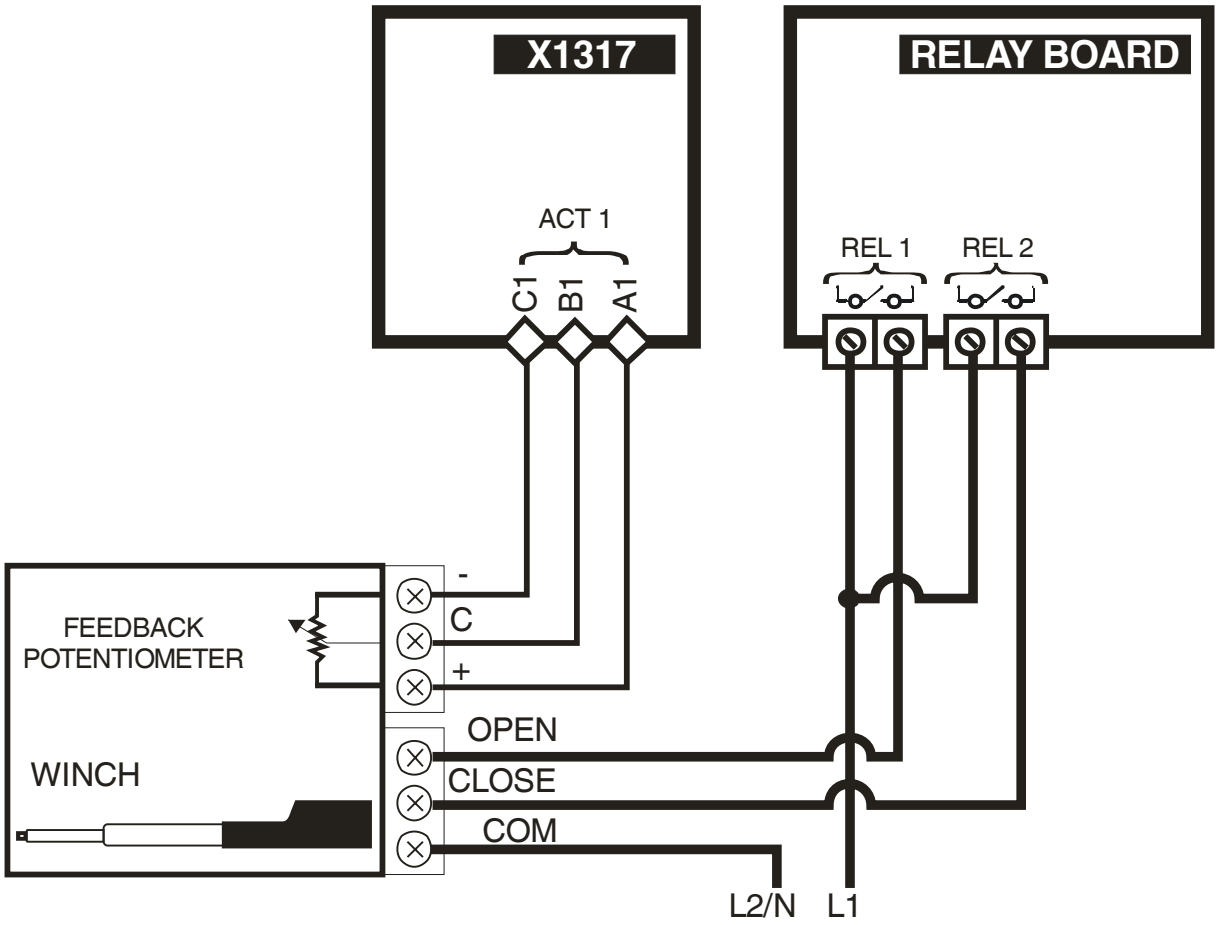
FIGURE NO. 4 Typical Water Meter Wiring



Typical actuator wiring

Follow the calibration procedure in the user guide; otherwise the actuator positioning will be erratic.

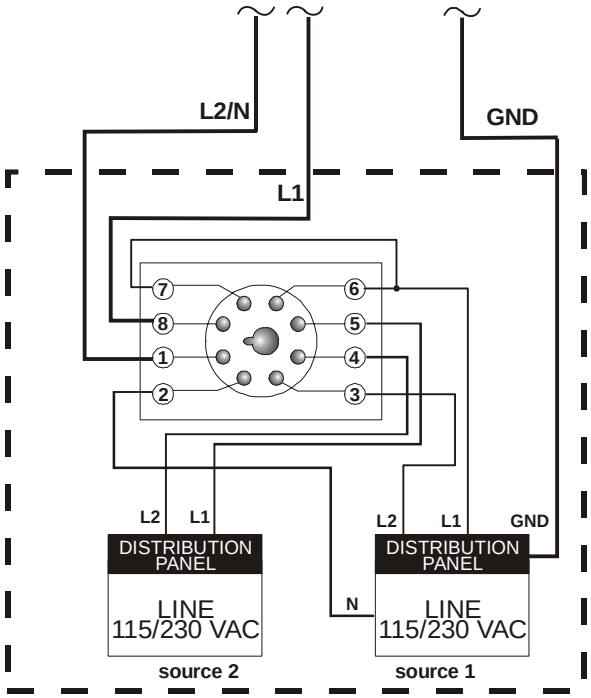
FIGURE NO. 5 Typical 115V Actuator Wiring

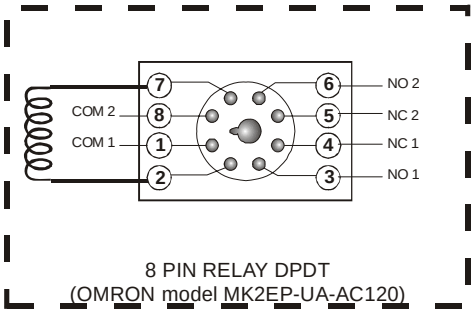


Typical power backup wiring

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

FIGURE NO. 6 Typical Power Backup Wiring





Typical backup thermostat wiring

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

FIGURE NO. 7 Typical Backup Thermostat Wiring on ON/OFF Stage

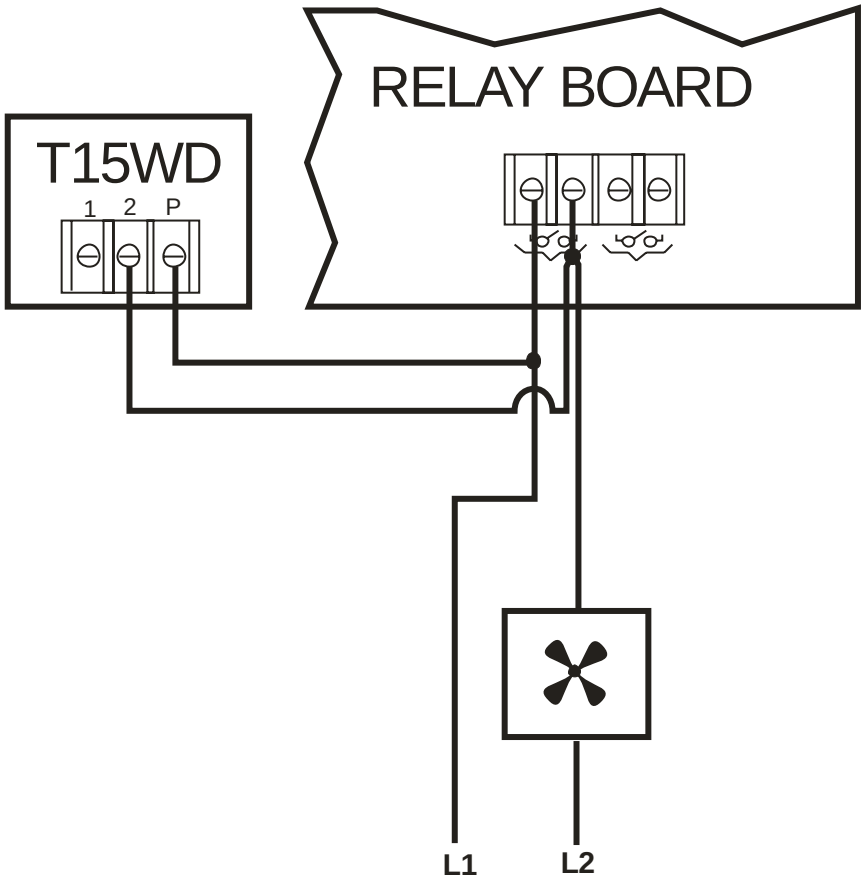
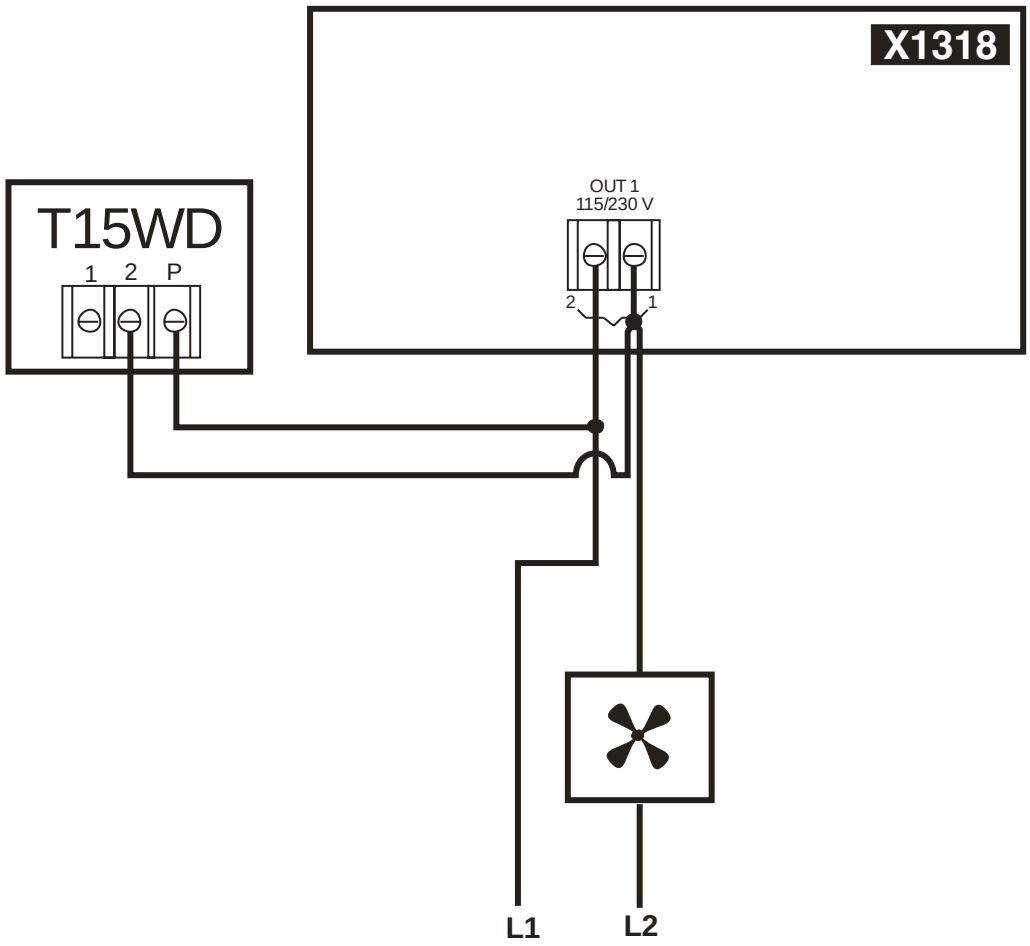


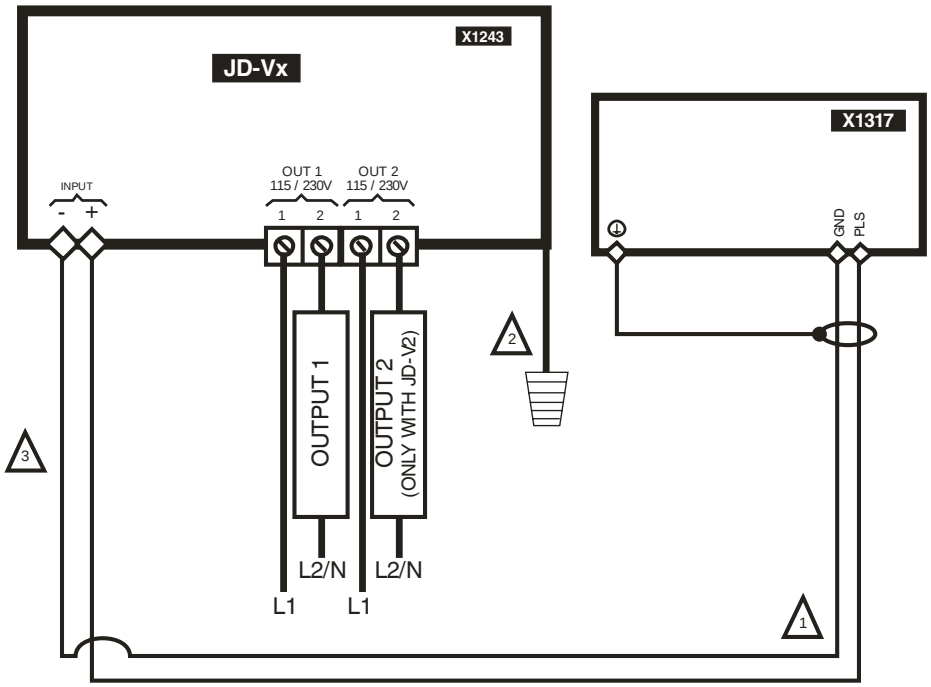
FIGURE NO. 8 Typical Backup Thermostat Wiring on Variable Stage



Typical Wiring for JD-V1 or JD-V2 modules

These modules are used to add one or two variable outputs. These outputs follow the same behavior as the selected variable stages.

FIGURE NO. 9 Typical Wiring for JD-V1 or JD-V2 modules



1 The JD-Vx module must be on the phase and voltage as the X1317 board.

2 Connect the ground directly to the green wire inside the module enclosure.

3 Communication wire 2 conductors, sheilded, twisted pair (8 twist /ft), AWG #22.
Maximum length for 350pF/m cable : 160ft (50m). Maximum length for 89 pF/m cable : 650 ft (20m).

Typical alarm connection wiring

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

Make the normally closed (NC) or normally open (NO) connections as indicated in figures 10 and 11.

FIGURE NO. 10 Typical Alarm Connection Wiring

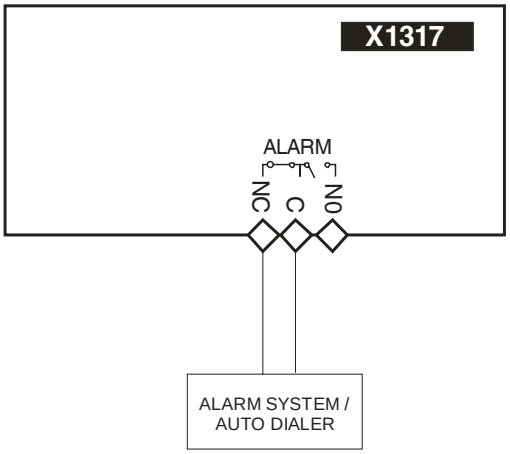
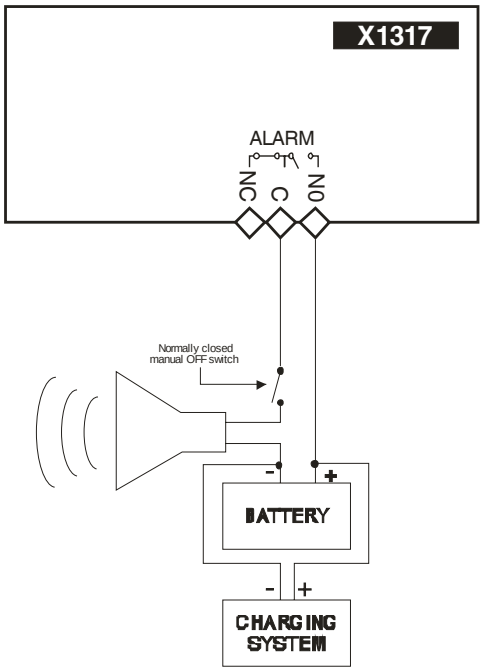


FIGURE NO. 11 Siren Connection Wiring



Powering Up Procedure

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

Verify all connections

Seal all cable entry holes.

Hermetically close the J&D Controller

Close the front panel and the lower access cover.

Put the power on

Secure the front panel with a lock

J&D Controller Compatible Probes

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

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

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

- **Relative humidity probe JD-RH1**

Relative humidity probe with a measuring range of 0 to 100 RH%.

J&D Controller Compatible Modules

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

0-10V module

- **JD-M010** (2 0-10V outputs with relay)

J&D computer interface

- **Communication card** (X1202 card inserted into the J&D controller to communicate with the computer interface)
- **RF-IN2 Communication Module** (Module inserted into the J&D controller for a wireless communication with the computer interface)
- **PC interface** (Separate box allowing different communication options to a PC 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	9 lb (4.1 Kg)
Size	14 1/2" x 13 1/4" x 5.5" (36 cm x 33 cm x 13.9 cm)
Protection index	IP 66
Warranty	2 years
POWER SUPPLY	
Operational voltage range	90 to 250 VAC
Operational frequency range	45 to 65 Hz
Power supply circuit consumption (CPU Board)	65 W maximum
SOURCE 8VAC	
Voltage Range	6.5 to 13VAC
Maximum current allowed	50mA
PROBE INPUTS	
Input measuring range	0 Ohm, open circuit 0-5000 mV 0-20 mA (PRB 7 and 8)
Maximum frequency for the water meter (50% cycle)	4 Hz
Maximum wire length	500 feet (150 m)
Recommended wires	2 strands, shielded, AWG #22
ALARM RELAY	
Maximum current	1 A at 30 VDC
Fuse	1A 250VAC
COMMUNICATIONS PORTS (MGCB)	
Maximum wire length (2400 bps)	820 feet (250 m)
Maximum wire length (19200 bps)	6.5 feet (2 m)
Recommended wire	2 strands, twisted pair, low capacity, shielded, AWG #22
OUTPUT RELAYS (1HP)	
Maximum Load	1HP @ 240VAC, 1/2HP @ 120VAC, 12A@240VAC
Notice	These relays are rated by UL and CSA at 1HP @ 240VAC, 1/2HP @ 120VAC. However, for outputs requiring frequent activation (ex: minimum ventilation fans working on a timer) it is recommended not to use more than 1/2HP @ 240VAC, 1/4HP @ 120VAC per relay.
OUTPUT RELAYS (2HP)	
Maximum Load	2HP @ 240VAC, 1HP @ 120VAC, 12A@240VAC
Notice	These relays are rated by UL and CSA at 2HP @ 240VAC, 1HP @ 120VAC. However, for outputs requiring frequent activation (ex: minimum ventilation fans working on a timer) it is recommended not to use more than 1HP @ 240VAC, 1/2HP @ 120VAC per relay.
VARIABLE OUTPUTS	
Maximum Allowable Current (Fuse value)	15A, 250VAC
Recommended maximum current for fans	12A, 120 / 208 / 240VAC
Minimum load	300mA @ 230VAC

PLS OUTPUTS	
Recommended wires	2 conductors, twisted pair (8 twist /ft), AWG #22
Maximum wire length (350pF/m cable)	160ft (50m)
Maximum wire length (89pF/m cable)	650ft (200m)

Important Notice:

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

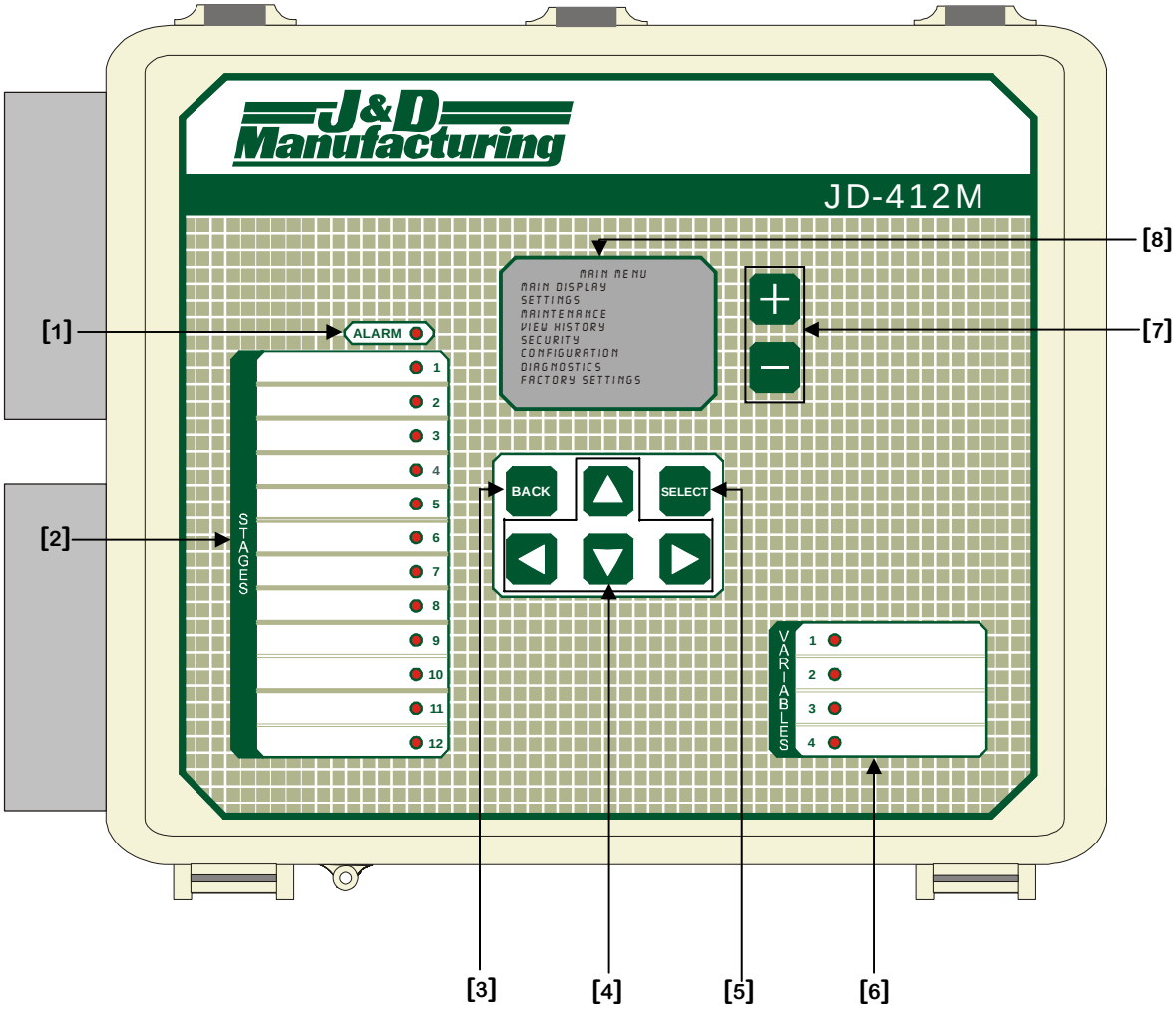
Troubleshooting

SYMPTOM	CAUSE	SOLUTION
Temperature probe reads *LO*	Temperature is below -58°F (-50°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°C). Probe is short circuited or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Screen is blank	J&D controller is not powered. The connector between the top and the main boards or between the relay control and the main boards of the J&D controller is disconnected.	Make sure the control is powered. Make sure both connectors are properly connected.

SECTION C

USER'S GUIDE
JD-412M, JD-S12M
SECTION C

Control Description



SECTION C

1. Alarm LED
The Alarm LED will come ON whenever an alarm situation occurs.

2. Stage List with LED
On the left-hand side of the faceplate appears a list of multi-purpose outputs vertically aligned, next to that is a LED list. A LED comes ON whenever the respective stage is active.

3. Back Button
The BACK button allows the users to return to the preceding screen.

4. Navigation Buttons
The navigation buttons are represented by 4 squares with arrows on them.

5. Select Button
The SELECT button allows the users to select a parameter, activate an option or access a screen.

6. Variable List with LED (only with JD-412M)
On the right-hand side of the faceplate appears a list of variable outputs vertically aligned, next to that is a LED list. A LED comes ON whenever the respective stage is active.

7. 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 screen. 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.

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

Glossary

Throughout this document, the following terminology is used.

Zone Setpoint — This is the temperature goal for the zone and is also the reference temperature for all relative settings of that zone. Note that the **Zone Setpoint** can be affected by the **Ramping Function**. The **Zone Setpoint** can be adjusted in the **ZONE SETPOINTS** screen (page C-43).

Hysteresis — Number of degrees changed before stopping the output. For example, with a **Hysteresis** = 1.0°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 (70.0°F - 1.0°F) when the room is cooling down. The **Hysteresis** is necessary to avoid oscillations.

Modulation Band — Number of degrees a variable output takes to reach its full intensity.

Growth Day — This is the reference day used for **Ramping Function** of a given zone. It may be set to "0FF", deactivating all **Ramping Function** of that zone. If it is adjusted to a value other than "0FF", it will be incremented each day. The **Growth Day** can be adjusted in the **ADJUST RAMPING CURVE ZONE {1-4}** screen (page C-53).

Growth Curve — The **Growth Curve** is composed of value points and day points. It is used for the **Ramping Function**. When the **Growth Day** is equal to a given day point, the associated value point will be the value taken by the parameter affected by the **Ramping Function**.

Ramping Function — The **Ramping Function** is used to modify a parameter value automatically. When the **Ramping Function** is activated, the affected parameter will be updated each hour according to its **Growth Curve** and the **Growth Day**.

Zone Temperature — This is the temperature of the probe(s) selected for the zone in the **AVERAGING** screen (page C-94) and controls all outputs of that zone.

Outside Temperature — This is the temperature read by the **Outside Temperature** probe.

Required Equipment

Quantity	Description
1	JD-412M or JD-S12M Controller
1	2004-10k Temperature Probe

Optional Equipment

Quantity	Description
1	PC Com. Board
1	PC Interface
1	RF-IN 2
1	JD-V1
1	JD-V2
Up to 2	JD-M010
Up to 4	2004-10k Temperature Probe
1	JD-RH1 Humidity Probe
1	Water Meter

Configuration Versions

Version	Minimum Processor Version	Date	Modification
C2JD01V0	5	02/17/2010	- New.
C2JD01V1	5	07/14/2010	- Add six Timed Event cycles per relay.
C2JD01V2	5	10/15/2010	- Changes to relay placement to allow 2HP relays.
C2JD01V3	9	02/22/2011	- Add wireless communication support. - Each probe now has a Probe Damaged alarm option.
C2JD01V4	9	09/23/2011	- Add humidity shutoff for cooling relays. - Add pulsed output configuration.
C2JD01V5	9	10/21/2011	- Relative set points increased.
C2JD01V6	9	11/23/2011	- Correction of acknowledge alarm parameter.
C2JD01V7	9	01/25/2012	- Heat and Cool outputs can operate on duty cycle below or above their Setpoint. - Increase range for temperature alarm Setpoints.

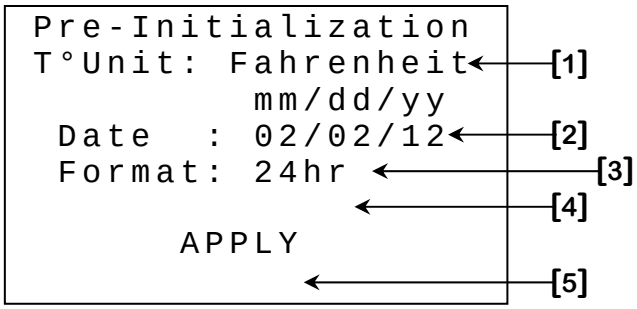
Ventilation system overview

The JD controller can be used to operate up to 8 variable stages and up to 12 relays. The relays can be used as a cooling output, a heating output, a duty cycle output or a timed event output. Relays 1 through 8 can be used as curtains or actuators.

The J&D controller can work with up to 4 inside temperature probes that it can use to compute zone temperatures. All outputs will follow the zone selected by the user. When a used inside temperature probe is defective (short or open circuit), the J&D controller does not consider it to compute temperatures and the alarm is triggered. An **Outside Temperature** can be used to override the inside temperature alarm if it is too hot outside in order to reduce false alarms.

Other features, including, **Ramping Function** and history for alarms, probes, outputs and water meter are included with the J&D controller.

PRE-INITIALIZATION



This screen only appears when the controller is first powered up and is used to adjust the control type, temperature unit, the date, the time of day along with its display format. These adjustments may also be made after the initialization.

1. This parameter is used to choose the temperature unit that will be used by the controller. The temperature unit may be set to "Fahrenheit" or "Celsius". To change the temperature unit, the cursor must be placed on the value to be adjusted and then the [+] and [–] buttons are used to set the desired value.

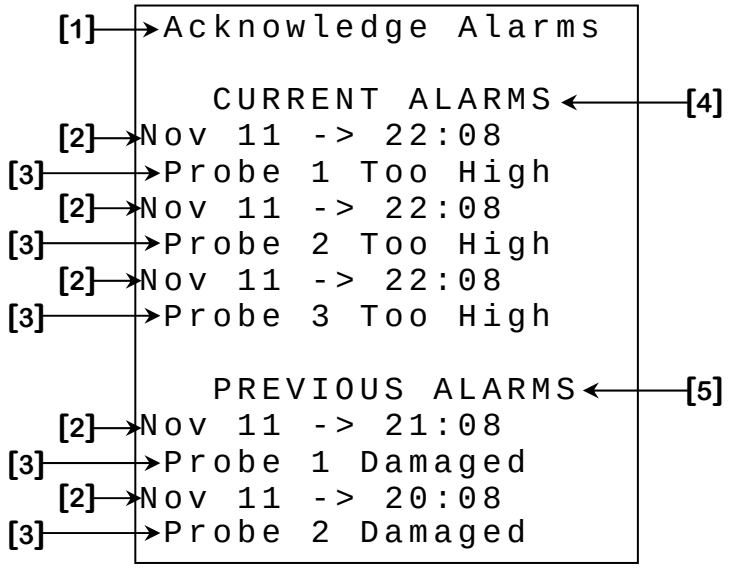
2. This parameter is used to adjust the actual date. To change the date, the cursor must be placed on the value to be adjusted and then the [+] and [–] buttons are used to set the desired value.

3. This parameter is used to adjust the actual time. To change the time, the cursor must be placed on the value to be adjusted and then the [+] and [–] buttons are used to set the desired value.

4. This parameter is used to select the time format for all clock-type parameters. The display format may be "24hr" or "AM/PM". To change the time format, the cursor must be placed on the value to be adjusted and then the [+] and [–] buttons are used to set the desired value.

5. This parameter activates the initialization procedure using the adjustments made above. An initialization screen will appear when the [SELECT] button is pressed while cursor is on this parameter.

ALARM ACKNOWLEDGE



This screen only appears when the controller has triggered the alarm. When the alarm has been triggered, this screen will replace the **MAIN MENU** screen (page C-36) and the screen saver. Alarm conditions must be acknowledged using the **ACKNOWLEDGE ALARMS [1]** parameter in order to exit this screen.

1. This parameter is used to acknowledge all alarms displayed in this screen. When the SELECT button is pressed while the cursor is positioned on this parameter, all alarms current alarms will be silenced and all previous alarms will be cleared from this screen. Alarm conditions that are still present will not trigger the alarm and bring up this screen until the **SILENCING [13]** [1] delay has expired. Alarm conditions must be acknowledged to exit this screen.

2. These parameters indicate the date and time at which the alarm mentioned immediately below this parameter occurred.

3. These parameters indicate the alarm that occurred at the date and time mentioned immediately above this parameter.

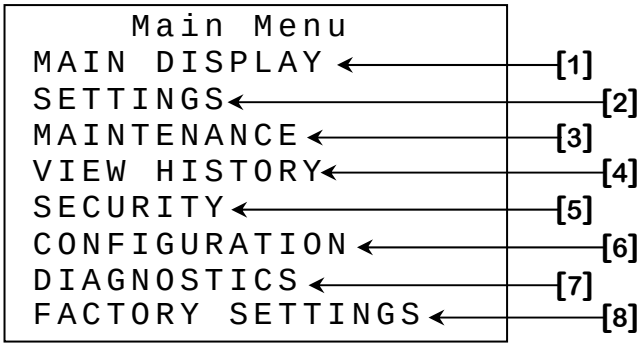
4. This parameter indicates that all alarm conditions listed below are present. Modifications will have to be performed after the alarms have been acknowledged in order to correct the alarm condition or this screen will appear once more after the **SILENCING [13]** 1 delay has expired.

5. This parameter indicates that all alarm conditions listed below are no longer present. All alarm conditions listed below this entry have been active, but are now resolved. The controller and its setup should still be examined in order to determine if modifications should be performed to prevent recurring alarm conditions.

[1] Refer to the **ALARMS** screen (page C-54) screen for more information on this parameter.

SECTION C

MAIN MENU



1. This parameter is used to access to the **MAIN DISPLAY** screen (page C-37).
2. This parameter is used to access to the **SETTINGS MENU** screen (page C-41).
3. This parameter is used to access to the **MAINTENANCE** screen (page C-75).
4. This parameter is used to access to the **VIEW HISTORY MENU** screen (page C-98).
5. This parameter is used to access to the **SECURITY** screen (page C-105).
6. This parameter is used to access to the **CONFIGURATION** screen (page C-106).
7. This parameter is used to access to the **DIAGNOSTIC** screen (page C-111).
8. This parameter is used to access to the **FACTORY SETTINGS** screen (page C-112).

MAIN MENU

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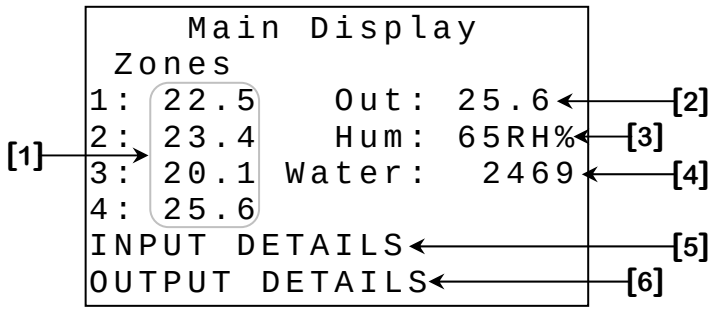
MAIN DISPLAY



Some parameters may not appear if their corresponding display option is not activated. To verify these options, refer to the **SET DISPLAY** screen (page C-88).

1. This parameter displays the mentioned **Zone Temperature**. All temperature-using outputs will follow their respective **Zone Temperature**. The **Zone Temperatures** are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

2. This parameter displays the current **Outside Temperature**. The **Outside Temperature** may be used to activate or deactivate de-icing on variable fans and to increase the high temperature alarm threshold. The **Outside Temperature** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

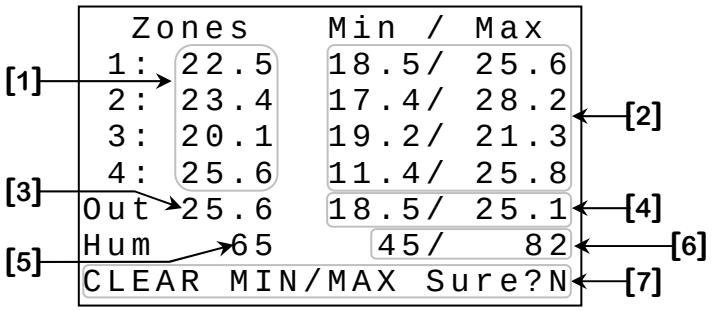
3. This parameter displays the actual humidity. "ERR" will be displayed if the humidity probe cannot communicate with the J&D controller. Humidity may increase ventilation when it is higher than the desired level. The humidity is displayed to the nearest 1RH% from 0RH% to 100RH%.

4. This parameter displays the amount of water counted. The water meter may trigger the alarm if too many water units (Litres or Gallons) are counted in one day. The amount of water read is displayed from 0 to 20000 units (Litres or Gallons).

5. This parameter is used to access to the **INPUT DETAILS** screen (page C-38).

6. This parameter is used to access to the **OUTPUT DETAILS** screen (page C-40).

MAIN MENU
↓
MAIN DISPLAY
↓
INPUT DETAILS



Some parameters may not appear if their corresponding display option is not activated. To verify these options, refer to the **SET DISPLAY** screen (page C-88).

1. This parameter displays the mentioned **Zone Temperature**. All temperature-using outputs will follow their respective **Zone Temperature**. The **Zone Temperatures** are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

2. These parameters display the lowest and highest temperatures the respective zone has reached yesterday. If the day has not changed since the last clear or since the configuration was downloaded, these parameters will display "---". The minimum and maximum temperatures are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

3. This parameter displays the current **Outside Temperature**. The **Outside Temperature** may be used to activate or deactivate de-icing on variable fans and to increase the high temperature alarm threshold. The **Outside Temperature** is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

4. These parameters display the lowest and highest temperatures the **Outside Temperature** has reached yesterday. If the day has not changed since the last clear or since the configuration was downloaded, these parameters will display "---". The minimum and maximum temperatures are displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

5. This parameter displays the actual humidity. "ERR" will be displayed if the humidity probe cannot communicate with the J&D controller. Humidity may increase ventilation when it is higher than the desired level. The humidity is displayed to the nearest 1RH% from 0RH% to 100RH%.

6. These parameters display the lowest and highest humidity that was reached yesterday. If the day has not changed since the last clear or since the configuration was downloaded, these parameters will display "- - -". The minimum and maximum humidity are displayed to the nearest 1RH% from 0RH% to 100RH%.

7. This parameter is used to clear the minimum and maximum values currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the minimum and maximum values will be cleared.

MAIN MENU
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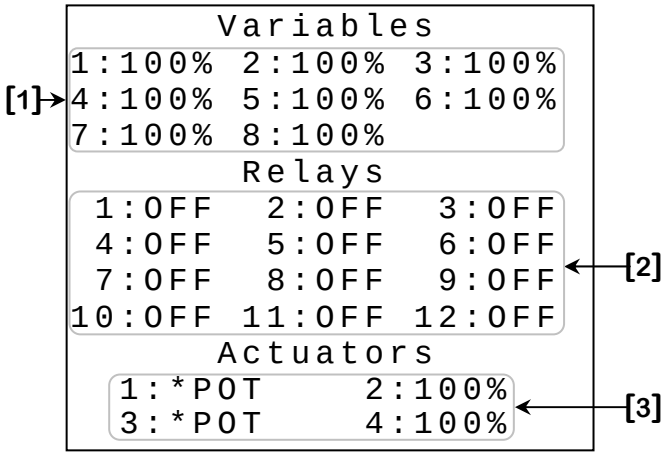
MAIN DISPLAY
↓
OUTPUT DETAILS



Some parameters may not appear if their corresponding display option is not activated. To verify these options, refer to the **SET DISPLAY** screen (page C-88).

1. These parameters display the actual state of the variable outputs. These parameters are displayed to the nearest 1% from "OFF", 0% to 100%.

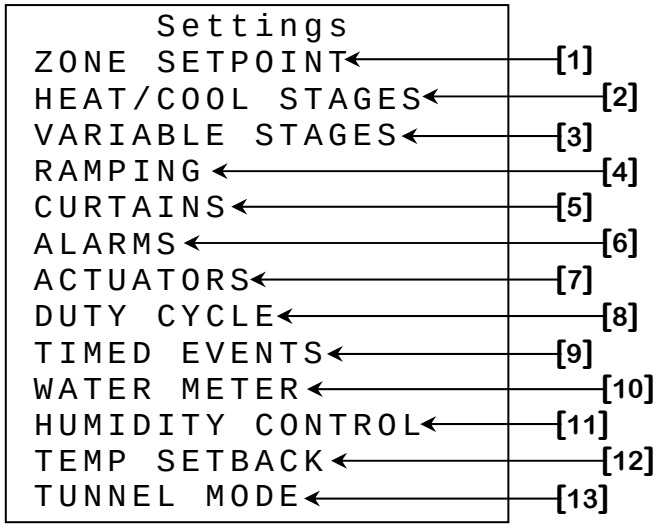
2. These parameters display the actual state of the relay outputs. These parameters can display "OFF" or "ON".

3. These parameters display the actual position of the actuator outputs. If the controller detects a defective potentiometer, the corresponding parameter will display "*POT". If the actuator's cool down function is activated, the actual position will alternate with "*CLD". If the controller cannot read the potentiometer value, the corresponding parameter will display "*ERR". The actual positions are displayed to the nearest 1% from -99% to 127%.

MAIN MENU

↓

SETTINGS MENU



1. This parameter is used to access to the **ZONE SETPOINTS** screen (page C-43).

2. This parameter is used to access to the **HEAT/COOL STAGE MENU** screen (page C-44).

3. This parameter is used to access to the **VARIABLE STAGE MENU** screen (page C-47).

4. This parameter is used to access to the **RAMPING** screen (page C-52).

5. This parameter is used to access to the **CURTAIN MENU** screen (page C-55).

6. This parameter is used to access to the **ALARMS** screen (page C-58).

7. This parameter is used to access to the **ACTUATOR MENU** screen (page C-62).

8. This parameter is used to access to the **DUTY CYCLE MENU** screen (page C-65).

9. This parameter is used to access to the **TIMED EVENT MENU** screen (page C-67).

10. This parameter is used to access to the **WATER METER** screen (page C-69).

SECTION C

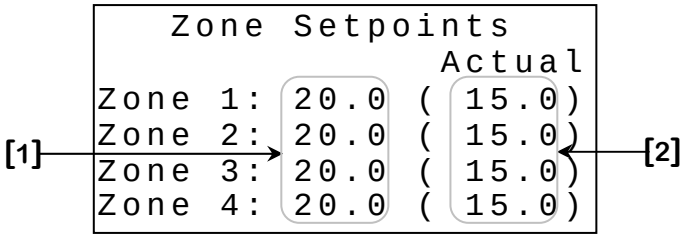
11. This parameter is used to access to the **HUMIDITY CONTROL** screen (page C-70).

12. This parameter is used to access to the **TEMP SETBACK** screen (page C-72).

13. This parameter is used to access to the **TUNNEL MODE** screen (page C-74).

MAIN MENU
↓
SETTINGS MENU
↓

ZONE SETPOINTS



1. These parameters are used to set the **Zone SP**. The **Zone SP** is the temperature goal for the zone and also the reference temperature for all relative settings of that zone. When one of these values is modified, all temperatures relative to that zone will also be changed by the same amount. Note that the **Zone SP** can be affected by the **Ramping Function**. For more information on the **Ramping Function**, see the **RAMPING** screen (page C-52) and **ADJUST RAMPING CURVE ZONE {1-4}** screen (page C-53). Each **Zone SP** is adjusted in 0.1° increments from 0.0°F to 120.0°F (0.0°C to 40.0°C).

2. These parameters display the actual **Zone SP**. When the temperature setback function is used, the **Zone SP** used by the controller will not be the same as the one adjusted in this screen. Instead, the value will appear here to indicate the actual value of the **Zone SP**. For more information on the temperature setback function, see the **TEMP SETBACK** screen (page C-72).

SECTION C

MAIN MENU
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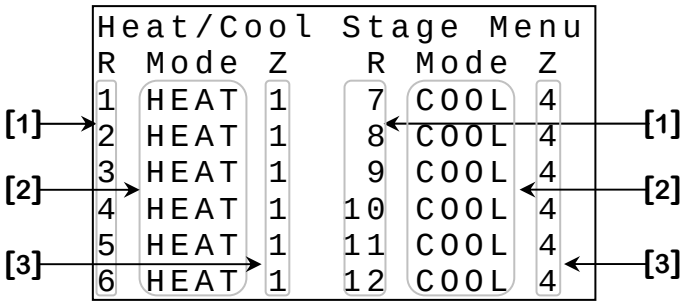
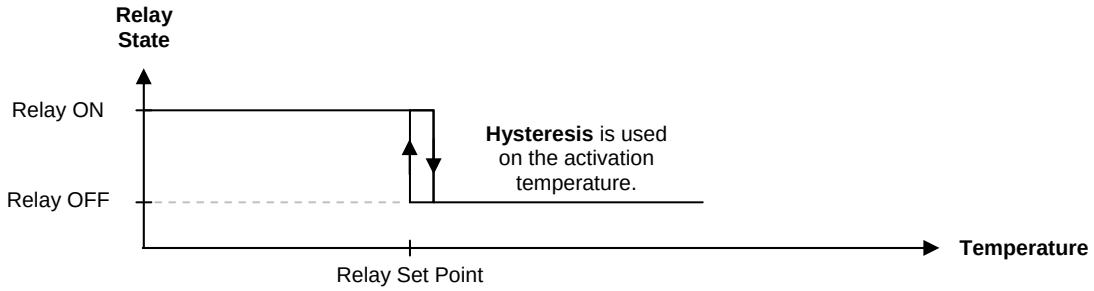
SETTINGS MENU
↓
HEAT/COOL STAGE MENU



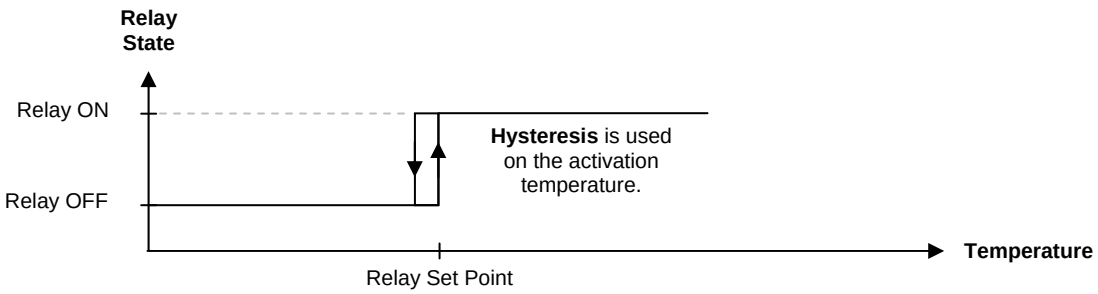
Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to access to the respective **RELAY {1-12} HEAT/COOL SETTINGS** screen (page C-45).
2. These parameters display the mode in which the respective relay is used.
3. These parameters display the zone in which the respective relay is used.

Heating stage operation



Cooling stage operation



MAIN MENU
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SETTINGS MENU
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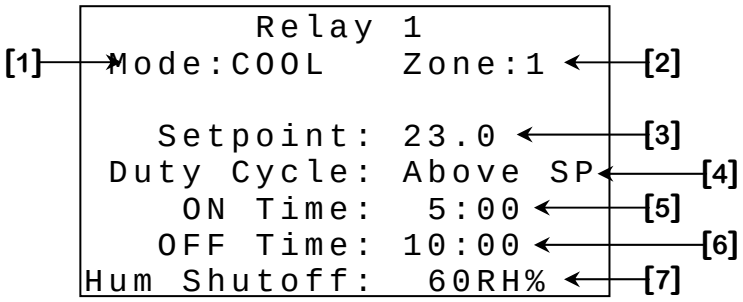
HEAT/COOL STAGE MENU
↓

RELAY {1-12} HEAT/COOL SETTINGS



1. This parameter displays the mode in which the relay is used.

2. This parameter displays the zone in which the relay is used.

3. This parameter is used to set the activation temperature for the relay. If the relay is used in the heat mode, it will activate when its **Zone Temperature** is equal to or below this setting. If the relay is used in the cool mode, it will activate when its **Zone Temperature** is equal to or above this setting. In both cases, the **H/C STAGES [1]** [2] setting will be used as **Hysteresis**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

4. This parameter is used to determine if the output will activate full time or according to its timer according to its **SETPOINT [3]**. If this option is set to "Below SP", the output will activate for **ON TIME [5]** and deactivate for **OFF TIME [6]** below its **SETPOINT [3]**. If this option is set to "Above SP", the output will activate for **ON TIME [5]** and deactivate for **OFF TIME [6]** above its **SETPOINT [3]**. If this option is set to "OFF", the output will activate continuously when its **SETPOINT [3]** is reached. A relay in cool mode will always activate above its **SETPOINT [3]** and a relay in heat mode will always activate below its **SETPOINT [3]**.

5. This parameter appears only if the **DUTY CYCLE [4]** option is not set to "OFF" and determines the active portion of the output's timer. If **DUTY CYCLE [4]** is not set to "OFF", the output will activate for this amount of time and deactivate for **OFF TIME [6]** above or below its **SETPOINT [3]** depending on the option chosen at the **DUTY CYCLE [4]** option. This parameter can be adjusted from 0:00 to 59:59 minutes.

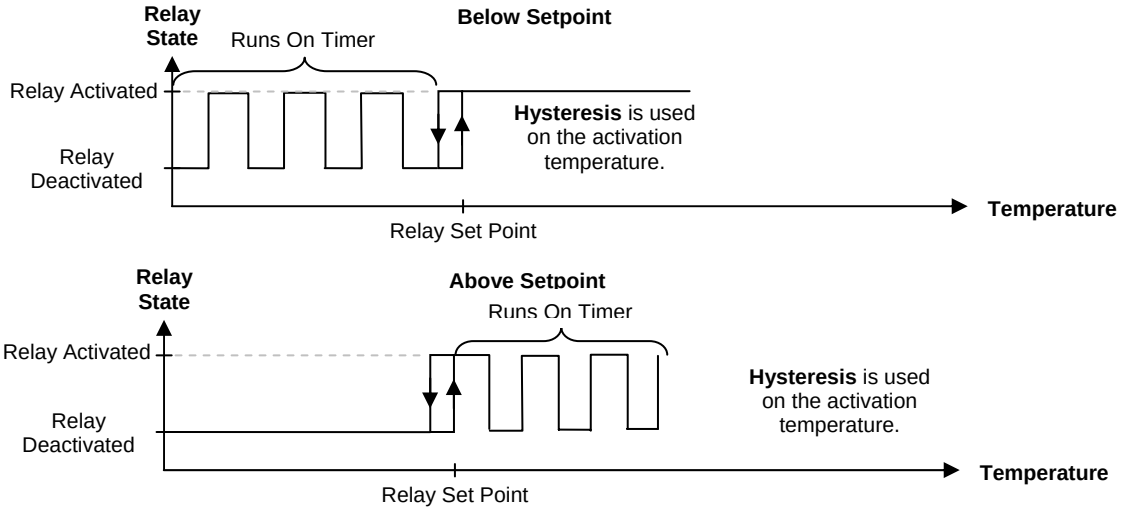
[2] Refer to the **HYSTERESIS** screen (page C-85) for more information on this parameter.

SECTION C

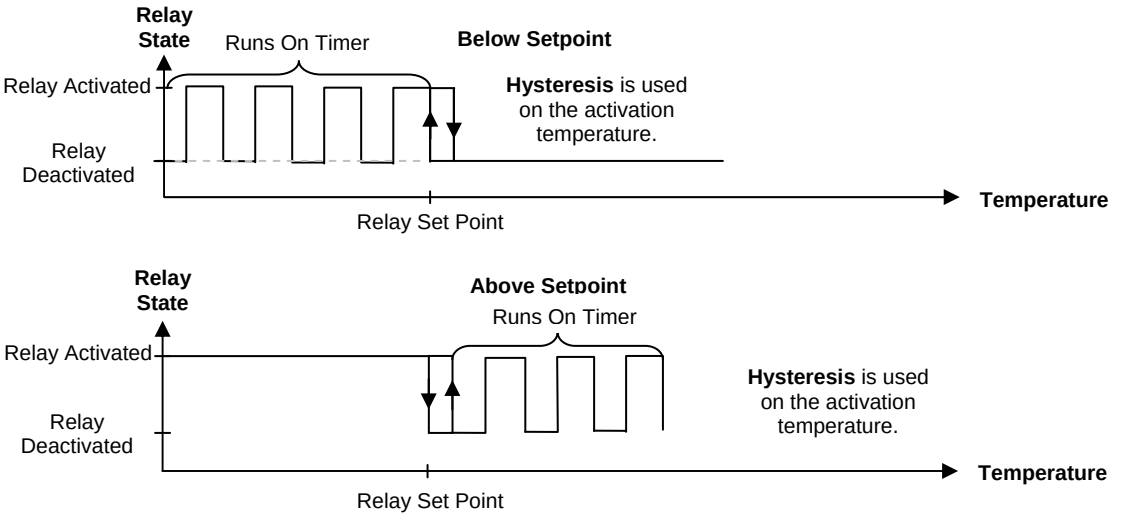
6. This parameter appears only if the **DUTY CYCLE [4]** option is not set to "0FF" and determines the inactive portion of the output's timer. If **DUTY CYCLE [4]** not set to "0FF", the output will activate for **ON TIME [5]** and deactivate for this amount of time above or below its **SETPOINT [3]** depending on the option chosen at the **DUTY CYCLE [4]** option. This parameter can be adjusted from 0:00 to 59:59 minutes.

7. This parameter is used to set the humidity at which the output will deactivate. When the humidity reaches the value of this setting, the output will be forced to deactivate, regardless of temperature or timer demands. Setting this parameter to "0FF" will remove this functionality. A locked differential of 3RH% is used with this logic. This parameter can be adjusted in 1RH% increments from 0RH% to 99RH%, "0FF".

Cooling duty cycle relay operation



Heating duty cycle relay operation



MAIN MENU
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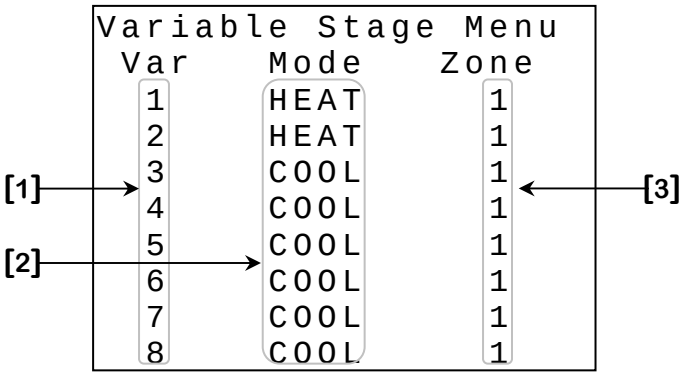
SETTINGS MENU
↓
VARIABLE STAGE MENU

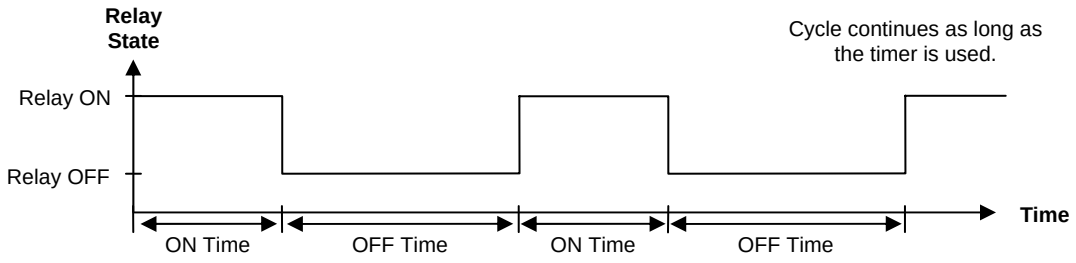


Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **VARIABLE STAGE CONFIGURATION** screen (page C-109).

1. These parameters are used to access to the corresponding the **VARIABLE STAGE {1-8} [COOL MODE]** screen (page C-48) or **VARIABLE STAGE {1-8} [HEAT MODE]** screen (page C-50) depending on the mode the corresponding variable is used in.

2. These parameters display the mode in which the respective variable output is used.

3. These parameters display the zone in which the respective variable output is used.



MAIN MENU
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SETTINGS MENU
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VARIABLE STAGE MENU
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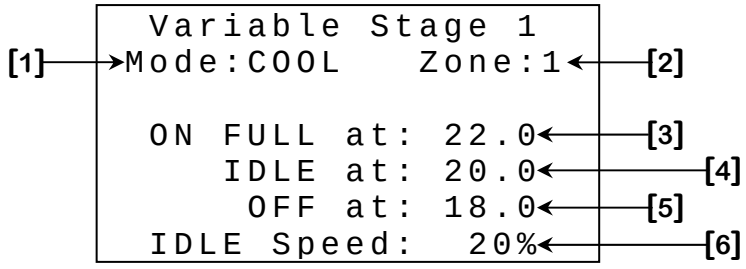
VARIABLE STAGE {1-8} [COOL MODE]



1. This parameter displays the mode in which the variable cooling output is used.

2. This parameter displays the zone in which the variable cooling output is used.

3. This parameter is used to set the temperature at which the variable cooling output will be activated at its full intensity (100%). When a variable output's **Zone Temperature** is equal to or above this setting, the variable output will be activated at its full speed. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

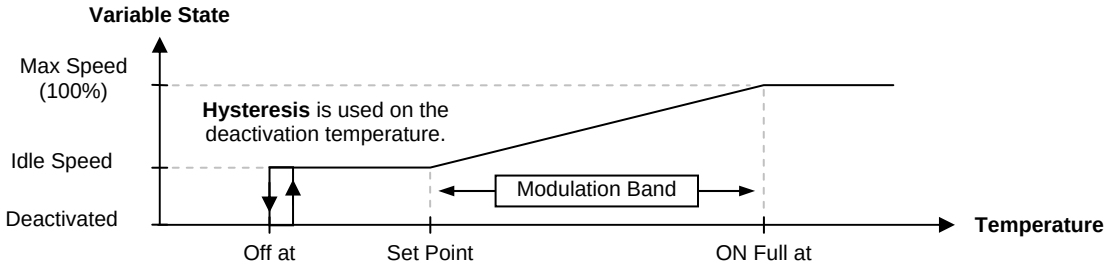
4. This parameter is used to set the temperature at which the variable cooling output will begin to increase its speed. When a variable output's **Zone Temperature** is equal to or below this setting and above **OFF AT [5]**, the variable cooling output will be activated at its **IDLE SPEED [6]**. When the **Zone Temperature** rises above this setting, the variable cooling output will increase its speed proportionally to temperature increase to reach its full speed (100%) at **ON FULL AT [3]**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

5. This parameter is used to set the deactivation temperature for the variable cooling output. The variable cooling output will deactivate when its **Zone Temperature** is equal to or below this setting. The **VAR OFF [2]** [3] setting will be used as **Hysteresis**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

[3] Refer to the **HYSTERESIS** screen (page C-85) for more information on this parameter.

6. This parameter is used to set the lowest speed the variable cooling output can take. When a variable output's **Zone Temperature** is equal to or below **IDLE AT [4]**, but above **OFF AT [5]**, the variable cooling output will be activated at this speed. This parameter is adjusted in 1% increments from 12% to 100% for variable outputs 1 to 4 and from 0% to 100% for variable outputs 5 to 8.

Variable cooling output operation:



MAIN MENU
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SETTINGS MENU
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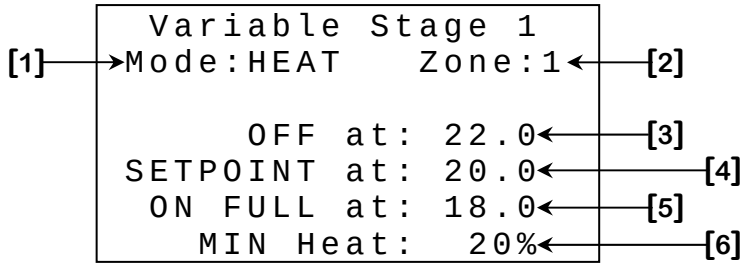
VARIABLE STAGE MENU
↓

VARIABLE STAGE {1-8} [HEAT MODE]



1. This parameter displays the mode in which the variable heating output is used.

2. This parameter displays the zone in which the variable heating output is used.

3. This parameter is used to set the deactivation temperature for the variable heating output. The variable heating output will deactivate when its **Zone Temperature** is equal to or above this setting. The **VAR OFF [2]** [4] setting will be used as **Hysteresis**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

4. This parameter is used to set the temperature at which the variable heating output will begin to increase its speed. When a variable output's **Zone Temperature** is equal to or above this setting and below **OFF AT [3]**, the variable heating output will be activated at **MIN HEAT [6]**. When the **Zone Temperature** drops below this setting, the variable heating output will increase its intensity proportionally to temperature decrease to reach its full intensity (100%) at **ON FULL AT [5]**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

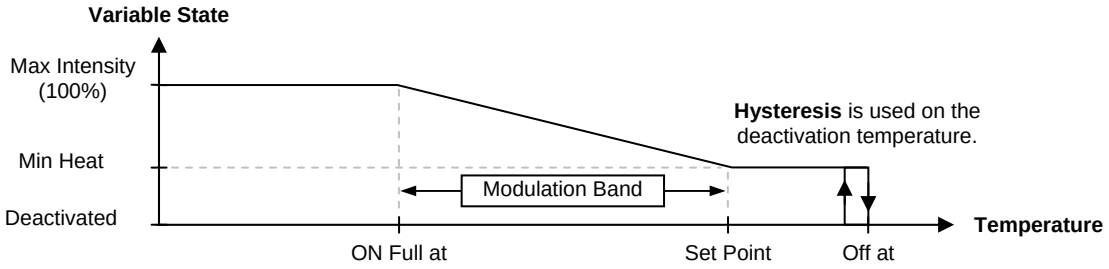
5. This parameter is used to set the temperature at which the variable heating output will be activated at its full intensity (100%). When a variable output's **Zone Temperature** is equal to or below this setting, the variable output will be activated at its full intensity. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

SECTION C

[4] Refer to the **HYSTERESIS** screen (page C-85) for more information on this parameter.

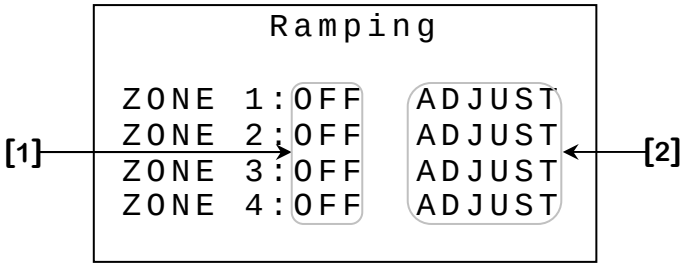
6. This parameter is used to set the lowest intensity the variable heating output can take. When a variable output's **Zone Temperature** is equal to or above **SETPOINT AT [4]**, but below **OFF AT [3]**, the variable heating output will be activated at this intensity. This parameter is adjusted in 1% increments from 0% to 100%.

Variable heating output operation:



SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
RAMPING



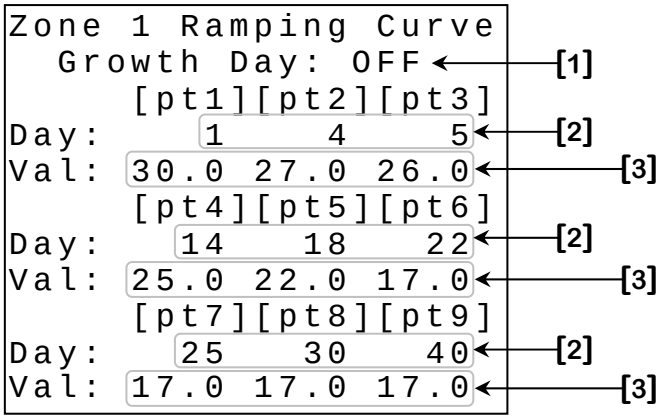
1. These parameters are used to activate or deactivate the **Zone Setpoint Ramping Function**. If one of these options is set to "ON" and the **Growth Day** of the same zone is not set to "OFF", that **Zone Setpoint** will change according to its **Growth Curve** programmed in the **ADJUST RAMPING CURVE ZONE {1-4}** screen (page C-53).

2. These parameters are used to access to the respective **ADJUST RAMPING CURVE ZONE {1-4}** screen (page C-53).

SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
RAMPING
↓

ADJUST RAMPING CURVE ZONE {1-4}



Ramping curve 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 9 "preset" ramping points.

1. This parameter is used to adjust the zone **Growth Day**. Each zone can have an independent value, which will be incremented every day if it is not set to "OFF". The **Growth Day** also controls the **Zone Setpoint Ramping Function** if it is set to a value other than "OFF" and its **RAMPING OPTION [1]** [5] is set to "ON". The zone **Growth Day** may be adjusted to any value from "OFF", 0 to 365 using 1-day increments.

2. These parameters represent the day points of the **Zone Setpoint Growth Curve**. They will be adjustable only if the zone's **Growth Day** or the zone's **RAMPING OPTION [1]** [5] option is set to "OFF". These parameters are adjusted to any day value from day 0 to day 365.

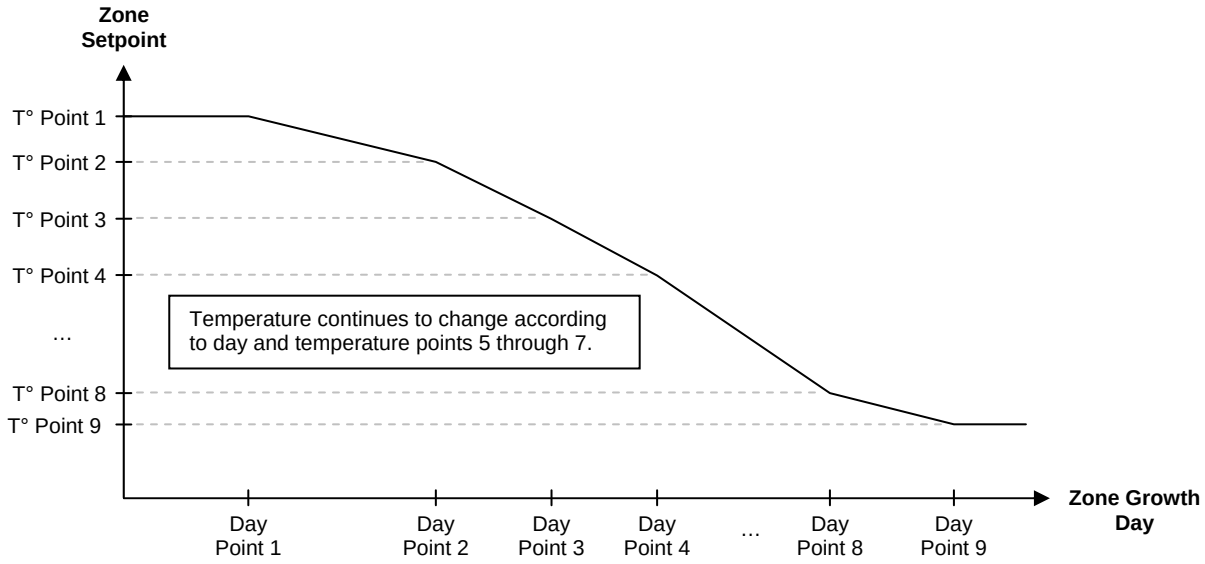
3. These parameters represent the temperature points of the **Zone Setpoint Growth Curve**. They will be adjustable only if the zone's **Growth Day** or the zone's **RAMPING OPTION [1]** 5 is set to "OFF". These parameters are adjusted in 0.1° increments from 0.0°F to 120.0°F (0.0°C to 40.0°C).

See growth curve examples on next page.

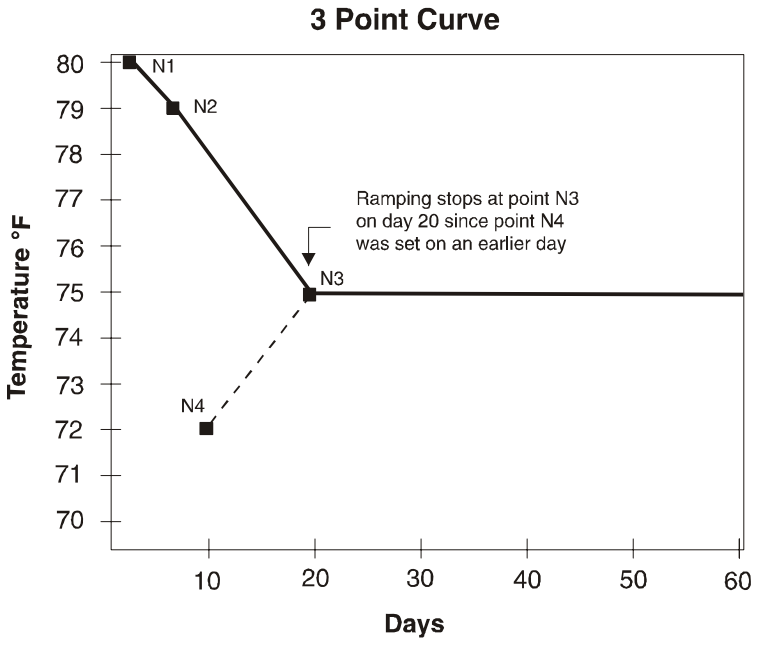
SECTION C

[5] Refer to the **RAMPING** screen (page C-48) for more information on this parameter.

Zone setpoint growth curve operation:

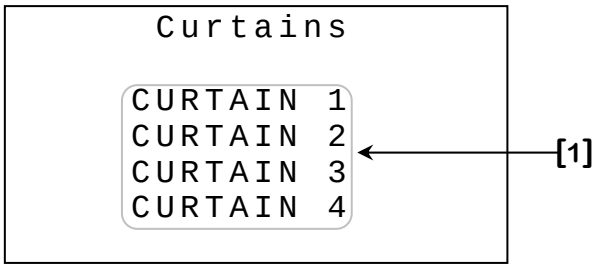


The following illustration shows how users can stop the **Growth Curve** by setting day point 4 to an earlier value than day point 3.



SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
CURTAIN MENU



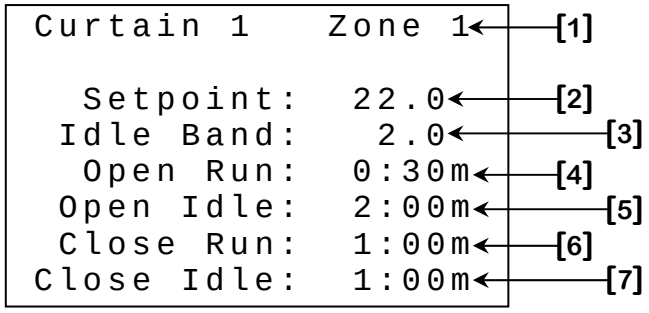
Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY CONFIGURATION** screen.

1. These parameters are used to access to the respective **CURTAIN {1-4}** screen (page C-56).

SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
CURTAIN MENU
↓

CURTAIN {1-4}



1. This parameter displays the zone in which the curtain is used.

2. This parameter sets the target temperature for the curtain and the center of the idle band. When the **Zone Temperature** is equal to or above this setting plus half of the **IDLE BAND [3]**, the curtain will open according to the opening timer (**OPEN RUN [4]** and **OPEN IDLE [5]**). When the **Zone Temperature** is equal to or below this setting minus half of the **IDLE BAND [3]**, the curtain will close according to the closing timer (**CLOSE RUN [6]** and **CLOSE IDLE [7]**). The **CURTAIN [3]** [6] setting will be used as **Hysteresis** on opening and closing temperatures. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

3. This parameter is used to establish the range of temperature within which the curtain will not move. To obtain the temperature at which the curtain will open, add half of this setting to the **SETPOINT [2]**. To obtain the temperature at which the curtain will close, subtract half of this setting to the **SETPOINT [2]**. The **CURTAIN [3]** 6 setting will be used as **Hysteresis** on opening and closing temperatures. This parameter is adjusted in 0.1° increments from 0.5° to 20.0°.

4. This parameter sets the time for which the curtain will open when the temperature requires it to move. When the **Zone Temperature** is equal to or above **SETPOINT [2]** + **IDLE BAND [3]**/2, the curtain will open for this amount of time and stay put for **OPEN IDLE [5]**. This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

SECTION C

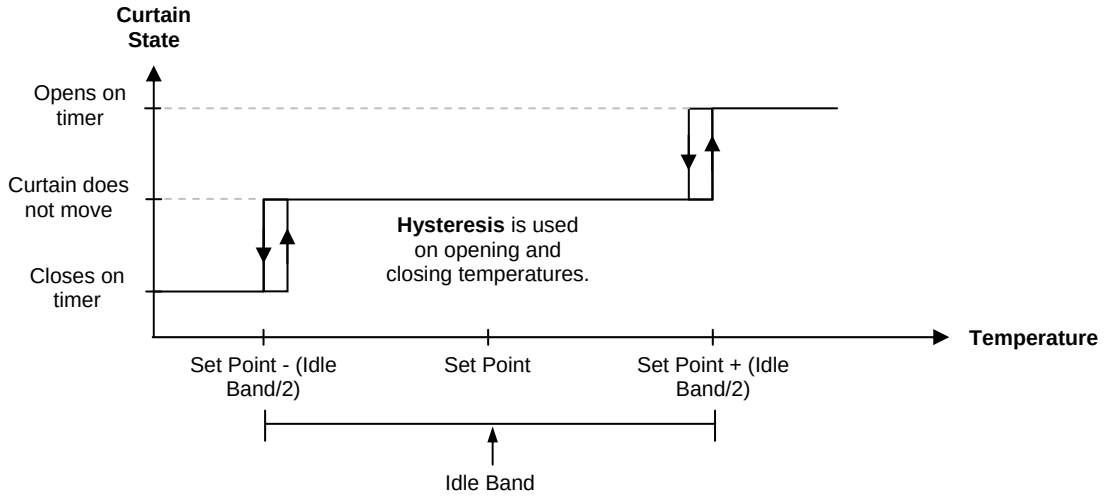
[6] Refer to the **HYSTERESIS** screen (page C-85) for more information on this parameter.

5. This parameter sets the time for which the curtain will stay put when the temperature requires it to move. When the **Zone Temperature** is equal to or above **SETPOINT [2]** + **IDLE BAND [3]**/2, the curtain will open for **OPEN RUN [4]** and stay put for this amount of time. This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

6. This parameter sets the time for which the curtain will close when the temperature requires it to move. When the **Zone Temperature** is equal to or below **SETPOINT [2]** - **IDLE BAND [3]**/2, the curtain will close for this amount of time and stay put for **CLOSE IDLE [7]**. This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

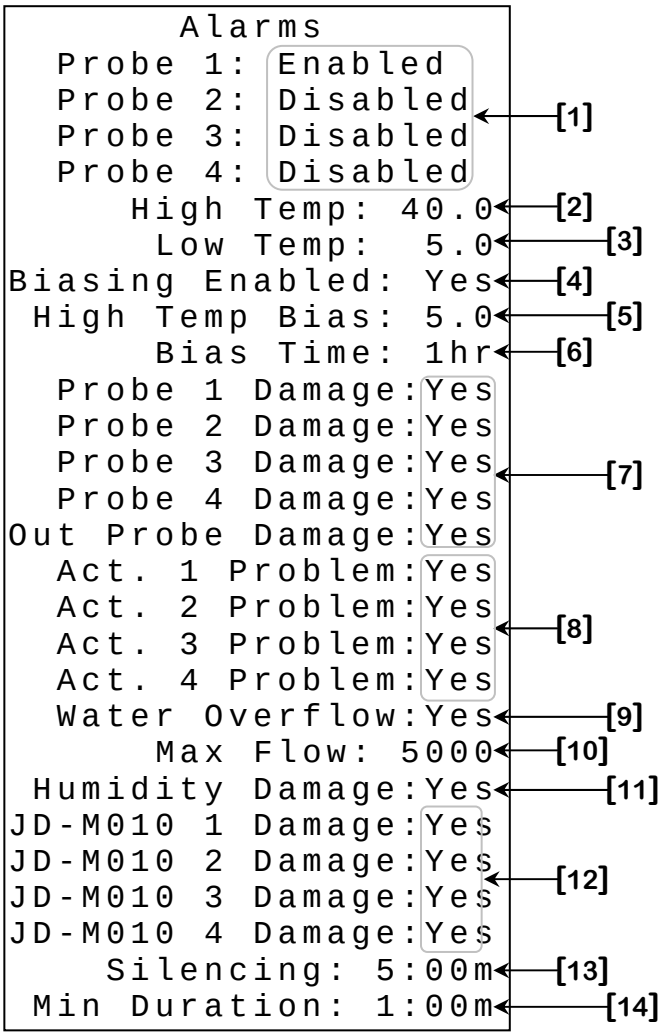
7. This parameter sets the time for which the curtain will stay put when the temperature requires it to move. When the **Zone Temperature** is equal to or below **SETPOINT [2]** - **IDLE BAND [3]**/2, the curtain will close for **CLOSE RUN [6]** and stay put for this amount of time. This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

Curtain opening and closing temperatures



SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
ALARMS



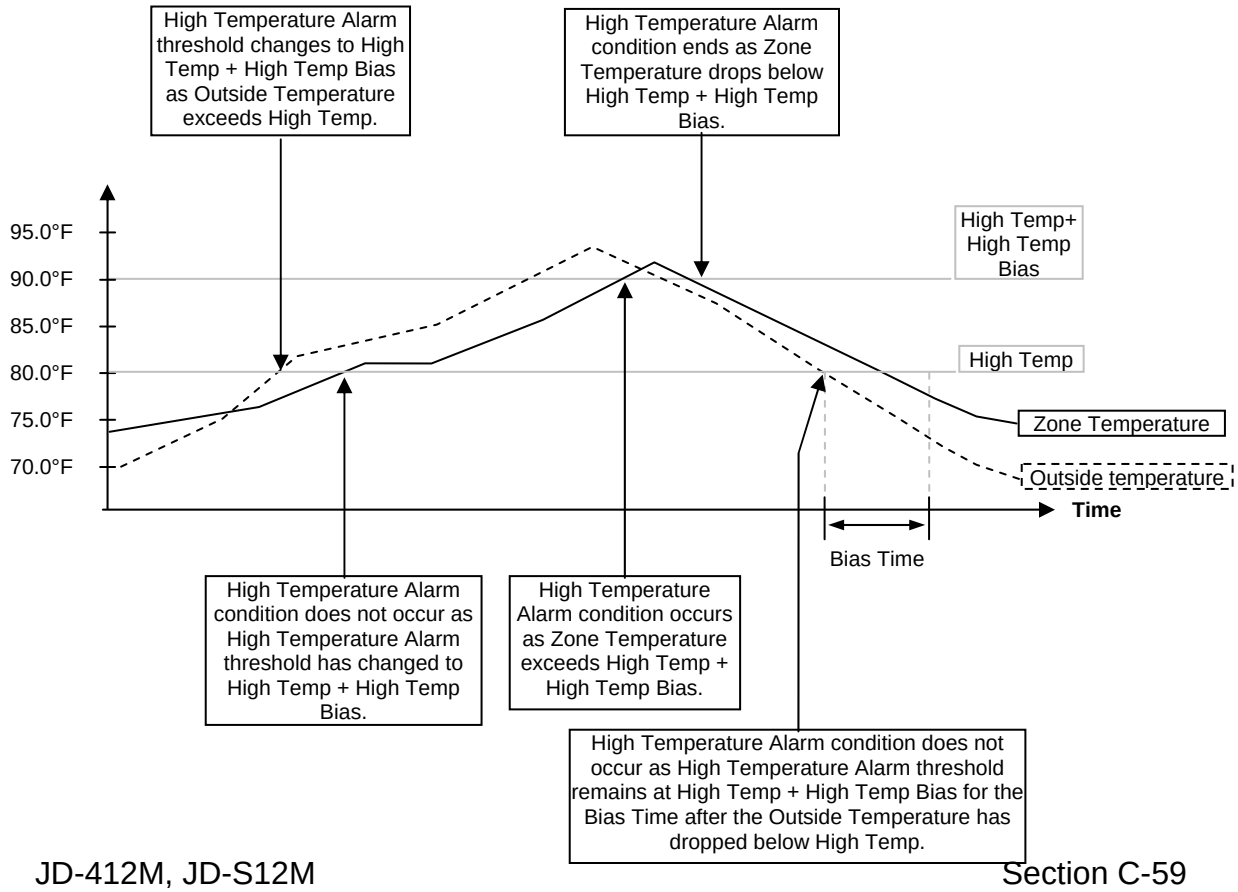
1. These parameters are used to enable or disable the high and low temperature alarms for the respective probe. When one of these settings is set to "Enabled" and the corresponding probe is not within the **HIGH TEMP [2]** and **LOW TEMP [3]** limits, the high or low temperature alarm condition will occur. When one of these settings is set to "Disabled", the corresponding probe will not be checked for high and low temperature alarms.

2. This parameter is used to establish the temperature at which a high temperature alarm condition will occur. When an alarm-enabled probe's temperature is above this setting, a high temperature alarm condition will occur. The **Outside Temperature** may increase the high temperature alarm threshold when it is greater than this setting and **BIASING ENABLED [4]** is set to "Yes". This parameter is adjusted in 0.1° increments from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

3. This parameter is used to establish the temperature at which a low temperature alarm condition will occur. When an alarm-enabled probe's temperature is below this setting, a low temperature alarm condition will occur. This parameter is adjusted in 0.1° increments from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

4. This parameter is used to enable or disable high temperature alarm biasing. If this option is set to "Yes", the high alarm threshold will be modified if **Outside Temperature** is high. When the **Outside Temperature** is greater than **HIGH TEMP [2]**, the high alarm threshold will become **HIGH TEMP [2]** + **HIGH TEMP BIAS [5]**. The high alarm threshold will return to **HIGH TEMP [2]** when the **Outside Temperature** has been continuously equal to or below **HIGH TEMP [2]** for a time period equal to the **BIAS TIME [6]**. If this option is set to "No", the high alarm threshold will always be equal to the **HIGH TEMP [2]** setting.

High temperature alarm biasing



SECTION C

5. This parameter establishes the value that will be added to the high alarm threshold when the **Outside Temperature** is greater than **HIGH TEMP [2]**, When **BIASING ENABLED [4]** is set to "Yes" and the **Outside Temperature** is greater than **HIGH TEMP [2]**, the high alarm threshold will become **HIGH TEMP [2]** + **HIGH TEMP BIAS [5]**. This parameter is adjusted in 0.1° increments from 0.0° to 20.0°.

6. This parameter establishes the amount of time for which the high alarm threshold will remain at **HIGH TEMP [2]** + **HIGH TEMP BIAS [5]** after the **Outside Temperature** has dropped to or below **HIGH TEMP [2]**. If the high temperature alarm threshold has been increased because of a high **Outside Temperature**, it will not return to its original value immediately when **Outside Temperature** drops to or below **HIGH TEMP [2]**. Instead, the high alarm threshold will remain at its increased value until the **Outside Temperature** has been continuously equal to or below **HIGH TEMP [2]** for this amount of time. This parameter is adjusted in 1-hour increments from 0 hours to 5 hours.

7. These parameters are used to enable or disable the damaged temperature probe alarms for each probe. If one of these parameters is set to "Yes", the damaged temperature probe alarm condition will occur when the respective temperature probe is defective or unplugged. If one of these parameters is set to "No", the alarm condition will not trigger when the respective temperature probe is missing or damaged.

8. These parameters are used to enable or disable the actuator problem alarms. If one of these parameters is set to "Yes", the corresponding actuator problem alarm condition will occur when that actuator's potentiometer is defective or unplugged. If this parameter is set to "No", the alarm condition will not be triggered when the corresponding actuator's potentiometer is missing or damaged.

9. This parameter is used to enable or disable the water overflow alarm. If this parameter is set to "Yes", the water overflow alarm condition will occur when the number of water units (Litres or Gallons) counted in one day exceeds **MAX FLOW [10]**. If this parameter is set to "No", the water meter will never trigger the alarm condition.

10. This parameter establishes the maximum amount of water units that can be counted in one day without triggering the alarm condition. If the **WATER OVERFLOW [9]** is set to "Yes" and the amount of water units (Litres or Gallons) counted in one day exceeds this setting, the water overflow alarm condition will occur. The water alarm count is reinitialized when the date changes, when the water history is cleared, when the alarm history is cleared, when the water alarm is acknowledged and as long as **WATER OVERFLOW [9]** is set to "No". This parameter is adjusted in 1-unit increments from 0 to 9999 units (Litres or Gallons).

11. This parameter is used to enable or disable the damaged humidity probe alarm. If this parameter is set to "Yes", the damaged humidity probe alarm condition will occur when the humidity probe is defective or unplugged. If this parameter is set to "No", a missing or damaged humidity probe will not trigger the alarm condition.

12. These parameters are used to enable or disable the corresponding damaged JD-M010 module alarm. If one of these parameters is set to "Yes", a damaged JD-M010 module alarm condition will occur when the corresponding JD-M010 module is defective or unplugged. If this parameter is set to "No", the corresponding JD-M010 module will not trigger the alarm condition if missing or damaged.

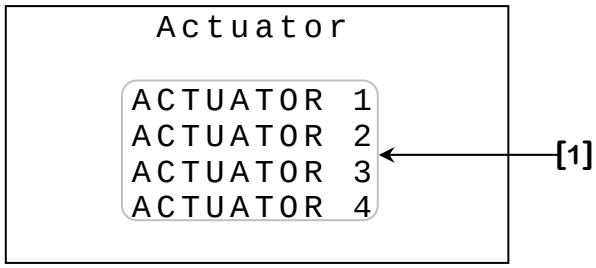
13. This parameter is used to set the amount of time for which an acknowledged alarm will remain inactive. When the SELECT button is pressed while the cursor is on the **ACKNOWLEDGE ALARMS [1]**[7] parameter, all active alarms will be silenced for this amount of time. When this delay has expired, alarm conditions that are still present will activate the alarm once again. When a new alarm occurs, all silenced alarms will be active once more. This parameter can be adjusted to any value from 1:00 minute to 59:59 minutes.

14. This parameter is used to set the amount of time for which an alarm condition must be present in order to trigger the alarm. When an alarm condition occurs, the controller will count the amount of time for which it is present. If the condition is resolved before this delay has expired, the alarm will not activate and there will be no entry in the **ALARM HISTORY** screen (page C-99). If the alarm condition remains throughout this delay, the alarm relay will be activated, an entry will be added in the **ALARM HISTORY** screen (page C-99) and the **ALARM ACKNOWLEDGE** screen (page C-35) will replace the **MAIN MENU** screen (page C-36). This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

SECTION C

[7] Refer to the **ALARM ACKNOWLEDGE** screen (page C-31) screen for more information on this parameter.

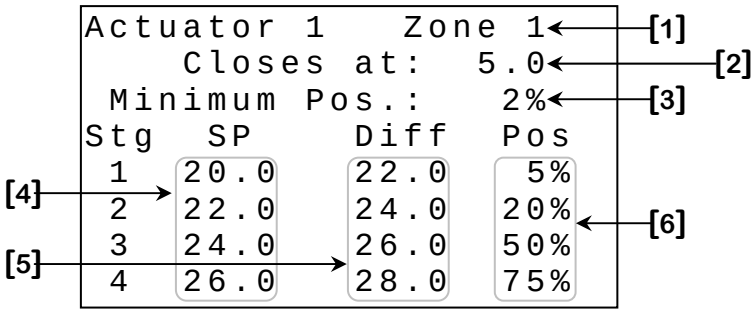
MAIN MENU
↓
SETTINGS MENU
↓
ACTUATOR MENU



Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to access to the corresponding **ACTUATOR {1-4}** screen (page C-63).

MAIN MENU
↓
SETTINGS MENU
↓
ACTUATOR MENU
↓
ACTUATOR {1-4}



1. This parameter displays the zone in which the actuator is used.

2. This parameter is used to set the temperature at which the actuator will close completely. Above this temperature, the actuator will be positioned at **MINIMUM POSITION [3]** until the **Zone Temperature** reaches **STAGE 1 SET POINT [4]**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

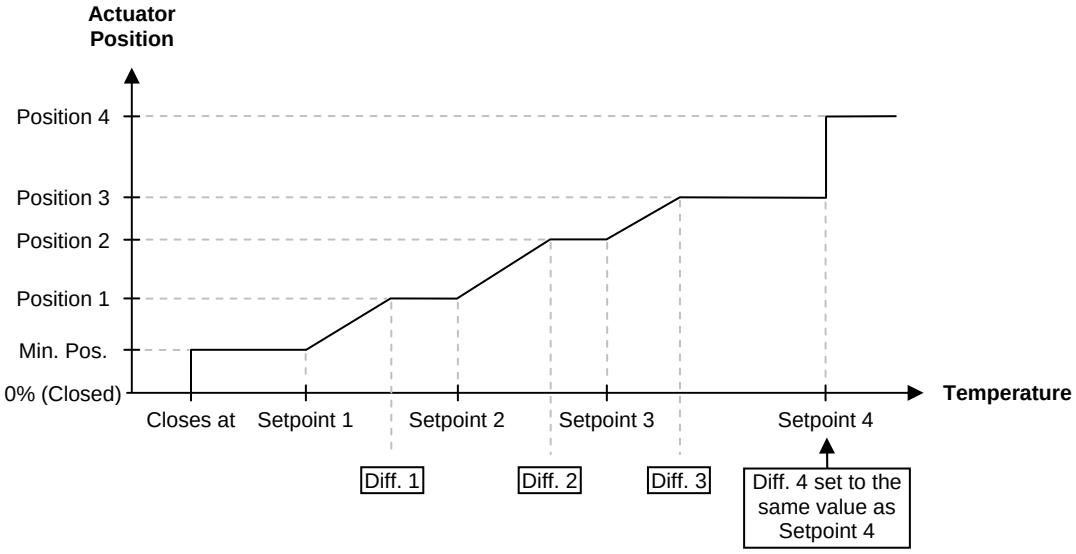
3. This parameter is used to set the position the actuator will take when the **Zone Temperature** is above **CLOSES AT [2]**, but below **STAGE 1 SET POINT [4]**. This parameter is adjusted in 1% increments from 0% to 100%.

4. These parameters are used to set the temperature at which the actuator position will begin to increase from the previous position to the next position. When the **Zone Temperature** is equal to one of these values, the actuator's position will not increase immediately. Instead, the opening will increase gradually as the **Zone Temperature** continues to increase past **STAGE {1-4} SETPOINT [4]** to reach **STAGE {1-4} POSITION [6]** when **Zone Temperature** reaches **STAGE {1-4} DIFFERENTIAL [5]**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

5. This parameter is used to set the temperature at which an actuator will reach the associated **STAGE {1-4} POSITION [6]**. An actuator's position can be set to go directly to **STAGE {1-4} POSITION [6]** when its associated **STAGE {1-4} SETPOINT [4]** is reached by adjusting this parameter to the same value as the associated **STAGE {1-4} SETPOINT [4]**. This parameter is adjusted in 0.1° increments from **Zone Setpoint** - 90.0° to **Zone Setpoint** + 90.0°.

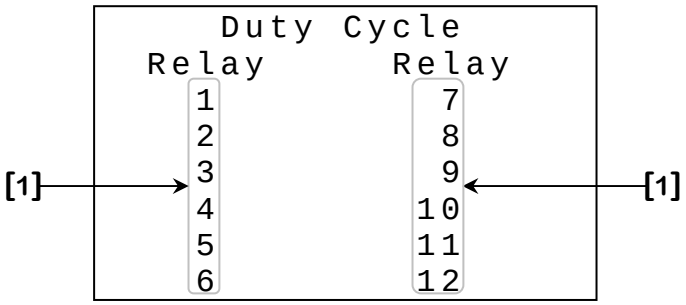
6. This parameter is used to set the position the actuator will take when the **Zone Temperature** is equal to **STAGE {1-4} DIFFERENTIAL [5]**. When this position is reached, it will be maintained until the next **STAGE {1-4} SETPOINT [4]** is reached. This parameter is adjusted in 1% increments from 0% to 100%.

Actuator positioning



SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
DUTY CYCLE MENU

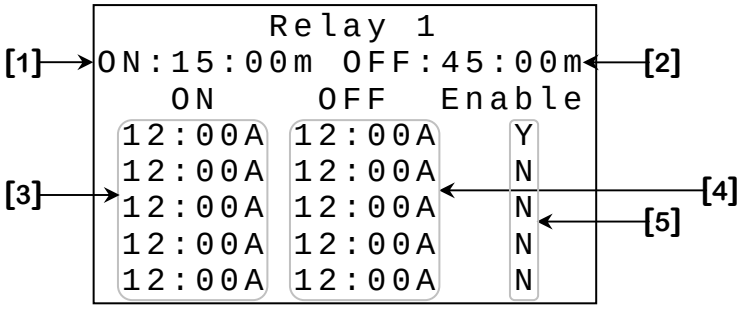


Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to access to the respective **RELAY {1-12} DUTY CYCLE SETTINGS** screen (page C-66).

MAIN MENU
↓
SETTINGS MENU
↓
DUTY CYCLE MENU
↓

RELAY {1-12} DUTY CYCLE SETTINGS



1. This parameter sets the active portion of the duty cycle relay's timer. When the time of day is within an activation period, the relay will be activated for this amount of time and deactivated for the **OFF TIMER [2]** time. This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

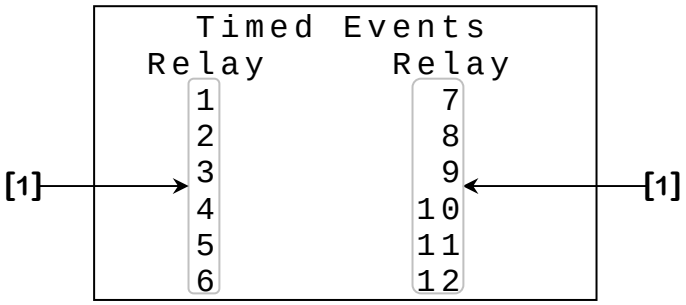
2. This parameter sets the inactive portion of the duty cycle relay's timer. When the time of day is within an activation period, the relay will be activated for the **ON TIMER [1]** time and deactivated for this amount of time. This parameter can be adjusted to any value from 0:00 minutes to 59:59 minutes.

3. These parameters are used to set the time at which an activation period starts. When the time of day reaches one of these values and the corresponding **ENABLE [5]** is set to "Y", an activation period will begin. The period will remain active until the corresponding **OFF TIME [4]** is reached. Setting this value to the same value as the corresponding **OFF TIME [4]** will deactivate that period completely. This parameter can be adjusted to any value from 12:00A to 11:59P (0:00 to 23:59).

4. These parameters are used to set the time at which an activation period ends. When the time of day reaches one of these values, an activation period will end. Setting this value to the same value as the corresponding **ON TIME [3]** will deactivate that period completely. This parameter can be adjusted to any value from 12:00A to 11:59P (0:00 to 23:59).

5. These parameters are used to enable or disable an activation period. When one of these parameters is set to "N", the corresponding activation period will not be considered. When one of these parameters is set to "Y", the corresponding period will be active when the time of day is between the corresponding **ON TIME [3]** and the corresponding **OFF TIME [4]**.

MAIN MENU
↓
SETTINGS MENU
↓
TIMED EVENT MENU

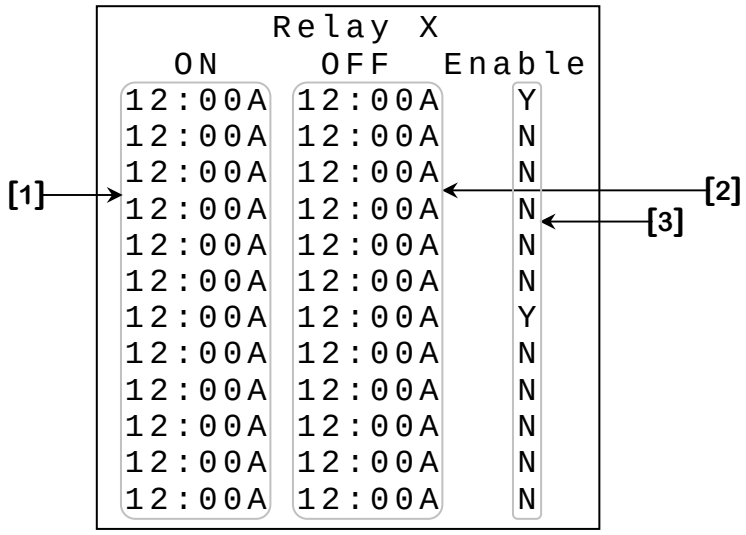


Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to access to the respective **RELAY {1-12} TIMED EVENT SETTINGS** screen (page C-68).

MAIN MENU
↓
SETTINGS MENU
↓
TIMED EVENT MENU
↓

RELAY {1-12} TIMED EVENT SETTINGS



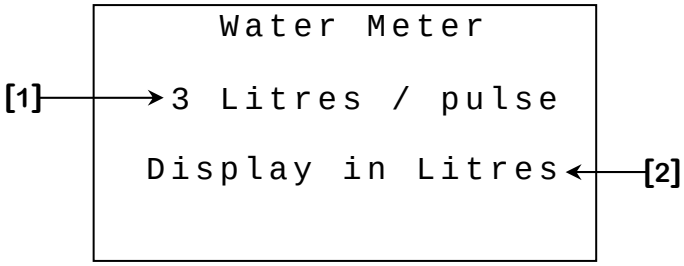
SECTION C

1. These parameters are used to set the time at which an activation period starts. When the time of day reaches one of these values and the corresponding **ENABLE [3]** is set to "Y", an activation period will begin. The period will remain active until the corresponding **OFF TIME [2]** is reached. Setting this value to the same value as the corresponding **OFF TIME [2]** will deactivate that period completely. This parameter can be adjusted to any value from 12:00A to 11:59P (0:00 to 23:59).

2. These parameters are used to set the time at which an activation period ends. When the time of day reaches one of these values, an activation period will end. Setting this value to the same value as the corresponding **ON TIME [1]** will deactivate that period completely. This parameter can be adjusted to any value from 12:00A to 11:59P (0:00 to 23:59).

3. These parameters are used to enable or disable an activation period. When one of these parameters is set to "N", the corresponding activation period will not be considered. When one of these parameters is set to "Y", the corresponding period will be active when the time of day is between the corresponding **ON TIME [1]** and the corresponding **OFF TIME [2]**.

MAIN MENU
↓
SETTINGS MENU
↓
WATER METER

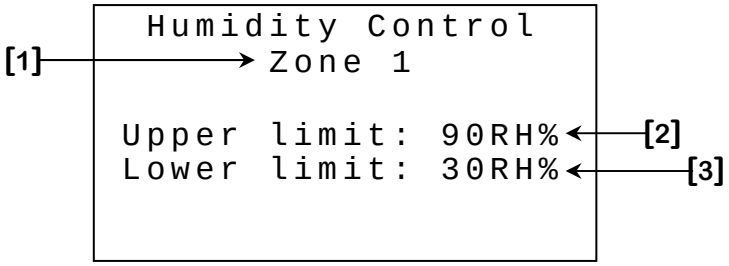


1. This parameter is used to set the amount of units (Litres or Gallons) that will be counted by the water meter every time a pulse is detected at the water meter input of the J&D controller. This parameter is adjusted in 1-unit (Litres or Gallons) increments from 1 unit to 99 units (Litres or Gallons).

2. This parameter is used to set the unit the water meter count will be displayed in. The available measuring units are "`Litres`" or "`Gallons`".

SECTION C

MAIN MENU
↓
SETTINGS MENU
↓
HUMIDITY CONTROL



1. This parameter displays the zone in which humidity control will be applied. This value can be modified in the **HUMIDITY ZONE** screen (page C-110).

2. This parameter is used to set the humidity level at which full dehumidification will be applied. When humidity is equal to or greater than this value, all variable cooling stages of the zone selected in **HUMIDITY AFFECTS ZONE [1]** [8] will have their idle speed increased by **HUMIDITY FACTOR [1]** [9] * 10%. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

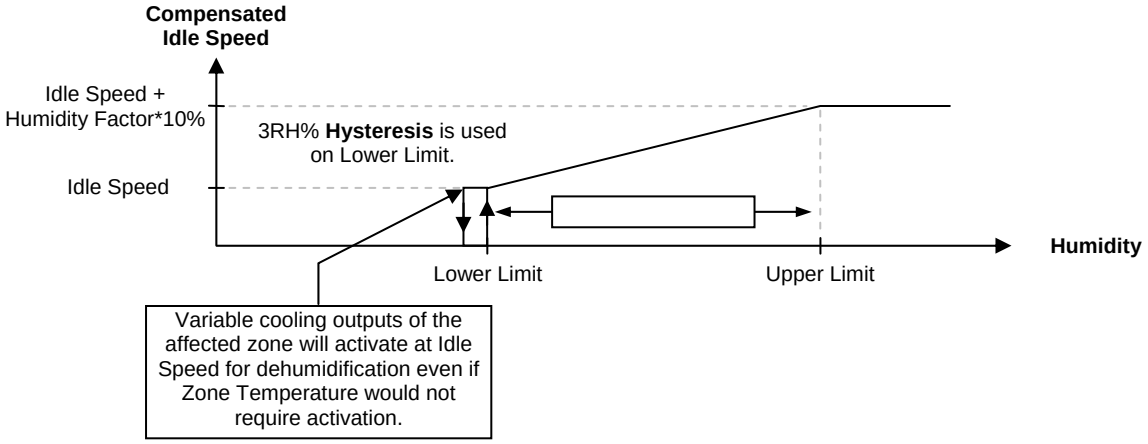
3. This parameter is used to set the humidity level at which dehumidification will begin to be applied. When humidity reaches this value, all variable cooling stages of the zone selected in **HUMIDITY AFFECTS ZONE [1]** 8 will activate at their idle speed. As humidity increases past this limit, variable cooling stages of the affected zone will increase their idle speed proportionally to the humidity to reach **HUMIDITY FACTOR [1]** 9 * 10% when humidity is at or above **UPPER LIMIT [2]**. A **Hysteresis** of 3RH% is used with this logic. This parameter is adjusted in 1RH% increments from 0RH% to 100RH%.

See Variable cooling dehumidification operation on next page.

SECTION C

[8] Refer to the **HUMIDITY ZONE** screen (page C-105) for more information on this parameter.
[9] Refer to the **HUMIDITY FACTOR** screen (page C-90) for more information on this parameter.

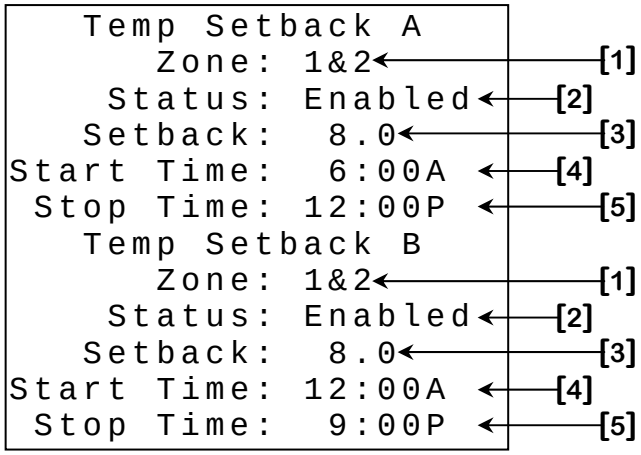
Variable cooling dehumidification operation



SECTION C

MAIN MENU
↓
SETTINGS MENU
↓

TEMP SETBACK



1. These parameters are used to select the zones in which the associated setback will be applied. If the setback **STATUS [2]** is set to "Enabled", all zones selected here will have their **Zone Setpoint** modified by the **SETBACK [3]** value when the time of day is between the **START TIME [4]** and **STOP TIME [5]**. This parameter can be set to any zone combination.

2. These parameters are used to enable or disable the corresponding setback function. When this parameter is set to "Enabled", the setback will be applied to the selected zones' **Zone Setpoint**. When this parameter is set to "Disabled", the corresponding setback function will be ignored.

3. These parameters are used to set the amount of degrees by which the selected zones' **Zone Setpoint** will be modified when the time of day is between the **START TIME [4]** and **STOP TIME [5]**. This parameter is adjusted in 0.1° increments from -20.0° to 10.0°.

4. These parameters are used to set the time at which the corresponding setback will be applied to the selected zones' **Zone Setpoint**. When the time of day reaches this value, the selected zones' **Zone Setpoint** will be modified by the **SETBACK [3]** value. The modification will be effective until the time of day reaches the **STOP TIME [5]**. Setting this value to the same value as the corresponding **STOP TIME [5]** will deactivate the associated setback. This parameter can be adjusted to any value from 12:00A to 11:59P (0:00 to 23:59).

5. These parameters are used to set the time at which the corresponding setback will no longer be applied to the selected zones' **Zone Setpoint**. When the time of day reaches the **START TIME [4]**, the selected zones' **Zone Setpoint** will be modified by the **SETBACK [3]** value. The modification will be effective until the time of day reaches the value of this parameter. Setting this value to the same value as the corresponding **START TIME [4]** will deactivate the associated setback. This parameter can be adjusted to any value from 12:00A to 11:59P (0:00 to 23:59).

MAIN MENU
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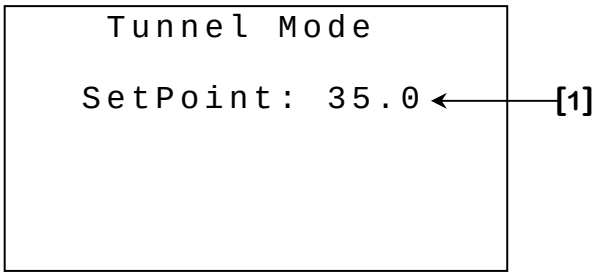
SETTINGS MENU
↓
TUNNEL MODE



1. This parameter is used to set the temperature at which tunnel mode will begin. When a **Zone Temperature** is equal to or greater than this value, all cooling outputs of that zone (including curtains and actuators) who's **OFF TUNNEL [2]** [10] option is set to "Y" will deactivate or close completely. A **Hysteresis** of 2.0° is used with this logic. This parameter is adjusted in 0.1° increments from 32.0°F to 120.0°F (0.0°C to 40.0°C).

[10] Refer to the **RELAY STAGE CONFIGURATION** screen (page C-102) and **VARIABLE STAGE CONFIGURATION** screen (page C-104) for more information on this parameter.

MAIN MENU

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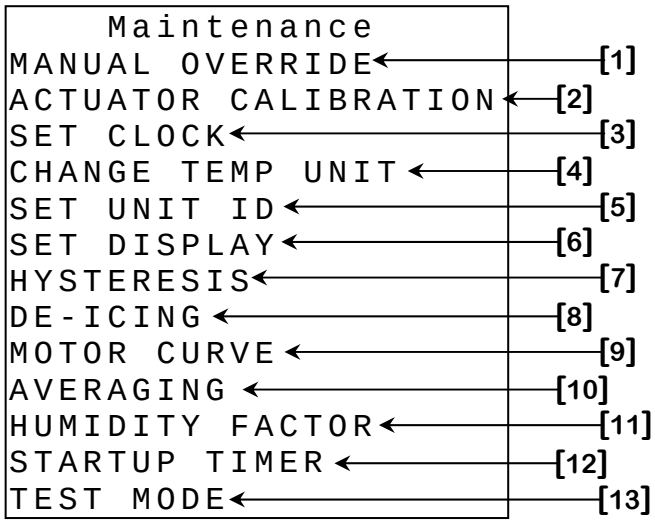
MAINTENANCE



1. This parameter is used to access to the **MANUAL OVERRIDE** screen (page C-77).

2. This parameter is used to access to the **ACTUATOR {1-4} CALIBRATION** screen (page C-83).

3. This parameter is used to access to the **SET CLOCK** screen (page C-85).

4. This parameter is used to access to the **CHANGE TEMPERATURE UNIT** screen (page C-86).

5. This parameter is used to access to the **SET UNIT ID** screen (page C-87).

6. This parameter is used to access to the **SET DISPLAY** screen (page C-88).

7. This parameter is used to access to the **HYSTERESIS** screen (page C-90).

8. This parameter is used to access to the **DE-ICING** screen (page C-92).

9. This parameter is used to access to the **MOTOR CURVE** screen (page C-93).

10. This parameter is used to access to the **AVERAGING** screen (page C-94).

11. This parameter is used to access to the **HUMIDITY FACTOR** screen (page C-95).

12. This parameter is used to access to the **STARTUP TIMER** screen (page C-96).

13. This parameter is used to access to the **TEST MODE** screen (page C-97).

MAIN MENU
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MAINTENANCE
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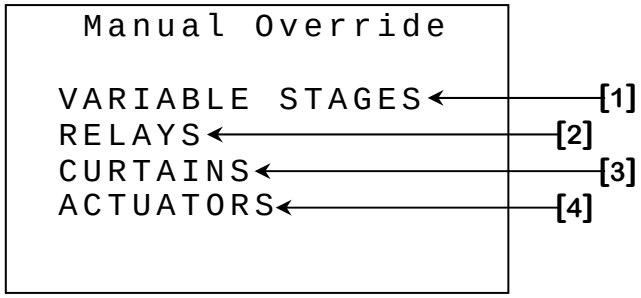
MANUAL OVERRIDE



1. This parameter is used to access to the **MANUAL OVERRIDE – VARIABLE STAGES** screen (page C-78).

2. This parameter is used to access to the **MANUAL OVERRIDE – RELAYS** screen (page C-79).

3. This parameter is used to access to the **MANUAL OVERRIDE – CURTAINS** screen (page C-80).

4. This parameter is used to access to the **MANUAL OVERRIDE – ACTUATORS** screen (page C-81).

MAIN MENU
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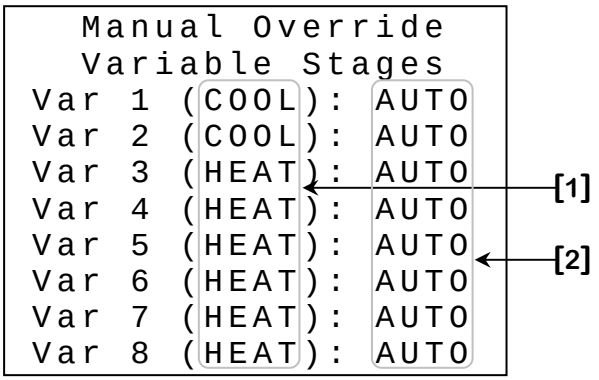
MAINTENANCE
↓
MANUAL OVERRIDE
↓

MANUAL OVERRIDE – VARIABLE STAGES



Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **VARIABLE STAGE CONFIGURATION** screen (page C-109).

1. These parameters display the mode in which the respective variable output is used.

2. These parameters are used to manually override the calculated activation demand to activate the associated variable output at the value adjusted here. When this value is "AUTO", the variable output will be activated according to the configuration's parameters and the temperature read. When the value is "OFF", the variable output will be deactivated. When this parameter is set to any other value, the corresponding variable output will be activated at the adjusted speed. This parameter is adjusted in 1% increments from "AUTO", "OFF", 1% to 100%.

SECTION C

MAIN MENU
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MAINTENANCE
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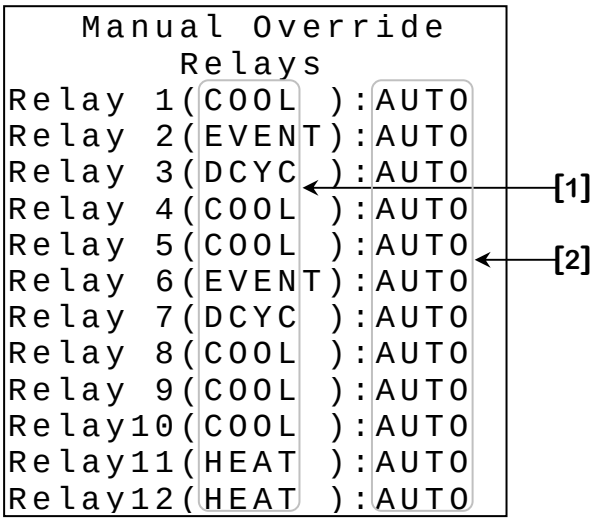
MANUAL OVERRIDE
↓

MANUAL OVERRIDE – RELAYS



Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107). Relays used as curtains or actuators will not appear in this screen. See the **MANUAL OVERRIDE – CURTAINS** screen (page C-80) and **MANUAL OVERRIDE – ACTUATORS** screen (page C-81) to manually operate outputs of those types.

1. These parameters display the mode in which the corresponding relay output is used.

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

SECTION C

MAIN MENU
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MAINTENANCE
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MANUAL OVERRIDE
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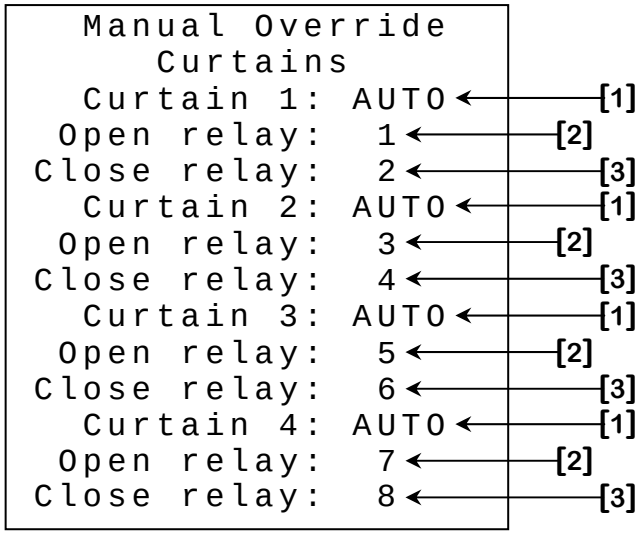
MANUAL OVERRIDE – CURTAINS



Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to manually override the calculated activation demand to activate the corresponding curtain output at the state adjusted here. When the value is "AUTO", the associated curtain output will be activated according to the configuration's parameters. When the value is "STOP", the curtain output will not move. When the value is "CLOSE", the curtain output will close continuously. When the value is "OPEN", the curtain output will open continuously.

2. These parameters display the number of the relay that is used as the curtain's opening relay. This value will reflect the relay types chosen in the **RELAY STAGE CONFIGURATION** screen (page C-107).

3. These parameters display the number of the relay that is used as the curtain's closing relay. This value will reflect the relay types chosen in the **RELAY STAGE CONFIGURATION** screen (page C-107).

SECTION C

MAIN MENU
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MAINTENANCE
↓
MANUAL OVERRIDE
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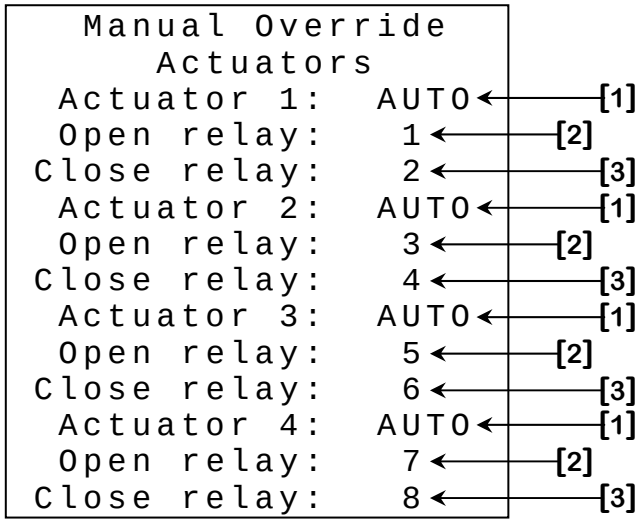
MANUAL OVERRIDE – ACTUATORS



Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to manually override the calculated activation demand to activate the corresponding actuator output at the state or position adjusted here. When the value is "AUTO", the associated actuator output will be activated according to the configuration's parameters. When the value is "STOP", the actuator output will not move. When the value is "CLOSE", the actuator output will close continuously. When the value is "OPEN", the actuator output will open continuously. When the value is between 0% and 100%, the actuator output will position itself at that position.

2. These parameters display the number of the relay that is used as the actuator's opening relay. This value will reflect the relay types chosen in the **RELAY STAGE CONFIGURATION** screen (page C-107).

3. These parameters display the number of the relay that is used as the actuator's closing relay. This value will reflect the relay types chosen in the **RELAY STAGE CONFIGURATION** screen (page C-107).

SECTION C

MAIN MENU
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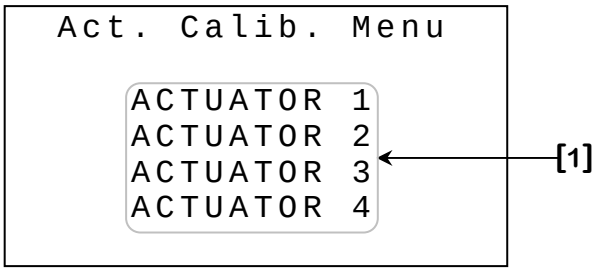
MAINTENANCE
↓

ACTUATOR CALIBRATION MENU



Some parameters may not appear if their corresponding option is not activated. To verify these options, refer to the **RELAY STAGE CONFIGURATION** screen (page C-107).

1. These parameters are used to access the corresponding **ACTUATOR {1-4} CALIBRATION** screen (page C-83).

MAIN MENU
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MAINTENANCE
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ACTUATOR CALIBRATION MENU
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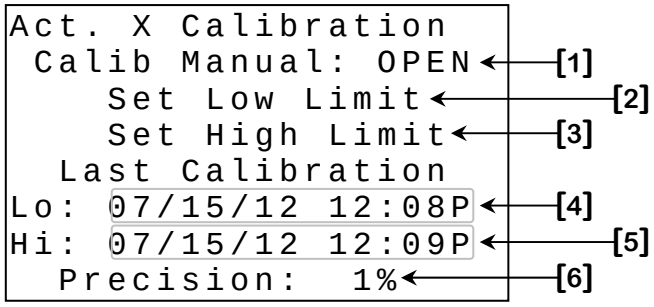
ACTUATOR {1-4} CALIBRATION



1. This parameter is used to manually override the calculated activation demand to activate the actuator at the state adjusted here. When the value is "AUTO", the associated actuator output will be activated according to the configuration's parameters. When the value is "STOP", the actuator output will not move. When the value is "CLOSE", the actuator output will close continuously. When the value is "OPEN", the actuator output will open continuously.

2. This parameter is used to set the low potentiometer limit for actuator calibration. This will effectively define the lowest possible value for the actuator's potentiometer. To obtain this value, close the actuator completely using **CALIB MANUAL [1]** parameter. Once the actuator is completely closed, press the SELECT button while the cursor is positioned on this parameter. At this point, the text displayed here will change to "Low Limit Saved" if the value was correctly saved, "Can't Save Check Pot" if the value of the potentiometer could not be read or "Can't Save Low Limit" if an error occurred during the operation. In the two later cases, calibration must be performed once the situation is corrected.

3. This parameter is used to set the high potentiometer limit for actuator calibration. This will effectively define the highest possible value for the actuator's potentiometer. To obtain this value, open the actuator completely using **CALIB MANUAL [1]** parameter. Once actuator is completely open, press the SELECT button while the cursor is positioned on this parameter. At this point, the text displayed here will change to "High Limit Saved" if the value was correctly saved, "Can't Save Check Pot" if the value of the potentiometer could not be read or "Can't Save Hi Limit" if an error occurred during the operation. In the two later cases, calibration must be performed once the situation is corrected.

4. This parameter displays the time and date at which the actuator's low limit was last calibrated. If no low-limit calibration has been done since the configuration was downloaded, this parameter will display "`Never Calibrated`".

5. This parameter displays the time and date at which the actuator's high limit was last calibrated. If no high-limit calibration has been done since the configuration was downloaded, this parameter will display "`Never Calibrated`".

6. This parameter is used to adjust the precision considered by the actuator for positioning. Increasing the value of this parameter will increase the difference required between the actual position and the requested position to cause actuator movement. Precision is used to eliminate unnecessary movements performed by the actuator. This parameter is adjusted in 1% increments from 1% to 20%.

MAIN MENU
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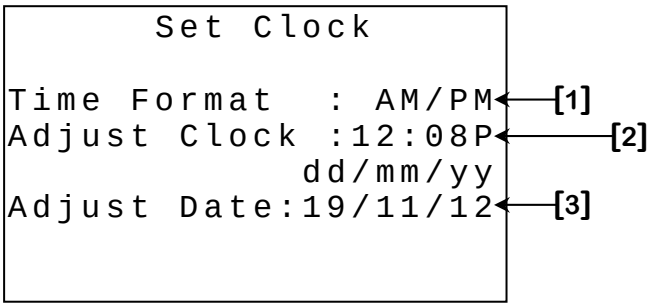
MAINTENANCE
↓

SET CLOCK



1. This parameter is used to change the time format for all clock-type parameters. When this value is changed, all clock-type parameters will be modified to reflect the new time format. The format may be either "24hr" or "AM/PM".

2. This parameter is used to change the actual time of day. The time of day may activate temperature setback as well as duty cycle and timed event outputs.

3. This parameter is used to change the actual date. Changing the date will automatically create a new entry in all active history screens. The date is displayed in DD/MM/YY format.

MAIN MENU
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MAINTENANCE
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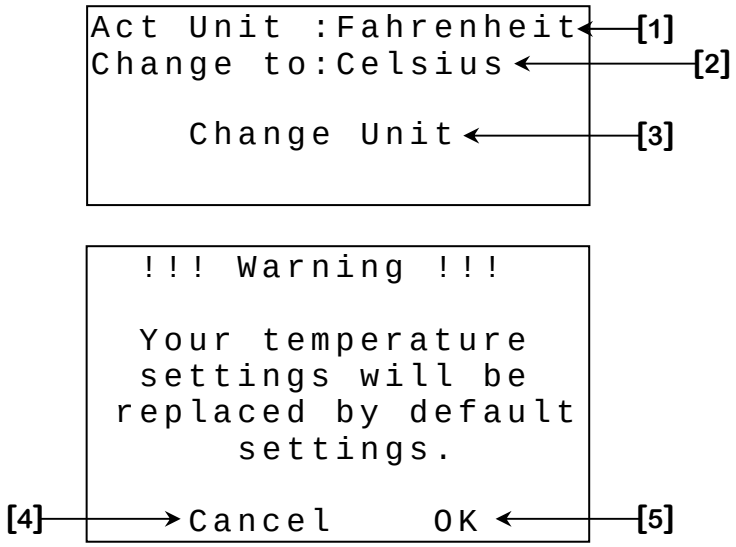
CHANGE TEMPERATURE UNIT



1. This parameter indicates the temperature unit actually used by the controller.

2. This parameter displays the new temperature unit the controller will use if the temperature unit change is successful.

3. This parameter is used to open up the change temperature unit confirmation screen (shown above).

4. This parameter is used to cancel the temperature unit change. If the SELECT button is pressed while this parameter is selected, temperature unit change will be cancelled.

5. This parameter is used to proceed with the temperature unit change. If the SELECT button is pressed while this parameter is selected, temperature unit change will be performed.

MAIN MENU
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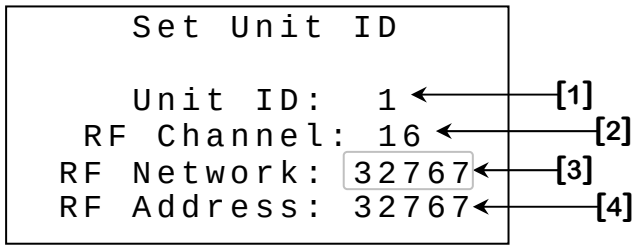
MAINTENANCE
↓

SET UNIT ID



1. 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. When **RF CHANNEL [2]** is set to any value other than "0FF", this parameter will disappear. This parameter may be adjusted to any value from 1 to 250.

2. 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 "0FF", other wireless communication parameters will disappear. This parameter can be adjusted to "0FF", 1 to 16.

3. This parameter is used to identify a WiFarm network. A WiFarm network is formed when the **RF NETWORK [3]** is set to the same value as the **RF ADDRESS [4]** 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 [3]** to the **RF ADDRESS [4]** of that same network. To adjust this parameter, place the cursor on the digit you wish to change and use the [+] and [–] buttons to change the value. When **RF CHANNEL [2]** is set to "0FF", this parameter will disappear. This parameter can be adjusted to any value from 00000 to 39999.

4. This parameter displays the number (address) associated to the RF communication card inserted in the controller. A unique number is given to each RF communication card of the WiFarm network. There is a unique **RF ADDRESS [4]** associated to each RF communication card. The **RF ADDRESS [4]** also appears on the sticker present on the RF communication card. When **RF CHANNEL [2]** is set to "0FF", this parameter will disappear. The address can be any value from 0 to 32767.

MAIN MENU
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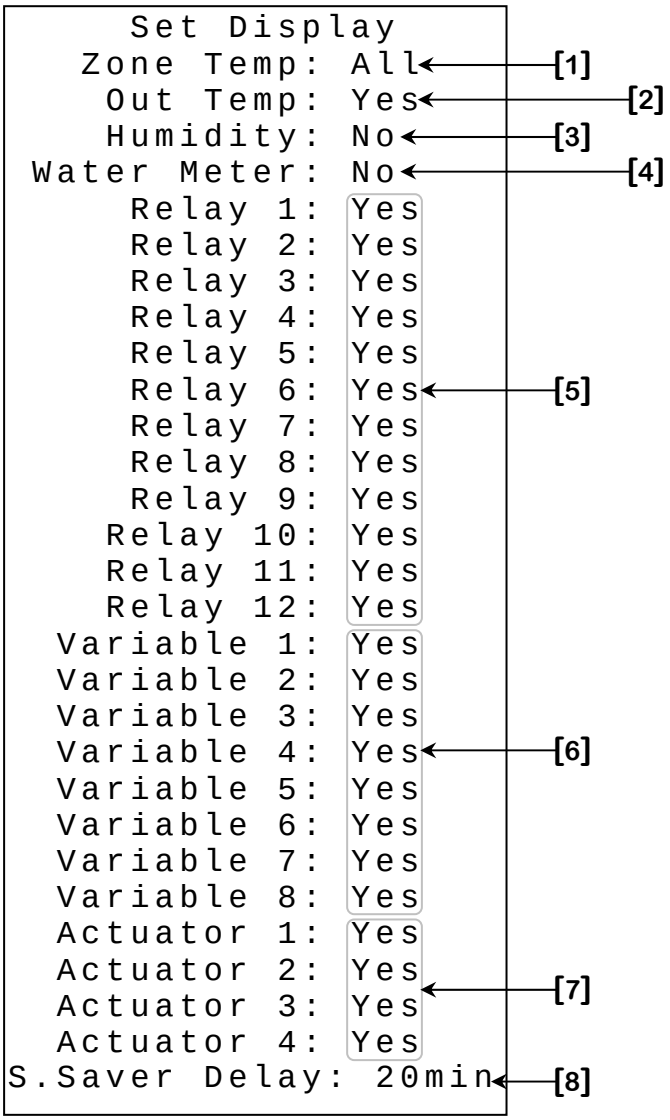
MAINTENANCE
↓

SET DISPLAY



1. This parameter is used to select the zone temperatures that will be displayed in the **MAIN DISPLAY** screen (page C-37) and **INPUT DETAILS** screen (page C-38). A zone not selected in this parameter will not be shown in the two mentioned screens. This parameter may be set to any zone combination.

2. This parameter is used to determine if the **Outside Temperature** will be displayed in the **MAIN DISPLAY** screen (page C-37) and **INPUT DETAILS** screen (page C-38). If this parameter is set to "No", the **Outside Temperature** will not be shown in the two mentioned screens.

3. This parameter is used to determine if the humidity will be displayed in the **MAIN DISPLAY** screen (page C-37) and **INPUT DETAILS** screen (page C-38). If this parameter is set to "No", the humidity will not be shown in the two mentioned screens.

4. This parameter is used to determine if the water meter count will be displayed in the **MAIN DISPLAY** screen (page C-37). If this parameter is set to "No", the water meter count will not be shown in the **MAIN DISPLAY** screen (page C-37).

5. These parameters are used to determine if the corresponding relay state will be displayed in the **OUTPUT DETAILS** screen (page C-40). If one of these parameters is set to "No", the associated relay state will not be shown in the **OUTPUT DETAILS** screen (page C-40).

6. These parameters are used to determine if the corresponding variable output state will be displayed in the **OUTPUT DETAILS** screen (page C-40). If one of these parameters is set to "No", the associated variable output state will not be shown in the **OUTPUT DETAILS** screen (page C-40).

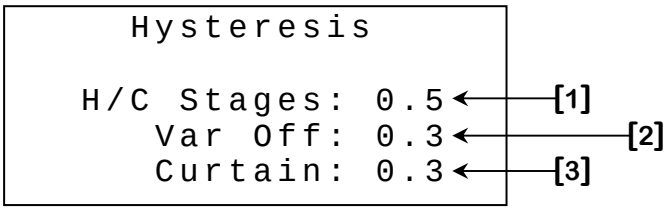
7. These parameters are used to determine if the corresponding actuator position will be displayed in the **OUTPUT DETAILS** screen (page C-40). If one of these parameters is set to "No", the associated actuator position will not be shown in the **OUTPUT DETAILS** screen (page C-40).

8. This parameter is used to adjust the time after which the screen saver will appear. When the controller does not detect interface activity for this amount of time, the screen saver will appear. That screen is simply a display of the temperature selected at **S.SAVER [3]** [11] in very large characters. This parameter may be set to "OFF" to disable the screen saver screen. If this is done, the controller will return to the **MAIN MENU** screen (page C-36) when no buttons have been pressed for 20 minutes. This parameter is adjusted in 1-minute increments from "OFF", 1 minute to 99 minutes.

SECTION C

[11] Refer to the **AVERAGING** screen (page C-89) for more information on this parameter.

MAIN MENU
↓
MAINTENANCE
↓
HYSTERESIS



1. This parameter is used to set the **Hysteresis** that will be used with all heat and cool relay stages. A cooling relay stage will activate at **SETPOINT [3]** [12] when **Zone Temperature** rises, but will shut off only at **SETPOINT [3]** [12] - **H/C STAGES [1]** when **Zone Temperature** decreases. A heating relay stage will activate at **SETPOINT [3]** [12] when **Zone Temperature** drops, but will shut off only at **SETPOINT [3]** [12] + **H/C STAGES [1]** when **Zone Temperature** increases. The **Hysteresis** is necessary to reduce equipment wear. This parameter is adjusted in 0.1° increments from 0.3° to 20.0°.

2. This parameter is used to set the **Hysteresis** that will be used with all variable stages. A cooling variable stage will deactivate at **OFF AT [5]** [13] when **Zone Temperature** drops, but will reactivate only at **OFF AT [3]** [13] + **VAR OFF [2]** when **Zone Temperature** increases. A heating variable stage will deactivate at **OFF AT [3]** [14] when **Zone Temperature** rises, but will reactivate only at **OFF AT [3]** [14] - **VAR OFF [2]** when **Zone Temperature** decreases. The **Hysteresis** is necessary to reduce equipment wear. This parameter is adjusted in 0.1° increments from 0.3° to 20.0°.

SECTION C

[12] Refer to the **RELAY {1-12} HEAT/COOL SETTINGS** screen (page C-41) for more information on this parameter.
[13] Refer to the **VARIABLE STAGE {1-8} [COOL MODE]** screen (page C-44) for more information on this parameter.
[14] Refer to the **VARIABLE STAGE {1-8} [HEAT MODE]** screen (page C-46) for more information on this parameter.

3. This parameter is used to set the **Hysteresis** that will be used with all curtains. A curtain will open on its timer at **SETPOINT [2]** [15] + **IDLE BAND [3]** [15]/2 when **Zone Temperature** rises, but will cease opening only at **SETPOINT [2]** [15] + **IDLE BAND [3]** [15]/2 - **CURTAIN [3]** when **Zone Temperature** decreases. A curtain will close on its timer at **SETPOINT [2]** [15] - **IDLE BAND [3]** [15]/2 when **Zone Temperature** drops, but will cease closing only at **SETPOINT [2]** [15] - **IDLE BAND [3]** [15]/2 + **CURTAIN [3]** when **Zone Temperature** increases. The **Hysteresis** is necessary to reduce equipment wear. This parameter is adjusted in 0.1° increments from 0.3° to 20.0°.

[15] Refer to the **CURTAIN {1-4}** screen (page C-52) screen for more information on this parameter.

MAIN MENU
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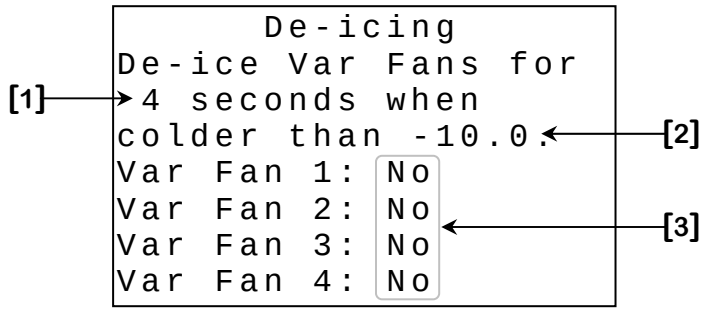
MAINTENANCE
↓
DE-ICING



1. This parameter is used to set the amount of time for which variable cooling stages will be powered at full intensity in order to perform the de-icing function. When de-icing function is activated, a variable cooling stage that is deactivated and receives an activation demand, will receive full power for this amount of time before returning to its calculated speed. This parameter is adjusted in 1-second increments from 1 to 10 seconds.

2. This parameter is used to set the **Outside Temperature** below which de-icing will be activated. When the **Outside Temperature** is below this value, variable cooling stages who's **VAR FAN {1-4} [3]** de-icing option is set to "Yes" will perform de-icing when they receive an activation demand. De-icing will always be allowed if the **Outside Temperature** probe is missing or defective. A **Hysteresis** of 2.0° is used with this logic. This parameter is adjusted in 0.1° increments from -40.0°F to 120.0°F (-40.0°C to 40.0°C).

3. These parameters are used to determine if the associated variable stage will perform de-icing when **Outside Temperature** is below the **COLDER THAN [2]** de-icing temperature. Only variable cooling stages whose option is set to "Yes" will perform de-icing when temperature allows it.

MAIN MENU
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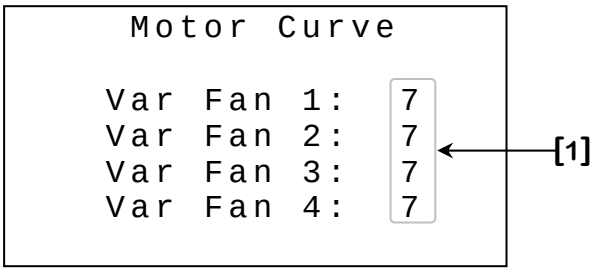
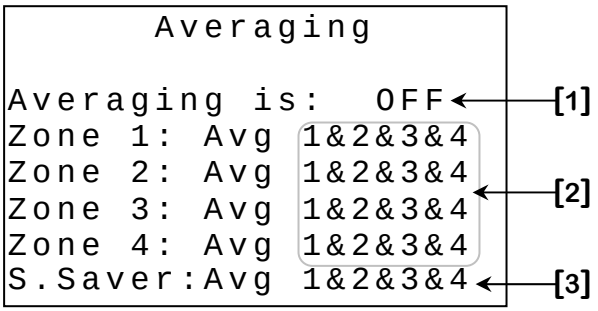
MAINTENANCE
↓
MOTOR CURVE



1. These parameters are used to modify the motor curve of the respective variable stage. 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 eight 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 **Motor Curve Table** page C-117 for the list of different motor curves and their associated fans. These parameters may be set to any value from 1 to 9.

MAIN MENU
↓
MAINTENANCE
↓

AVERAGING



1. This parameter is used to determine whether **Zone Temperature** will be composed of a single probe or the probes selected in **ZONE {1-4} AVERAGE [2]**. If this parameter is set to "OFF", each **Zone Temperature** will be the value of the probe with the same number. Furthermore, when a probe is defective, the **Zone Temperature** will use the next non-defective probe. If all probes are defective, all cooling elements will activate at their maximum speed/position. If this parameter is set to "ON", each **Zone Temperature** will be the average of the probes selected in the corresponding **ZONE {1-4} AVERAGE [2]**. Furthermore, when a probe is defective, it will simply be removed from the **Zone Temperature**. If all probes selected in the corresponding **ZONE {1-4} AVERAGE [2]** are defective, all cooling elements of that zone will activate at their maximum speed/position.

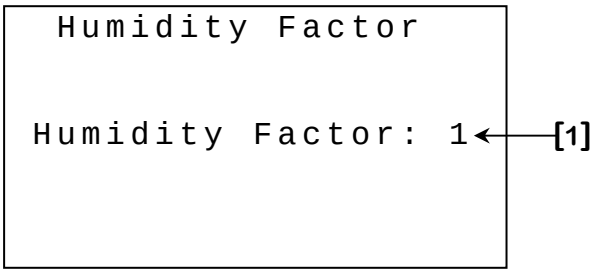
2. These parameters are used to select the probes that will compose the corresponding **Zone Temperature** when **AVERAGING IS [1]** is set to "ON". When **AVERAGING IS [1]** is set to "OFF", these parameters have no effect. These parameters can be set to any probe combination.

3. This parameter is used to select the probes that will compose the temperature displayed on the screen saver. When the controller does not detect interface activity **SCREEN SAVER DELAY [8]** [16], the screen saver will appear displaying the value selected here. When a probe is defective, it will simply be removed from the screen saver temperature. This parameter can be set to any probe combination.

SECTION C

[16] Refer to the **SET DISPLAY** screen (page C-83) for more information on this parameter.

MAIN MENU
↓
MAINTENANCE
↓
HUMIDITY FACTOR



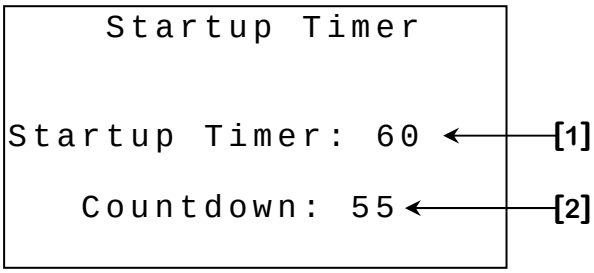
1. This parameter is used to set the speed that will be added to the Idle Speed of variable cooling stages for full dehumidification. When humidity reaches **LOWER LIMIT [2]** [17], all variable cooling stages of the zone selected in **HUMIDITY AFFECTS ZONE [1]** [18] will activate at their idle speed. As humidity increases past **LOWER LIMIT [2]** [17], variable cooling stages of the affected zone will increase their idle speed proportionally to the humidity to reach **HUMIDITY FACTOR [1]** * 10% when humidity is at or above **UPPER LIMIT [2]** [17]. This parameter can be adjusted to any value from 0 to 10.

SECTION C

[17] Refer to the **HUMIDITY CONTROL** screen (page C-66) for more information on this parameter.
[18] Refer to the **HUMIDITY ZONE** screen (page C-105) for more information on this parameter.

MAIN MENU
↓
MAINTENANCE
↓

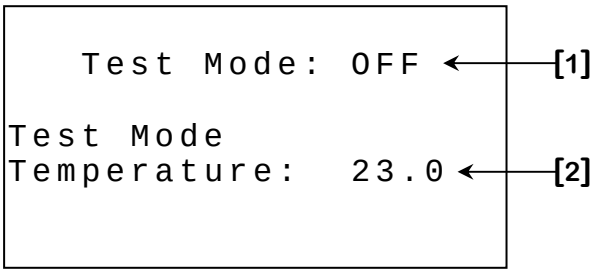
STARTUP TIMER



1. This parameter is used to set time for which the controller will wait before activating its outputs when it is powered up. Setting this value to "OFF" will deactivate this function. This delay will be applied each time the controller powers up. This parameter is adjusted in 1-second increments from "OFF", 1 to 999 seconds.

2. This parameter displays the remaining time of the startup timer. When the startup timer is expired, this parameter will display "OFF".

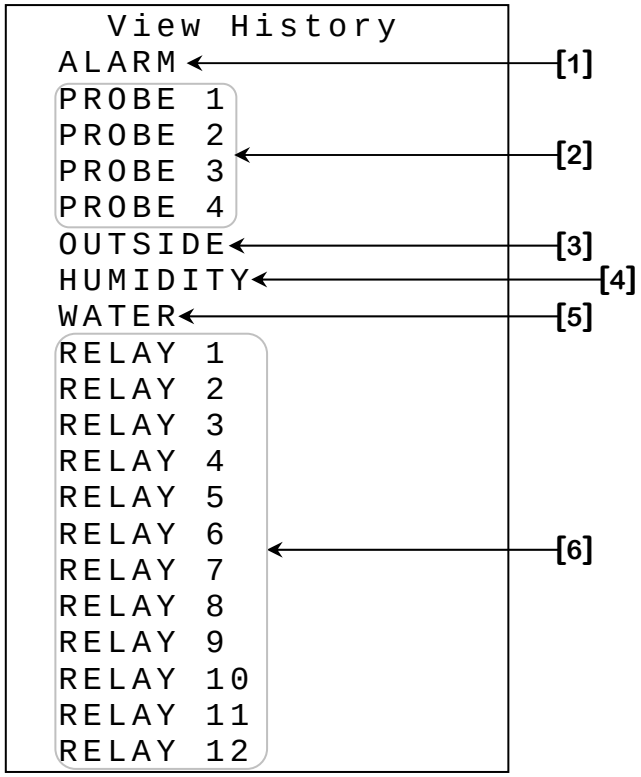
MAIN MENU
↓
MAINTENANCE
↓
TEST MODE



1. This parameter is used to activate or deactivate the test mode. When this parameter is set to "ON", all inside probe readings will be replaced by the **TEST MODE TEMPERATURE [2]**. This parameter will reset itself to "OFF" if **TEST MODE TEMPERATURE [2]** is not changed throughout a 10-minute delay.

2. This parameter is used to adjust the test mode temperature; all temperature sensors will be overridden by this parameter if **TEST MODE OPTION [1]** is set to "ON". This parameter is adjusted in 0.1° increments from -3.9°F to 130.9°F (-19.9°C to 54.9°C).

MAIN MENU
↓
VIEW HISTORY MENU



1. This parameter is used to access to the **ALARM HISTORY** screen (page C-99).

2. This parameter is used to access to the corresponding **PROBE {1-4} HISTORY** screen (page C-100).

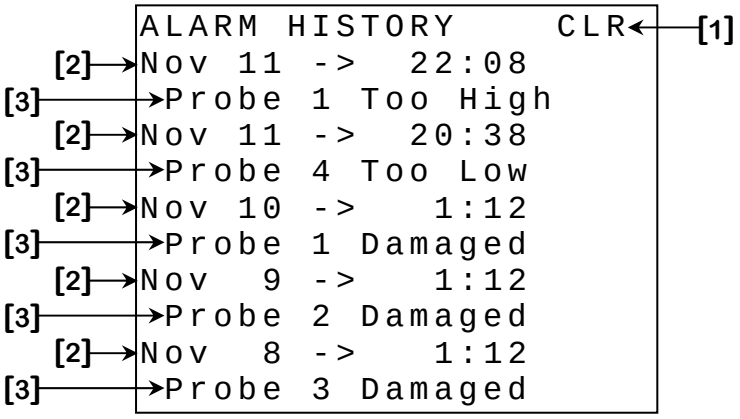
3. This parameter is used to access to the **OUTSIDE HISTORY** screen (page C-101).

4. This parameter is used to access to the **HUMIDITY HISTORY** screen (page C-102).

5. This parameter is used to access to the **WATER HISTORY** screen (page C-103).

6. This parameter is used to access to the **RELAY {1-12} HISTORY** screen (page C-104).

MAIN MENU
↓
VIEW HISTORY MENU
↓
ALARM HISTORY



This screen may contain up to 30 alarms. For more information on alarm messages and their cause, see the **Alarm Message Table** page C-115.

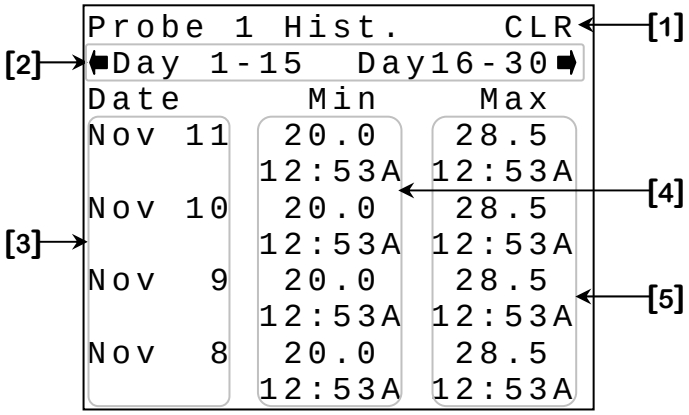
1. This parameter is used to clear the history currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the history will be cleared. Clearing the alarm history will also reset all alarm counts and timers.

2. These parameters indicate the date and time at which the alarm mentioned immediately below this parameter occurred.

3. These parameters indicate the alarm that occurred at the date and time mentioned immediately above this parameter.

SECTION C

MAIN MENU
↓
VIEW HISTORY MENU
↓
PROBE {1-4} HISTORY



This screen displays up to 15 history days for each probe. There may be up to 45 history days recorded for each probe. The values are displayed according to the date from the most recent date to the oldest date recorded.

1. This parameter is used to clear the history currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the history will be cleared.

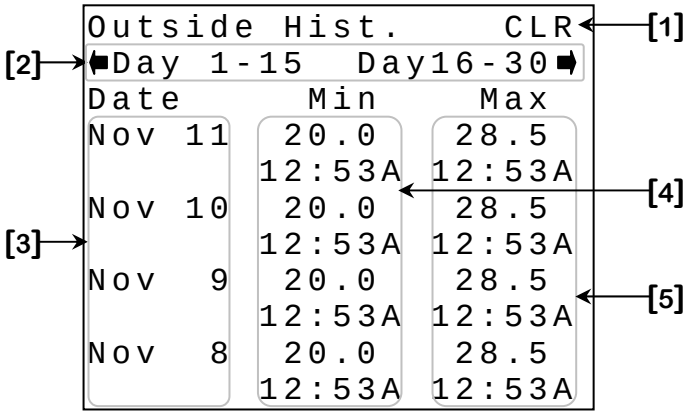
2. These parameters are used to navigate throughout the different history days by pressing the SELECT button when the cursor is placed on an arrow. The number displayed next to the arrow represents the days that will be displayed.

3. These parameters display the date of the history entry.

4. These parameters display the lowest temperature of the probe for the corresponding day as well as the time at which that temperature was recorded. The minimum temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

5. These parameters display the highest temperature of the probe for the corresponding day as well as the time at which that temperature was recorded. The maximum temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

MAIN MENU
↓
VIEW HISTORY MENU
↓
OUTSIDE HISTORY



This screen displays up to 15 history days for the outside probe. There may be up to 45 history days recorded for the outside probe. The values are displayed according to the date from the most recent date to the oldest date recorded.

1. This parameter is used to clear the history currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the history will be cleared.

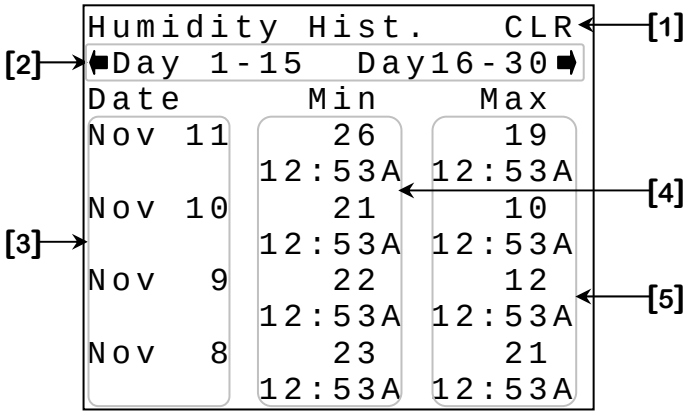
2. These parameters are used to navigate throughout the different history days by pressing the SELECT button when the cursor is placed on an arrow. The number displayed next to the arrow represents the days that will be displayed.

3. These parameters display the date of the history entry.

4. These parameters display the lowest temperature of the outside probe for the corresponding day as well as the time at which that temperature was recorded. The minimum temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

5. These parameters display the highest temperature of the outside probe for the corresponding day as well as the time at which that temperature was recorded. The maximum temperature is displayed to the nearest 0.1° from -58.0°F to 140.0°F (-50.0°C to 60.0°C).

MAIN MENU
↓
VIEW HISTORY MENU
↓
HUMIDITY HISTORY



This screen displays up to 15 history days for the humidity. There may be up to 45 history days recorded for the humidity. The values are displayed according to the date from the most recent date to the oldest date recorded.

1. This parameter is used to clear the history currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the history will be cleared.

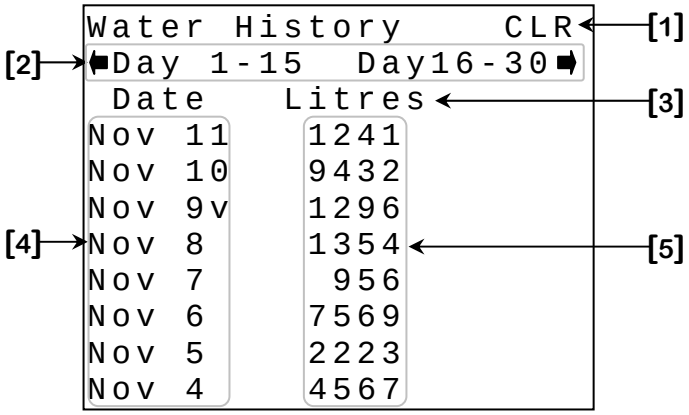
2. These parameters are used to navigate throughout the different history days by pressing the SELECT button when the cursor is placed on an arrow. The number displayed next to the arrow represents the days that will be displayed.

3. These parameters display the date of the history entry.

4. These parameters display the lowest value of the humidity probe for the corresponding day as well as the time at which that value was recorded. "L0" may be displayed if a communication problem occurred during the corresponding day. The minimum humidity is displayed to the nearest 1RH% from 0RH% to 100RH%.

5. These parameters display the highest value of the humidity probe for the corresponding day as well as the time at which that value was recorded. "L0" may be displayed if a communication problem occurred during the corresponding day. The maximum humidity is displayed to the nearest 1RH% from 0RH% to 100RH%.

MAIN MENU
↓
VIEW HISTORY MENU
↓
WATER HISTORY



This screen displays up to 15 history days for the water meter. There may be up to 45 history days recorded for the water meter. The values are displayed according to the date from the most recent date to the oldest date recorded.

1. This parameter is used to clear the history currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the history will be cleared.

2. These parameters are used to navigate throughout the different history days by pressing the SELECT button when the cursor is placed on an arrow. The number displayed next to the arrow represents the days that will be displayed.

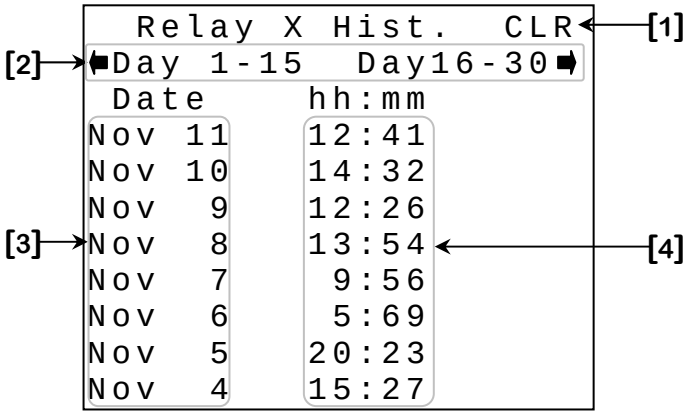
3. This parameter displays the measuring unit used with the water counter. This unit may be either Litres or Gallons.

4. These parameters display the date of the history entry.

5. These parameters display the number of units (Litres or Gallons) counted by the water meter on the corresponding day. This quantity may be any value from 0 to 20000 units (Litres or Gallons).

SECTION C

MAIN MENU
↓
VIEW HISTORY MENU
↓
RELAY {1-12} HISTORY



This screen displays up to 15 history days for each relay. There may be up to 45 history days recorded for each relay. The values are displayed according to the date from the most recent date to the oldest date recorded.

1. This parameter is used to clear the history currently displayed. When the SELECT button is pressed, a confirmation question will appear. When confirmation is positive, the history will be cleared.

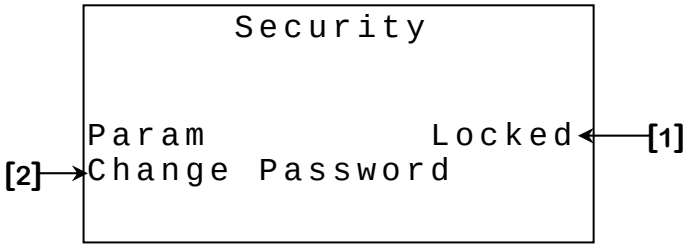
2. These parameters are used to navigate throughout the different history days by pressing the SELECT button when the cursor is placed on an arrow. The number displayed next to the arrow represents the days that will be displayed.

3. These parameters display the date of the history entry.

4. These parameters display the amount of time the respective relay has been activated during the day indicated immediately to the left of this parameter. The activation time is displayed to the nearest minute from 0:00 hours to 24:00 hours.

SECTION C

MAIN MENU
↓
SECURITY



1. This parameter is used to lock or unlock all parameter access and displays the current state ("Locked" or "Unlocked"). To modify the current state, press the SELECT button when cursor is positioned on "Locked"/"Unlocked" and then enter the first alphanumerical digit. Once the first value is entered, press SELECT once again to move on to the next value. Repeat the process for each value until all four are entered. When all four characters are entered, the parameter will indicate "Wrong Password", if the password was not the correct one, or the status will change from "Locked" to "Unlocked" or vice versa if the code was valid.

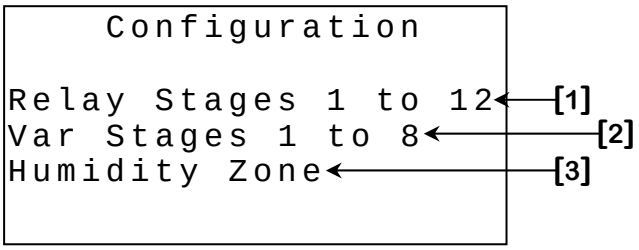
2. This parameter is used to change the password used to lock or unlock parameters. This is done by pressing the SELECT button when cursor is positioned on this parameter. The password may now be changed using the same procedure as described at the above parameter.

SECTION C

MAIN MENU

↓

CONFIGURATION



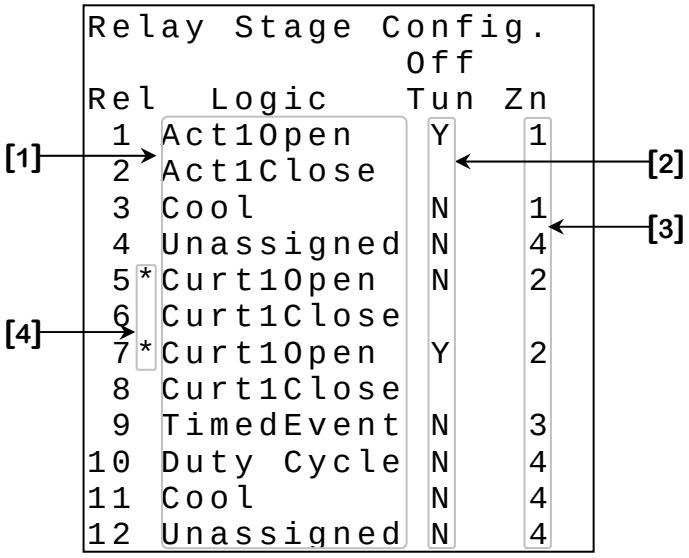
1. This parameter is used to access to the **RELAY STAGE CONFIGURATION** screen (page C-107).

2. This parameter is used to access to the **VARIABLE STAGE CONFIGURATION** screen (page C-109).

3. This parameter is used to access to the **HUMIDITY ZONE** screen (page C-110).

MAIN MENU
↓
CONFIGURATION
↓

RELAY STAGE CONFIGURATION



1. These parameters are used to assign the output type to corresponding relay. The available outputs on all relays are: "Unassigned", "Cool", "Heat", "TimedEvent" and "Duty Cycle". Relays 1, 3, 5 and 7 also has "Curt1Open", "Curt2Open", "Curt3Open" and "Curt4Open" as available output types. Relays 1, 3, 5 and 7 respectfully have "Act1Open", "Act2Open", "Act3Open" and "Act4Open" as available output type. When an odd numbered output relay's type is set as actuator open or curtain open, the next relay will automatically become the same output's closing relay.

2. These parameters are used to determine whether a cooling output (including curtains and actuators) will shut off in tunnel mode. When a **Zone Temperature** reaches the **TUNNEL MODE SETPOINT [2]** [19], cooling outputs that have this option set to "Y" will deactivate or close completely. "Heat", "TimedEvent" and "Duty Cycle" and outputs that have this option set to "N" will not be affected by tunnel mode.

3. These parameters are used to select the zone that the relay will follow. This will determine which **Zone Temperature** the output will follow. "TimedEvent" and "Duty Cycle" type relays do not require a temperature reading to operate and will not consider this setting.

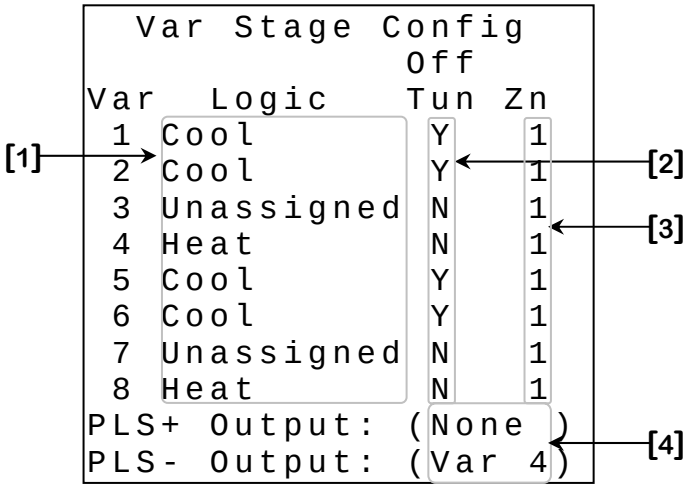
SECTION C

[19] Refer to the **TUNNEL MODE** screen (page C-70) for more information on this parameter.

4. These parameters indicate an error in the relay setup. When two or more relays are set as the opening relay of the same curtain ("`Curt{1-4}Open`"), a start "`*`" will appear to indicate that those relays' configuration must be changed. Each curtain must have one and only one opening relay. Curtains will not be considered active as long as there is an error in the relay configuration.

MAIN MENU
↓
CONFIGURATION
↓

VARIABLE STAGE CONFIGURATION



1. These parameters are used to assign the output type to corresponding variable output. The available outputs on all relays are: "Unassigned", "Cool" and "Heat".

2. These parameters are used to determine whether a variable cooling output will shut off in tunnel mode. When a **Zone Temperature** reaches the **TUNNEL MODE SETPOINT [2]** [20], variable cooling outputs that have this option set to "Y" will deactivate. "Heat" variable outputs and outputs that have this option set to "N" will not be affected by tunnel mode.

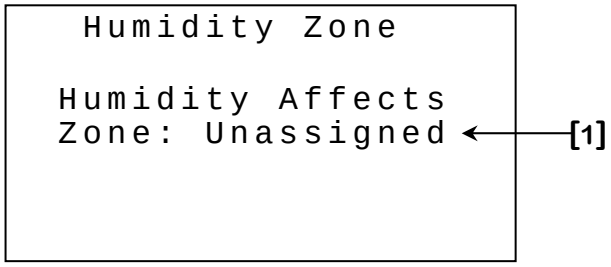
3. These parameters are used to select the zone that the relay will follow. This will determine which **Zone Temperature** the output will follow.

4. These parameters are used to select the variable output that the PLS+ and PLS- outputs will follow. When a variable output is assigned here, the respective PLS output will follow the demand of that stage at all times. When this parameter is set to "None", the PLS output will deactivate. These parameters can be set to "None", "Var 1", "Var 2", "Var 3" or "Var 4".

SECTION C

[20] Refer to **TUNNEL MODE** screen (page C-70) for more information on this parameter.

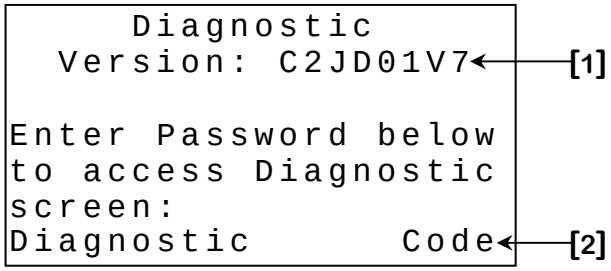
MAIN MENU
↓
CONFIGURATION
↓
HUMIDITY ZONE



1. This parameter is used to assign the zone in which humidity control will be applied. When humidity is equal to or greater than **LOWER LIMIT [2]** [21], all variable cooling stages of the zone selected here will be activated for humidity control. Setting this value to "Unassigned" will deactivate humidity control.

[21] Refer to the **HUMIDITY CONTROL** screen (page C-66) for more information on this parameter.

MAIN MENU
↓
DIAGNOSTIC



1. This parameter displays the version of the configuration actually used.

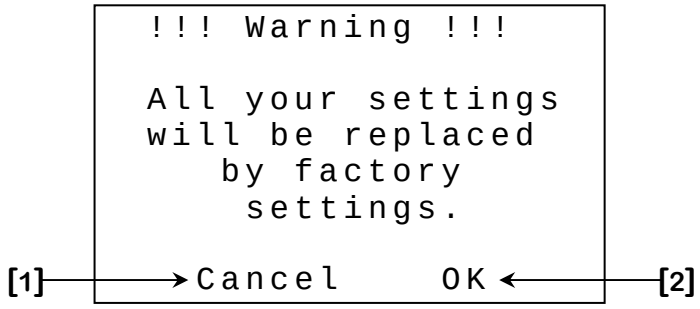
2. This parameter is reserved for the manufacturer's technical support personnel.

SECTION C

MAIN MENU

↓

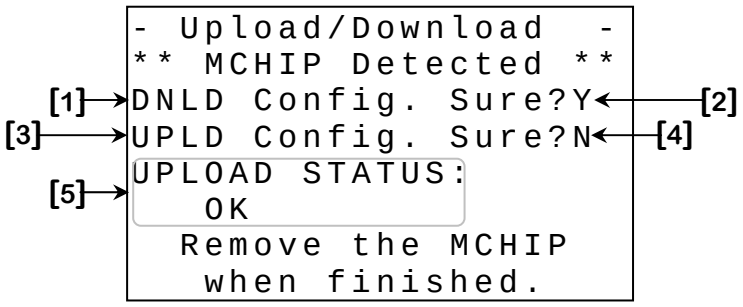
FACTORY SETTINGS



1. This parameter is used to cancel the assignment of factory settings. When the SELECT button is pressed while the cursor is on this parameter, assignment of factory settings will be cancelled.

2. This parameter is used to proceed with the assignment of factory settings. When the SELECT button is pressed while the cursor is on this parameter, all parameters will return to their factory settings. Only the time of day, time format, temperature unit and the PC identification number will retain their values.

MCHIP DETECTED



This screen will be shown when a CM-512 is inserted in the socket for this purpose. The **RF CHANNEL [2]** [22] must be set to "OFF" to allow this screen to appear. The compatible MCHIP for this configuration is: CM-512.

1. This parameter is used to trigger a download of the configuration from the MCHIP to the controller. When the SELECT button is pressed while the cursor is positioned on this parameter, a confirmation question will appear and, if the confirmation is positive, the download will begin.

2. This parameter is used to confirm a download of the configuration from the MCHIP to the controller. When the SELECT button is pressed while the cursor is on this parameter and the later is adjusted to "Y", the download will begin. If the SELECT button is pressed while the cursor is positioned on this parameter and the later is adjusted to "N", the download will be cancelled.

3. This parameter is used to trigger an upload of the configuration from the controller to the MCHIP. When the SELECT button is pressed while the cursor is on this parameter, a confirmation question will appear and, if the confirmation is positive, the upload will begin.

4. This parameter is used to confirm an upload of the configuration from the controller to the MCHIP. When the SELECT button is pressed while the cursor is on this parameter and the later is adjusted to "Y", the upload will begin. If the SELECT button is pressed while the cursor is positioned on this parameter and the later is adjusted to "N", the upload will be cancelled.

SECTION C

[22] Refer to the Set Unit Id screen (page C-85) for more information on this parameter.

5. This parameter displays the status of the upload operation that was performed. After an upload has been performed, this parameter will appear and will display "OK", if the upload was correctly executed, or "ERROR, retry..." if a problem occurred during the upload operation.

If the configuration chip (CM-512) is not removed after the downloading procedure, the controller will reload the factory set values each time it is reset or each time the power is turned off and back on, erasing the values entered by the customer. At this point, the control awaits an intervention of the user to activate the configuration, which is potentially dangerous for your breeding. The alarm will activate if the chip remains in the socket for 5 minutes or more.

Alarm Message Table

Situational Alarm Message List These alarms will activate the alarm relay and the alarm LED will light up when the condition is present. When the situation is corrected, the alarm relay will deactivate and the alarm LED will light up.	
Message	**Cause**
"Probe # Too High"	- The corresponding **PROBE {1-4} [1]** [23] is set to "Enabled", that probe is above **HIGH TEMP [2]** [23] and high temperature biasing is not active. - The corresponding **PROBE {1-4} [1]** [23] is set to "Enabled", that probe is above **HIGH TEMP [2]** [23]+ **HIGH BIAS TEMP [2]** [23] and high temperature biasing is active.
"Probe # Too Low"	- The corresponding **PROBE {1-4} [1]** [23] is set to "Enabled" and that probe is below **LOW TEMP [3]** [23].
"Probe # Damaged"	- The corresponding temperature probe is absent, not connected properly or defective (short-circuit or open circuit) and **PROBE {1-4} DAMAGE [7]** [23] is set to "Yes".
"Out Probe Damaged"	- The outside temperature probe is absent, not connected properly or defective (short-circuit or open circuit) and **OUT PROBE DAMAGE [7]** [23] is set to "Yes".
"Hum Probe Damaged"	- The humidity probe is absent, not connected properly or defective and **HUMIDITY DAMAGE [11]** [23] is set to "Yes".
"Main Module Damaged"	- The main module is absent or defective.
"JD-M010 #X Damaged"	- The mentioned JD-M010 module is absent, not connected properly or defective and the corresponding **JD-M010 DAMAGE [12]** [23] is set to "Yes".
"Act. # Pot Defect"	- The controller receives an unclear signal from the mentioned actuator's potentiometer and **ACTUATOR PROBLEM [8]** [23] is set to "Yes". - The mentioned actuator's potentiometer is a short-circuit or an open circuit and **ACTUATOR PROBLEM [8]** [23] is set to "Yes".
"Error Code 1"	- The system has rebooted 5 times within a 3-minute period or 10 times within a 15-minute period. This situation will be considered resolved if system does not reboot for 15 minutes. If this situation persists, contact your distributor.
"Error Code 2-5"	- If one or more of these error codes appear, contact your distributor.
"Error Code 6"	- The MCHIP has remained in the socket for five or more minutes.

SECTION C

[23] Refer to the **ALARMS** screen (page C-54) screen for more information on this parameter.

Continuous Alarm Message List	
These alarms will activate the alarm relay and the alarm LED will light up when the condition is present and when the situation is corrected. The alarm history must be cleared to deactivate the alarm relay and alarm LED will light up.	
Message	**Cause**
"Water Overflow"	- **WATER OVERFLOW [9]** [24] is set to "Yes" and the number of units (Litres or Gallons) read by the water meter has exceeded **MAX FLOW [10]** [24] within one day.

Event Message List	
These entries are not alarms, but events that occurred at a given time and date.	
Message	**Cause**
"Test Mode ON"	- The **TEST MODE OPTION [2]** [25] was set to "ON" at the specified date and time.
"Test Mode OFF"	- The **TEST MODE OPTION [2]** [25] was set to "OFF" at the specified date and time.
"Act. # Cool Down"	- The respective actuator's cool down function has activated.

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[24] Refer to the **ALARMS** screen (page C-54) for more information on this parameter.
[25] Refer to the **TEST MODE** screen (page C-92) for more information on this parameter.

Motor Curve Table

TYPE OF MOTOR				
CURVE	**BRAND**	**MODEL**	**VOLTAGE**	**HEIGHT**
1	Multifan	4E40	230 V.	16"
2	Multifan	2E20	230 V.	8"
2	Multifan	4E35	230 V.	14"
2	Multifan	4E50	230 V.	20"
2	Multifan	AF24M'E	230 V.	24"
2	Multifan	6E63	230 V.	24"
2	Multifan	6E71	230 V.	28"
2	Multifan	8E92	230 V.	36"
2	Ziehl		230 V.	
2	Performa	V52-7105P	230 V.	18"
3	Multifan	2E30	230 V.	12"
3	Multifan	4E45	230 V.	18"
3	Multifan	6E56	230 V.	22"
3	Multifan/AF	AF36M	230 V.	36"
3	Aerotech-F	AT242	230 V.	24"
3	Performa	V52-7106P	230 V.	20"
3	Performa	V52-7108P	230 V.	24"
4	Multifan	2E25	230 V.	10"
4	Marathon 1/4HP		230 V.	16"
4	Marathon 1/3HP		230 V.	18"
4	Performa	V52-7102P	230 V.	12"
5	GE Motor	5KCP39…	230 V.	12"
5	Leeson 1/4HP	AF12L	230 V.	12"
5	GE Motor	5KCP39…	230 V.	14"
5	Emerson	K55HXJ…	230 V.	14"
6	Oversized motors			
7	Multifan	4E30	230 V.	12"
7	Multifan	2E35	230 V.	14"
7	Performa	V52-7104P	230 V.	16"
8	Multifan	4E25	230 V.	10"
8	Performa	V52-7103P	230 V.	14"

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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.

JD-412M, JD-S12M VER: 1.7
February 10, 2012

JD-412M Configuration

Project: Date:

Building:

Control Configuration On/ Off Stages					
Relay	**Zone**	**Tunnel**	**Description**	**Configuration**	**Setting**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Configuration Options: Timed Event, Duty Cycle, Heat, Cool, Actuator Open, Actuator Closed, Curtain Open, Curtain Closed

Variable Stages							
Stage	**Zones**	**Type**	**Description**	**On Full At**	**Idle Temp**	**Off At**	**Idle Speed**
1							
2							
3							
4							

Variable Stages 5-8 requirea JD-M010 (Optional)

Stage	**Zones**	**Type**	**Description**	**On Full At**	**Idle Temp**	**Off At**	**Idle Speed**
5							
6							
7							
8							