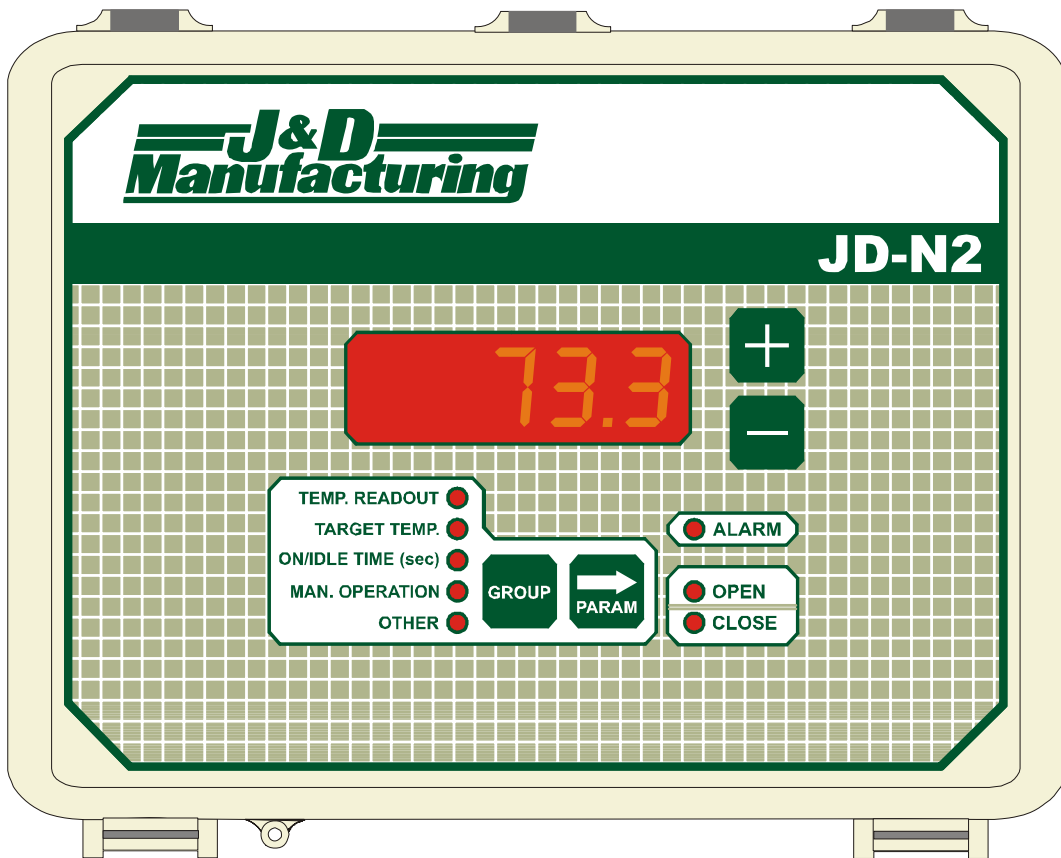


MANUAL

JD-N2



Installation / User's Guide

ATTENTION ELECTRICIAN
SEE WIRING DETAILS ON PAGES A-3 TO A-5 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 thunder storms or power supply equipment may damage this equipment. For added security against line voltage surges it is recommended that surge and noise suppression devices be installed at the electrical distribution panel. Use of shielded cable for probes is recommended for protection against lightning. These devices are available from most electrical supply distributors.

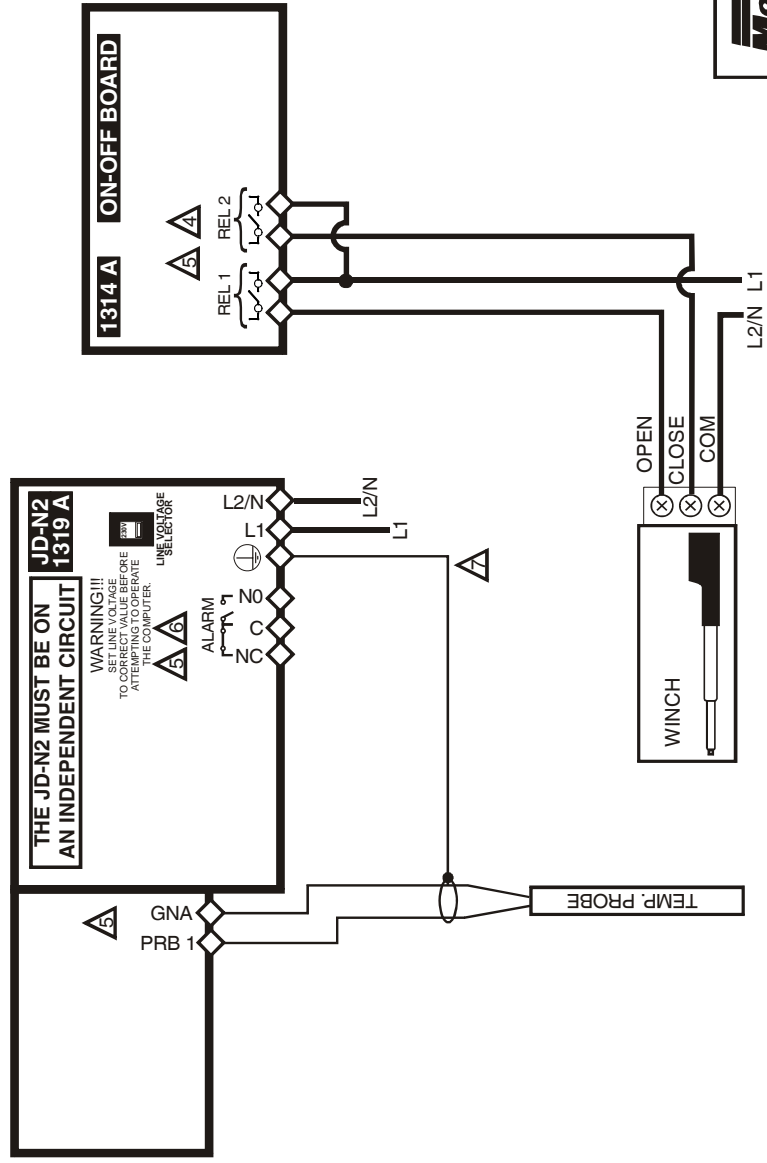
RECOMMENDATIONS

The manufacturer recommends that all installation procedures described herein be performed by a qualified electrician or installation technician. Furthermore the manufacturer recommends to test all the functions and equipment connected to the JD-N2, 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-N2 SECTION A

WIRING DIAGRAM JD-N2



SEE NOTES ON NEXT PAGE

J&D Manufacturing

WIRING DIAGRAM
 23/02/10
 JD-N2
 WIR 0

JD-N2

Electrician's notes wiring tips and hints (see guide for details)

1 ----- (PROBE WIRING) SHIELDED WIRE AWG #22, 500ft (150m) MAXIMUM LENGTH.

2 **—————** HIGH VOLTAGE WIRE INSTALLED ACCORDING TO LOCAL WIRING CODE.

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



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



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.



CHECK INSTALLATION GUIDE FOR ALARM WIRING.



USE SHIELD FOR SHIELDING PURPOSE ONLY. CONNECT THE SHIELD TO GROUND PLATE⊕. NEVER LEAVE THE SHIELD UNCONNECTED AT BOTH ENDS. NEVER CONNECT BOTH ENDS OF THE SHIELD TO GROUND PLATE⊕. THE USE OF A SHIELD FOR ALL PROBES IS **MANDATORY**.

INSTALLATION

JD-N2

SECTION B

This section will inform the electrician on proper wiring and installation procedures for the JD-N2.

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

Unpacking

Unpack the JD-N2 and inspect contents for damage. Should the contents appear to be damaged, contact your local distributor to return the material.

The package should contain the following standard items:

- 1 JD-N2 control
- 4 Brackets / 4 screws
- 1 2004-10K inside temperature probe (30 feet 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).
- 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

JD-N2 Control

- It is recommended to install the unit in a hallway to limit the JD-N2 exposure to noxious gases.
- In order to avoid condensation problems inside the controller, it is recommended to install the JD-N2 on an inside wall. If it is not possible, use spacers to have an air gap between the wall and the JD-N2.
- It is required to install the JD-N2 right side up with the cable entry holes facing down.
- The enclosure is watertight, but do not spray water or immerse the JD-N2 in water. Cover it carefully with plastic when cleaning the room.
- The JD-N2 should be installed in easily accessible location but away from damaging elements (heat, cold, water, direct sunlight, ...).
- Do not drill the face, the side, the top or the rear of the control.
- Do not install the JD-N2 control near high voltage equipment, power supply or transformer.

Electrical Cables

- All electrical cables must be installed according to local wiring codes.
- All cable shields must be connected to the JD-N2 power ground only. The shield is needed to protect the JD-N2 against any electromagnetic interference generated by lightning or nearby operating machinery.
- Never use the shield as a conductor.
- Connect only one end of the shield to the ground of the JD-N2.
- Use separate conduit for the low voltage cables (communication, potentiometer 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.
- It is prohibited to use overhead cables outside the building.

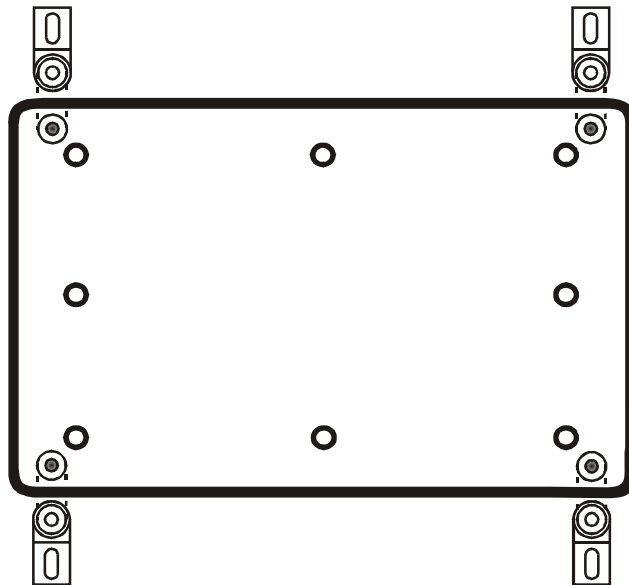
Electrical Power

- Protection from electrical surge should be included in the planning of each installation.
- It is strongly recommended to have a backup power source to ensure life-sustaining conditions in case of power failure (see figure 3).
- The backup system and alarm must be thoroughly tested and verified as working properly before using the ventilation system.

Mounting

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

FIGURE NO. 1 Mounting Position and Devices



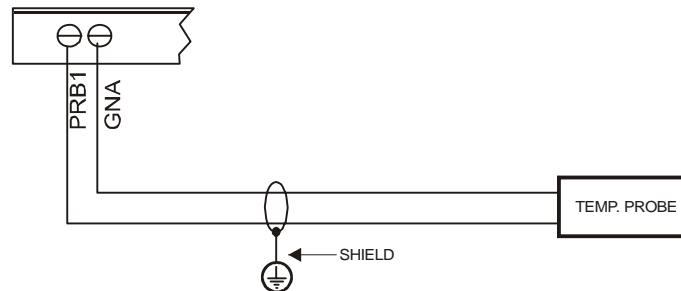
Connection Procedure

Detailed Wiring Diagrams

Typical Sensor Wiring for Probes

The inside temperature sensor should be located in the area which gives the most accurate temperature reading to achieve optimum ventilation. The sensor should also be connected to the JD-N2 with a shielded two-wire cable. It should be located in an area protected from operating machinery, animal bites, personnel or anything that could damage the sensor. See also “General installation guidelines”.

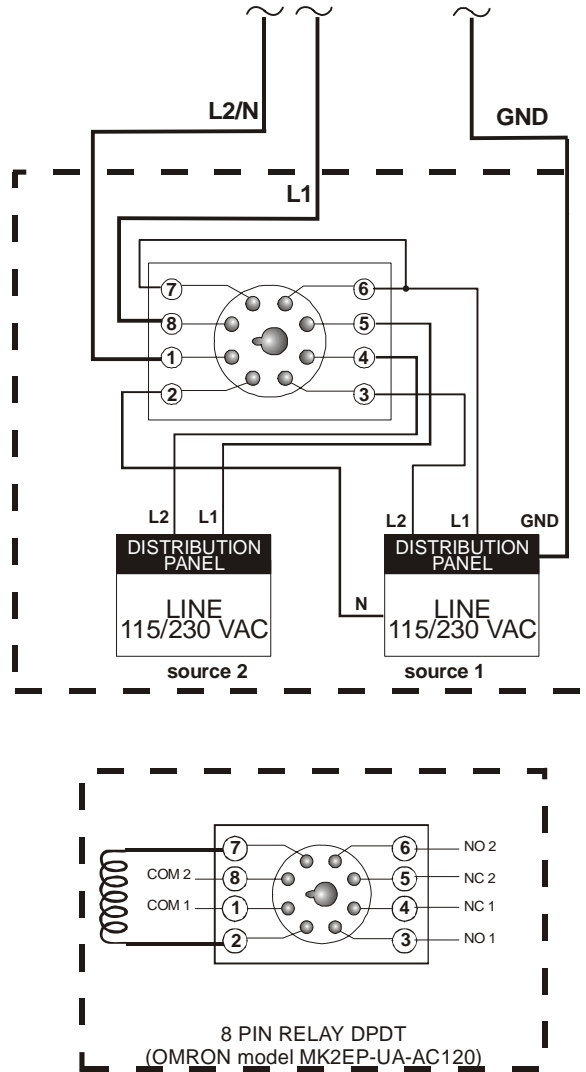
FIGURE NO. 2 Typical Temperature Probe Wiring



Typical Power Backup Wiring

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

FIGURE NO. 3 Typical Power Backup Wiring



SECTION B

JD-N2 INSTALLATION

Typical Alarm Connection Wiring

The JD-N2 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 4 and 5.

FIGURE NO. 4 Typical Alarm Connection Wiring

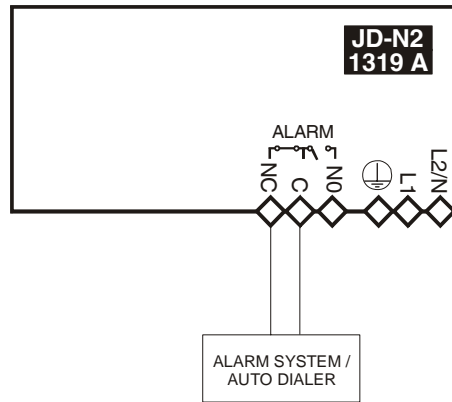
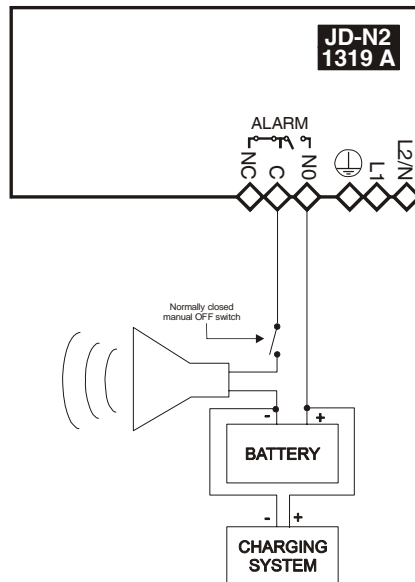


FIGURE NO. 5 Typical Siren Connection Wiring



Powering Up Procedure

Once the JD-N2 is properly mounted on the wall and all modules and sensors connected to the terminal block, perform the following step:

Verify all Connections

Seal all cable entry holes.

Hermetically Close the JD-N2

Close the front panel and the lower access cover.

Put the power on

Secure the front panel with a lock

Downloading the Configuration

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

There are two ways to download a configuration in the JD-N2 controller.

1) Downloading by powering down.

- A. Ensure the power source of the JD-N2 is OFF (flip the circuit breaker on the distribution panel).
- B. Remove the faceplate screws and lift up the cover.
- C. Insert the configuration chip (MMX) into the socket of the main board.
- D. Switch on the power source. The display on the front panel should indicate `dnLd` for approximately 15 seconds. If `dnLd` is not displayed, try one more time. If `dnLd` is still not displayed, remove and replace the configuration chip (MMX).
- E. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the JD-N2 starts up and executes the configuration.

2) Downloading while the JD-N2 is powered up.

- A. Remove the faceplate screws and lift up the cover.
- B. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.
- C. Adjust the **MMX Detected** parameter to `dnLd` and press the the `+` and `-` buttons for two seconds. The display on the front panel should indicate `dnLd` for approximately 15 seconds. If `dnLd` is not displayed, try one more time. If `dnLd` is still not displayed, remove and replace the configuration chip (MMX).
- D. When the downloading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the JD-N2 starts up and executes the configuration.

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

Uploading the Configuration

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

Here's the procedure to upload a configuration.

- A. Make sure that the JD-N2 is powered up.
- B. Remove the faceplate screws and lift up the cover.
- C. Place the MMX chip into the socket of the main board. At this moment, the **MMX Detected** parameter will appear.
- D. Adjust the **MMX Detected** parameter to `UPLd` and press the `+` and `-` buttons for two seconds. The display on the front panel should indicate `UPLd` for approximately 15 seconds. If `UPLd` is not displayed, try one more time. If `UPLd` is still not displayed, remove and replace the configuration chip (MMX).
- E. When the uploading procedure is complete, remove the configuration chip (MMX) and place it in the bottom part of the enclosure or in another safe location. Once the MMX Chip is removed, the JD-N2 will continue to execute the configuration.

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

JD-N2 Compatible Probes

This is the list of all compatible probes that can be connected with JD-N2 control with a short description of their function.

Temperature probe 2004-10K (black cap)

Temperature probe with a temperature range of -58 to 140°F (-50 to 60°C).

Specifications

Storage temperature	-4°F to 131°F (-20°C to 55°C)
Operating temperature	32°F to 113°F (0°C to 45°C)
Humidity	90% maximum Non-condensing
Weight	2.6 lb (1.2 kg)
Size	9" x 7" x 4 3/4" (22.8 cm x 17.7 cm x 11.5 cm)
Protection index	IP 66
Warranty	2 years
POWER SUPPLY	
Operational voltage range (SW1 @ 115V)	92 to 125VAC
Operational voltage range (SW1 @ 230V)	184 to 250VAC
Operational frequency range	45 to 65 Hz
Power supply circuit consumption (CPU Board)	20 W maximum
Fuse	250mA, 250VAC
PROBE INPUT	
Temperature probe	2004-10K
Maximum wire length	500 feet (150 m)
Recommended wires	2 conductors, stranded, shielded, AWG #22
ALARM RELAY	
Maximum current	1 A at 30VDC
OUTPUT RELAYS	
Maximum Current	1HP @ 240VAC, 1/2HP @ 120VAC, 12A@240VAC
Caution Notice	These relays are rated by UL and CSA at 1HP @ 240VAC, 1/2HP @ 120VAC. However, for outputs requiring frequent activation it is recommended not to use more than 1/2HP @ 240VAC, 1/4HP @ 120VAC per relay.

Important Notice.

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

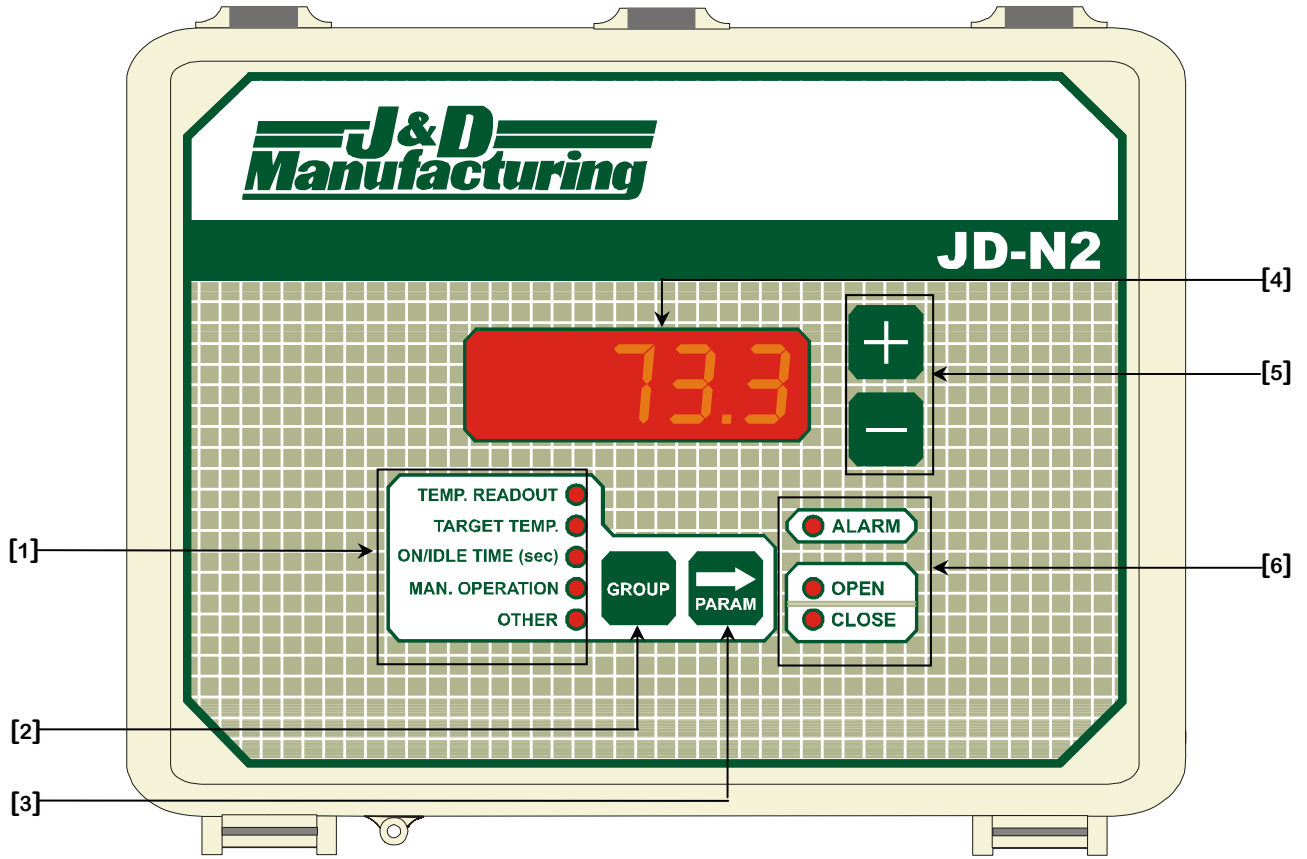
SYMPTOM	CAUSE	REMEDY
Temperature probe reads <i>LO</i>	Temperature is below -58°F (-50°C). Probe is disconnected or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Temperature probe reads <i>HI</i>	Temperature is above 140°F (60°C). Probe is short circuited or defective.	Check all connections. If the problem persists, and the temperature is within normal range, replace the probe.
Displays are blank	JD-N2 is not powered. Flat cable between the main and top boards of the JD-N2 is disconnected.	Make sure the control is powered. Make sure the fuse is correct. Make sure the flat cable is connected.

USER'S GUIDE

JD-N2

SECTION C

Control Description



SECTION C

1. Group List

On the left of the faceplate appear 5 parameter groups. The LED that is lit indicates which parameter group is selected.

2. Group Button

Pressing the group button will move down the parameter list as indicated by the Group List.

3. Param Button

This button gives access to the parameters of a group.

4. LED Status Windows

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

5. Value Setting Buttons (⊖ and ⊕)

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

6. Status LED List

On the bottom right side of the faceplate is a list of the possible states for the controller, next to which is a LED. A LED comes ON to indicate which state the controller is currently in.

JD-N2 USER'S GUIDE

Input/Output Table

Inputs	Qty	Outputs	Qty
Inside Temperature	1	Curtain	1
		Alarm	1

Equipment

Item	Description	Qty
JD-N2	Controller, 2 On/Off Outputs	1
2004-10k	Temperature Sensor (-58°F to 140°F) (-50°C to 60°C)	1

Configuration Versions

Version	Minimum processor Version	Date	Modification
V0	2	02/18/2010	New.

Ventilation System Overview

This configuration uses 1 natural ventilation curtain, which operates according an indoor temperature sensor. An alarm check will be made to check if the probe is defective.

Parameter Description

Room Temperature

This setting displays the actual room temperature.

Alarm Code AL CODE

This setting displays the alarm condition. This parameter displays no (None) when no errors have been detected. This indicates that the controller has operated properly since it was powered up or since the **Alarm Code** was last cleared. The last alarm condition will be displayed until the **Alarm Code** is cleared. To clear the **Alarm Code**, press and hold the + and - buttons until CLr (CLr) appears on the LED display. This will reset the **Alarm Code** to no (None) if no alarm condition is present. The ALARM LED on the faceplate will be lit up if an alarm condition is actually active. The alarm code refers to the following table.

Alarm Code List:

Alarm Code	Description
1	Sensor has reached Low Alarm Set Point
2	Sensor has reached High Alarm Set Point
3	Sensor is defective or unplugged
101	The controller has reset 10 times and each reset was less than 15 minutes apart from the last one.
102	If this error code appears, contact your distributor
103	If this error code appears, contact your distributor

Target Temperature

This is the temperature goal for the room and the reference temperature for all relative settings.

On/Idle Time

Curtain On Time On

This parameter is used to set the run time of the curtain timer. The curtain will move for this amount of time and then wait for **Curtain Idle Time**. This cycle will be repeated until the curtain receives a continuous opening or closing demand. This parameter is adjusted in 1-second increments from 1 to 900 seconds.

Curtain Idle Time Idle

This parameter is used to set the idle time of the curtain timer. After the curtain has moved, it will wait for this amount of time before moving once again. This parameter is adjusted in 1-second increments from 1 to 900 seconds.

Manual Operation

This parameter is used to override the controller's calculated demands and move the curtain in a given direction. If this parameter is set to **Auto** (Auto), the curtain will follow the demand the controller has calculated according to temperature readings. If this parameter is set to **Hold** (Hold), the curtain will not move. If this parameter is set to **Open** (Open), the curtain will open continuously. If this parameter is set to **Close** (Close), the curtain will close continuously.

Other

Differential **SEE 1**

This parameter sets the relative temperature at which the curtain will follow its timer and either open or close. When **Room Temperature** is equal to or below **Target Temperature – Differential**, it will close according to **Curtain On Time**. When **Room Temperature** is equal to or above **Target Temperature + Differential**, it will open according to **Curtain On Time**. This parameter is adjusted in 0.1° increments from 0.4°F to 19.9°F (0.2°C to 13.9°C).

Low Temperature alarm set point **SEE 2**

This parameter sets the temperature below which a low temperature alarm condition will occur. When the temperature sensor's reading decreases to **Low Temperature alarm set point** or below, the alarm relay and LED will be activated and the **Curtain Idle Time** will be overridden. This parameter is adjusted in 0.1° increments from OFF, 0.1°F to 99.8°F (-17.7°C to 37.7°C).

High Temperature alarm set point **SEE 3**

This parameter sets the temperature above which a high temperature alarm condition will occur. When the temperature sensor's reading increases to **High Temperature alarm set point** or above, the alarm relay and LED will be activated and the **Curtain Idle Time** will be overridden. This parameter is adjusted in 0.1° increments from 0.0°F to 99.8°F, OFF (-17.8°C to 37.7°C).

PC ID **SEE 4**

This parameter is used to select the identification number that will be used when communicating with the remote access software. This parameter may be adjusted to any value from 1 to 250.

Configuration Version **SEE 5**

This parameter displays the version of the configuration actually used.

Processor Version **SEE 6**

This parameter displays the version of the processor actually used.

Parameter Table

	Parameters	Factory Setting	Range of Values	Display Message
ROOM TEMP	Average Temperature Readout	—	-58.0 to 140.0°F (-50.0 to 60.0°C)	
	Alarm Code	—	See parameter description	AL Code
TARGET TEMP	Target Temperature	67.0°F (19.4°C)	-40.0 to 100.0°F (-40.0 to 37.8°C)	
ON / IDLE TIME	Open/Close ON Time	10	1 to 900 seconds	On
	Open/Close IDLE Time	10	1 to 900 seconds	IDLE
MANUAL OPERATION	Manual Operation	AUTO	AUTO, HOLD, CLOSE, HOLD, OPEN	
OTHER	Differential	2.0°F (1.1°C)	0.4 to 19.9°F (0.2 to 11.1°C)	SEE 1
	Low Temperature Alarm Set Point	50.0°F (10.0°C)	OFF, 0.1 to 99.8°F (-17.7 to 37.7°C)	SEE 2
	High Temperature Alarm Set Point	86.0°F (30.0°C)	0.0 to 99.8°F, OFF (-17.8 to 37.7°C)	SEE 3
	PC ID	1	1 to 250	SEE 4
	Configuration Version	*****	*****	SEE 5
	Processor Version	*****	*****	SEE 6

DIP switch table

The DIP switches are located under the faceplate of the controller.

DIP SWITCH ADJUSTMENTS		
DIP SWITCH #	ON	OFF
1	Parameters are locked.	Parameters are unlocked.
2	Temperature Unit Celsius.	Temperature Unit Fahrenheit.

**INDEX /
WARRANTY
JD-N2
SECTION D**

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Limited Warranty

The manufactured equipment and supplied components have gone through rigorous inspection to assure optimal quality of product and reliability. Individual controls are factory tested under load, however the possibility of equipment failure and/or malfunction may still exist.

For service, contact your local retailer or supplier. The warranty period shall be for two years from manufacturing date. Proof of purchase is required for warranty validation.

In all cases, the warranty shall apply only to defects in workmanship and specifically exclude any damage caused by over-voltage, short circuit, misuse, acts of vandalism, lightning, fortuitous events, acts of God, flood, fire, hail or any other natural disaster. Any unauthorized work, modification or repair on this product automatically voids the warranty and disclaims the manufacturer from all responsibility.

The manufacturer assumes only those obligations set forth herein, excluding all other warranties or obligations. This warranty stipulates that in all cases the manufacturer shall be liable only for the supply of replacement parts or goods and shall not be liable for any personal injury, damages, loss of profits, interrupted operations, fines for infringement of the law or damages to the production of the PURCHASER and the PURCHASER shall take up the defense and hold the manufacturer faultless regarding any legal or extra legal proceedings, notice, or claim by the customer or by a third party, and regarding any legal and extra legal expenses and fees brought forward on by such damages.

