

**MA052X**  
Barn Controller  
User's Manual

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**THIS UNIT IS ELECTRONIC AND AS SUCH SHOULD HAVE A BACKUP SAFETY THERMOSTAT WHICH IS MECHANICAL. ON ALL RETROFIT KILNS OUR INSTALLERS WILL CONNECT THE OLD MECHANICAL THERMOSTAT AS A BACKUP SAFETY WHICH SHOULD BE SET 10 DEGREES HIGHER DURING THE CURE. THE INSTALLER WILL EXPLAIN THE USE OF THIS BACKUP AND IT IS THE RESPONSIBILITY OF THE USER TO USE THIS BACKUP AND IF NOT THE USER TAKES THE RESPONSIBILITY OF ANY DAMAGE TO THE CONTENTS OF THE KILN DUE TO OVERTEMPERATURE. IF A KILN HAS NO EXISTING MECHANICAL THERMOSTAT THEN THE INSTALLER WILL INSTALL ONE AT A NOMINAL COST. IF THE USER INTENDS TO INSTALL THE UNIT HIMSELF THEN THESE PRACTICES SHOULD BE FOLLOWED TO MAINTAIN WARRANTY.**

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## **1.0 INTRODUCTION**

The Micro Automation Inc., MA052X temperature controller is the next generation of controller based on the highly reliable MA014X unit. It is a unique product developed specifically to control the temperatures during the curing process. This compact controller provides an intelligent solution for controlling and monitoring the temperatures in today's demanding environment. The product line has been enhanced to include the control of the intake damper to maintain constant wet bulb temperature. (-2 option). This model also has a "MAN/AUTO" switch so that the damper opening can be set with the rotation of a potentiometer (MAN) or automatically with the "Adc" setting (AUTO).

The controller is programmed via three toggle switches. The controller is easy to set up and operate. Minimum effort is required for setup and changes.

The controller is easy to install on existing or new bulk kilns. The unit replaces all the functions of existing controls and provides a simultaneous numeric display of wet and dry bulb temperatures.

The controller has been developed through years of experience. Similar units from the product family have been in operation for years with excellent reliability and performance.

The MA052X controller can be monitored remotely via wireless communication for even greater flexibility utilizing the MA168Y or MA169Y products.

Micro Automation Inc. is proud that you have chosen our product for your demanding application. Every effort has been made to supply you with a reliable product.

## **2.0 FUNCTIONAL DESCRIPTION**

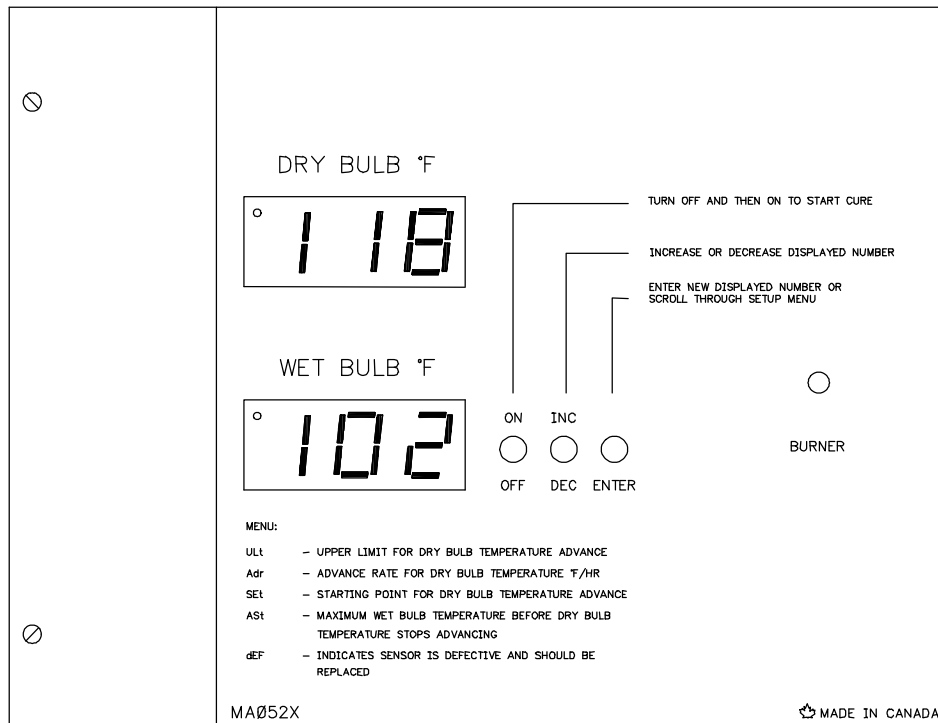
The controller replaces all the existing controls on the bulk kiln. It controls the dry bulb temperature with an electronic advance. Both temperatures are displayed simultaneously on a numeric display. A RED three-digit display is used for the dry bulb temperature. A GREEN three-digit display is used for the wet bulb temperature.

The user may program the advance rate; the upper limit temperature, the starting temperature and the wet bulb stop advance temperature. All the above programmable entries are via two toggle switches located on the circuit board.

The controller has a unique power fail recovery system which does not require a battery. The memory is retained for a minimum of ten years. The operator settings are automatically recovered when power returns to the system. If power fails the controller recovers when the power returns. You are not required to reprogram the controller. It remembers where it was before the power interruption and continues from that point when the power returns.

The temperature displays are in degrees Fahrenheit. The temperature is displayed to the nearest degree. Three digits are used for the temperature display. When the temperature is below 100 degrees, the leading zero on the display is suppressed. RED digits are used to display the dry bulb temperature. GREEN digits are used to display the wet bulb temperature. Both displays are active at all times.

Two LEDs which are an integral part of the left most digit on the numeric displays are used to indicate the advance status information and the programming information.



**Figure 1 - MA052X Temperature Controller**

A separate RED LED is used to indicate the status of the burner.

The location of the displays, LEDs and the programming switches are detailed in Fig. 1.

### 3.0 USER INTERFACE

Three toggle switches are used to provide a user interface to the controller. All the functions of the controller may be changed via these three switches. No additional user inputs are required for programming or control.

#### 3.1 ON/OFF SWITCH

This switch is not used to turn the power ON/OFF on the controller. The function of this switch is to determine if the controller is active and detect a power fail condition. The switch **MUST** be in the OFF position before you start curing the kiln. It must remain in the ON position for the duration of the curing cycle. When the curing cycle is complete it must be returned to the OFF position.

When the switch position is changed from OFF to ON the following sequence of events take place:

1. The dry and wet bulb temperatures are measured in the kiln.
2. The set point temperature and the upper limit temperatures are set to the measured dry bulb temperature.
3. The advance status is complete and the advance LED indicator is OFF.
4. The controller starts to control the temperature and display the dry and wet bulb temperatures on the display.

In summary switching the ON/OFF toggle switch from the OFF to ON position **RESETS** all the programmed temperature settings to the kiln temperature and controls the temperature based on the above temperatures. This does not include the wet bulb advance stop temperature.

If the switch is in the ON position and the main power fails the following sequence of events take place:

1. The programmed values for set temperature advance rate, upper limit temperature and advance stop temperature is recovered from memory.
2. The temperature is controlled based on the programmed settings.
3. The dry and wet bulb kiln temperatures are displayed on the display.

### CAUTION

*DO NOT LEAVE THIS SWITCH IN THE "ON" POSITION WHEN YOU HAVE COMPLETED CURING THE KILN AFTER THE MAIN CIRCUIT BREAKER IS SHUT OFF. IF YOU TURN THE MAIN BREAKER BACK ON AND THE ON/OFF SWITCH IS IN THE "ON" POSITION THE CONTROL WILL START TO CONTROL AT THE PREVIOUS TEMPERATURE SETTINGS. THEREFORE IF YOU ARE STARTING A NEW KILN THE SET TEMPERATURE WILL BE WHATEVER YOU HAD WHEN YOU FINISHED THE LAST CURE. YOU DO NOT WANT TO START A NEW KILN AT APPROX. 160 DEG. FAHRENHEIT.*

## 3.2 INC/DEC SWITCH

This switch is used to change the user programmable inputs. These include the following:

1. Upper limit temperature.
2. Advance Rate.
3. Set temperature.
4. Advance stop temperature or Wet bulb setting ("Adc").

When the switch is in the INC position the programmable entry will increment at approximately 1 second rate. When the switch is in the DEC position the programmable entry will decrement at approximately 1 second rate.

This switch is active only when the display is in the program mode.

Temperature entries increase/decrease at one degree increments. The advance rates increment/decrement at preset values.

### 3.3 ENTER SWITCH

This switch has a dual function, which depends on the state of the display.

When you have the dry and wet bulb temperatures on the display and this switch is moved to the ENTER position and released it will change the display to the program mode.

When you are in the program mode and the switch is moved to the ENTER position and released it will advance to the next programmed entry available and update the display accordingly.

This switch may be used at any time to review the settings on the controller.

## 4.0 DISPLAY FORMATS

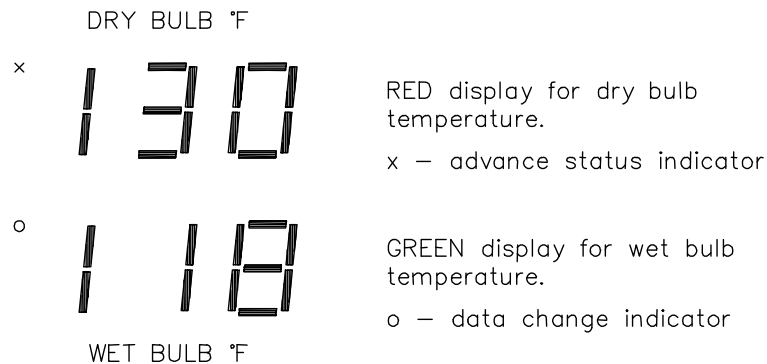
The controller has two three-digit seven-segment LED displays. Two different colours are used to differentiate between dry bulb temperature and wet bulb temperature. The RED display is used for dry bulb temperature and the GREEN display is used for wet bulb temperature. All numeric displays are right justified with leading zeroes suppressed.

The display serves a multifunction purpose. It is used to display the kiln temperatures as well as the programming information when you are programming the controller.

The format and a brief description of each display frame are described below.

### 4.1 TEMPERATURE DISPLAY

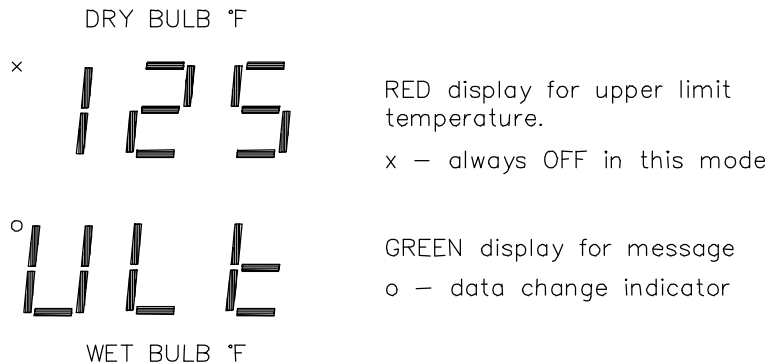
This display format is used to display the wet and dry bulb temperatures in the kiln.





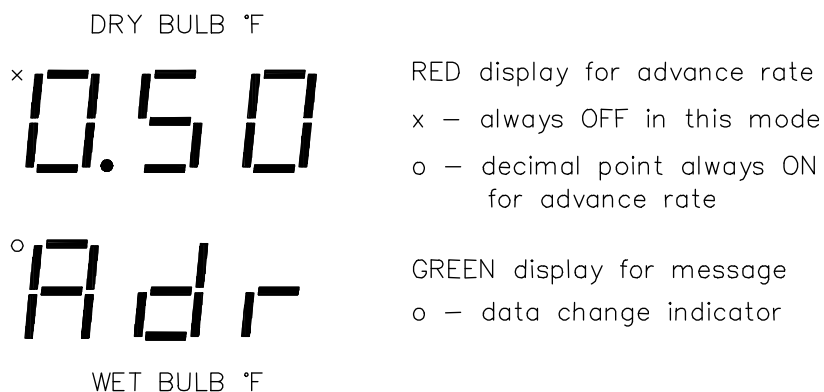
## 4.2 UPPER LIMIT TEMPERATURE DISPLAY

This display format is used for the upper limit set point temperature or the temperature you are advancing to. The upper limit set point temperature appears on the RED display and the message "ULt" appears on the GREEN display. The GREEN display provides a short description of the temperature, which you are changing.



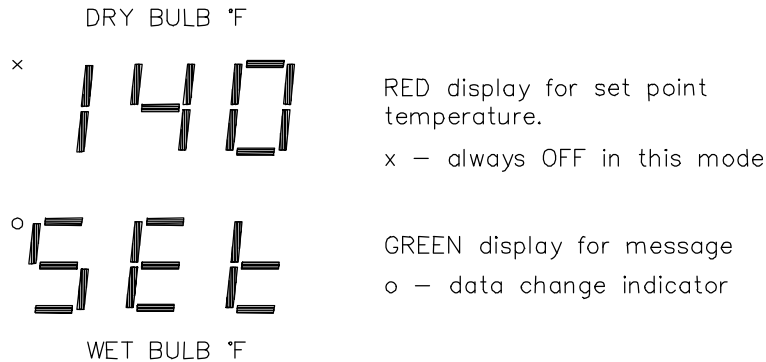
## 4.3 ADVANCE RATE DISPLAY

This display format is used to display the programmed advance rate. The advance rate appears on the RED display and the message "Adr" appears on the GREEN display. The GREEN display provides a short description of the parameter, which you are changing.



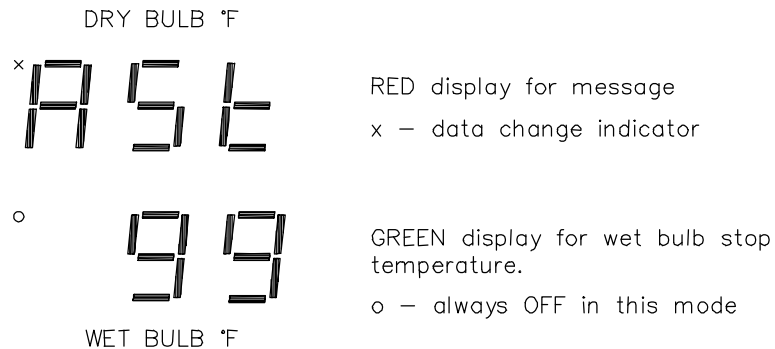
#### 4.4 SET TEMPERATURE DISPLAY

This display format is used for the set temperature. This is the temperature where your advance will start from. The set temperature appears on the RED display. The message "SEt" appears on the GREEN display.



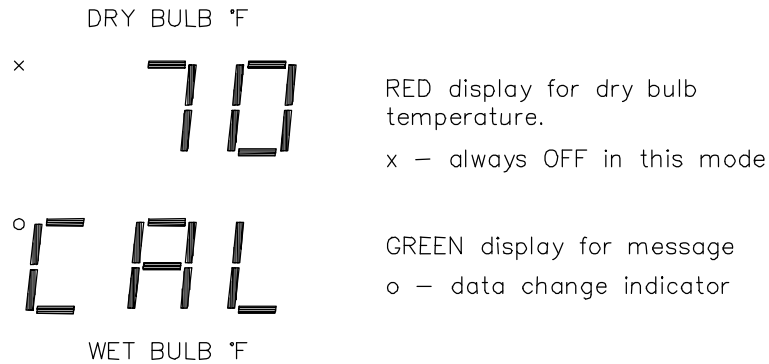
#### 4.5 ADVANCE STOP TEMPERATURE DISPLAY("Ast" OR "Adc")

This display format is used to display the wet bulb temperature where the dry bulb temperature advance will stop. The numeric temperature appears on the GREEN display. The message "ASt" will appear on the RED display. **IF YOU HAVE A DAMPER SYSTEM THEN THIS DISPLAY WOULD HAVE "Adc" AND THE SETTING WOULD SIMPLY BE THE REQUIRED WET BULB SETTING.**



## 4.6 CALIBRATE TEMPERATURE DISPLAY

This display format is used to display the dry bulb temperature when you want to calibrate the sensors. The measured temperature from the dry bulb sensor will appear on the RED display. The message "CAL" will appear on the GREEN display.



**NOTE: IF YOU FEEL THE CALIBRATION IS OUT BY MORE THAN 2 DEGREES THEN THERE IS SOMETHING ELSE WRONG WITH THE INSTALLATION OF THE SENSORS. PLEASE CALL SURETROL IF THIS IS THE CASE.**

## 5.0 PROGRAMMING THE TEMPERATURE CONTROLLER

The controller is programmed via two toggle switches located on the front face. The user is prompted for each entry on the display. When the entry appears on the display the numerical value may be increased or decreased via the INC/DEC toggle switch. To update the value press the ENTER switch down and release it. This will update the program memory and advance to the next programmable entry.

The dry bulb temperature appears on the RED display and the wet bulb temperature appears on the GREEN display. This is the standard mode for the display.

Pressing and releasing the INC/DEC key has no effect on the display in the standard mode of operation.

To enter the programming mode press the ENTER switch down and release it. You are now in the programming mode.

The display in the programming mode changes to allow you to change the programmable entries. The display in the programming mode has a numerical display and a three-character description of the parameter, which you are changing.

The programmable entries always appear on the display in the same order. The order of the entries is as follows:

1. Upper Limit temperature ("ULt" on the GREEN display)
2. Advance rate ("Adr" on the GREEN display)
3. Set temperature ("SEt" on the GREEN display)
4. Advance Stop temperature ("ASt" on the RED display) or ("Adc")

To change the setting use the INC/DEC key. The number will be incremented at approximately one-second intervals. When the desired number is reached return the INC/DEC key to the center position, press and release the ENTER key to store the new value. This will update the value in the controller memory and advance to the next entry in the program sequence.

When you have made all the changes and you do not select ANY key/keys for a ten-second interval then the display will automatically return to the normal mode.

When a programming change is made the small indicator on the left most digit with the message will be ON. This is an indication that a change has been made. If you do not want to change an entry then make sure that this indicator is OFF before you press the ENTER key to move to the next entry.

When you have reached the end of the menu sequence, press and release the ENTER key and the next display will be the first entry in the program sequence.

### NOTES

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1. The upper limit temperature ("ULt") cannot be set below the set ("SEt") temperature. This means that you cannot advance in the reverse direction.
2. The advance stop feature can be disabled if you do not want to use it. If you don't plan to use this feature simply set it to 170 degrees Fahrenheit. If you have a remote monitoring system (MA168Y or MA169Y) then you can disable the alarms for a kiln by setting the advance stop to 50 degrees Fahrenheit. **NOTE: SETTING THE ADVANCE STOP TO 50 WILL NOT ALLOW THE CONTROL TO ADVANCE SO THIS SETTING WOULD BE USED DURING CASING OR WHEN A CONSTANT TEMPERATURE IS REQUIRED WITH NO ALARM ANNUNCIATION. REMEMBER TO CHANGE THIS SETTING BEFORE THE NEXT CURE OR TEMPERATURE ADVANCE IS REQUIRED.**
3. The minimum temperature entry for any programmable parameter is 20 degrees Fahrenheit.
4. The maximum temperature entry for any programmable parameter is 170 degrees Fahrenheit.
5. When changing the upper limit temperature or the advance rate and the controller is advancing the advance timers will not change. The advance time is always optimized for the shortest time.
6. You may view all the set up parameters without making any changes in the controller memory. This is accomplished by pressing and releasing the ENTER key. Each time the key is pressed and released the next programmed entry is displayed. You will not change any advance-related timers when you view the programmed entries if the control is in the advance mode.
7. You can terminate the advance cycle in two ways. Increase the set temperature to the upper limit temperature or decrease the upper limit temperature to the set temperature. Remember when you make a change to press and release the ENTER key.

## 6.0 SENSOR CALIBRATION

The controller includes a method of calibrating the temperature sensors. The sensors must be calibrated such that the display will indicate the correct temperature. The user may perform this operation as follows:

1. Place both sensors together with a thermometer. The wet bulb and dry bulb sensors must be at EXACTLY the same temperature.
2. With the ON/OFF switch in the OFF position press both the INC/ DEC and the ENTER key down simultaneously.
3. Holding these two keys simultaneously down, turn the ON/OFF switch to the ON position. The display will now indicate the temperature on the dry bulb sensor.
4. Change this temperature to read exactly the same as the thermometer reading. The change is made via the INC/DEC key. The INC/DEC key will increment or decrement the number on the display by one each time it is pressed and released.
5. When the temperature on the display and the thermometer are identical then press and release the ENTER key. The display will now indicate the correct temperature in the standard mode and both of the sensors are automatically calibrated.

For calibration the wet bulb sensor must be removed from the wick or sock. The wet and dry bulb sensors MUST be at the same temperature when you are changing the calibration on the display.

### NOTE

*TEMPERATURE CHANGES SLOWLY WITH TIME. WHEN CALIBRATING THE SENSORS YOU SHOULD HAVE BOTH SENSORS IN THE SAME TEMPERATURE ENVIRONMENT BEFORE YOU CHANGE THE TEMPERATURE ON THE DISPLAY.*

## 7.0 LED INDICATORS

Several LED indicators are used to provide user feedback during programming and control operation.

A RED LED display is used to indicate the status of the burner. When this LED is ON the burner should be ON. When this LED is OFF the burner should be OFF. This indication is the output of the controller. If the relay or burner is faulty the burner will not be ON.

There are two small LEDS located on the top left-hand corner of the left most digit on the RED and GREEN displays. When in the control mode with the standard display the GREEN indicator should always be OFF. The RED indicator in the normal display mode provides the following information:

1. Indicator OFF - This means that the advance is complete. Upper limit and set temperatures are the same.
2. Indicator ON - This means that the control is advancing to the upper limit temperature at the programmed rate.
3. Indicator flashing - This means the control is advancing but the kiln wet bulb temperature is greater than the programmed advance stop temperature. Therefore the dry bulb temperature will not advance until the wet bulb temperature is less than or equal to the advance stop temperature.

A second LED is used in the program mode to indicate if you have changed an entry. The LED for this purpose always appears on the same display as the message. When a change has been made via the INC/DEC key, the indicator will be ON. If no changes have been made the indicator is OFF.

## 8.0 ELECTRONIC ADVANCE

The advance mechanism is one hundred percent electronic with no moving parts. The advance timer is relative and the user is not required to set a clock. When the advance rate is selected all the required timers are automatically set up by the controller. If the advance rate or upper limit is changed when the controller is advancing the controller will calculate the optimal time for the change. The optimal time is the shortest time for the next advance increment.

The following advance rates are available:

0.25	degrees per hour
0.50	degrees per hour
1.00	degree per hour
1.50	degrees per hour
2.00	degrees per hour
2.50	degrees per hour
3.00	degrees per hour
4.00	degrees per hour

The advance rate timers are accurate to within one percent within the operating temperature range.



## 9.0 SENSOR DIAGNOSTICS

The controller automatically monitors both sensors for faults, such as open sensor or shorted sensor. When a sensor fault is detected the result is reported via the display.

When a sensor fails the message "DEF" will appear on the display.

If the wet bulb sensor fails the GREEN display will have the message "DEF" displayed. If the advance stop is active the advance will continue at the programmed rate. A defective wet bulb sensor will NOT stop the advance.

If the dry bulb sensor fails the RED display will have the message "DEF" displayed. The burner will be shut OFF and the advance mechanism will continue to function.

If both sensors FAIL then both displays will have the message "DEF" displayed. The burner is OFF.

The advance mechanism continues to function for all failure conditions. However the burner is OFF in all cases if the dry bulb sensor fails.

### NOTE

*SENSORS ARE CHECKED CONTINUOUSLY. HOWEVER CERTAIN FAILURES CANNOT BE DETECTED. THE SYSTEM IS NOT ONE HUNDRED PERCENT FAILSAFE.*

*WHEN ANY SENSOR IS DEFECTIVE CHECK THE CONTROLLER SETTINGS. REMEMBER THE ADVANCE MECHANISM CONTINUES TO OPERATE IF EITHER ONE OR BOTH SENSORS FAIL. IF THE DRY BULB SENSOR FAILS THE BURNER IS AUTOMATICALLY SHUT OFF.*

### 10.0 CONTROLLER INSTALLATION

The controller is easy to install and requires a minimum amount of wiring.

The controller uses high intensity displays. These displays are brighter than normal displays. However the display is not visible in direct sunlight. The controller must not be mounted in such a manner that the sunlight will be in direct contact with the display.

The controller should be mounted inside the kiln where it cannot get wet from rain or condensation on cold days. The controller will function properly in the humid environment, however it will NOT operate if it gets wet.

Refer to Figure 2 below for wiring particulars.

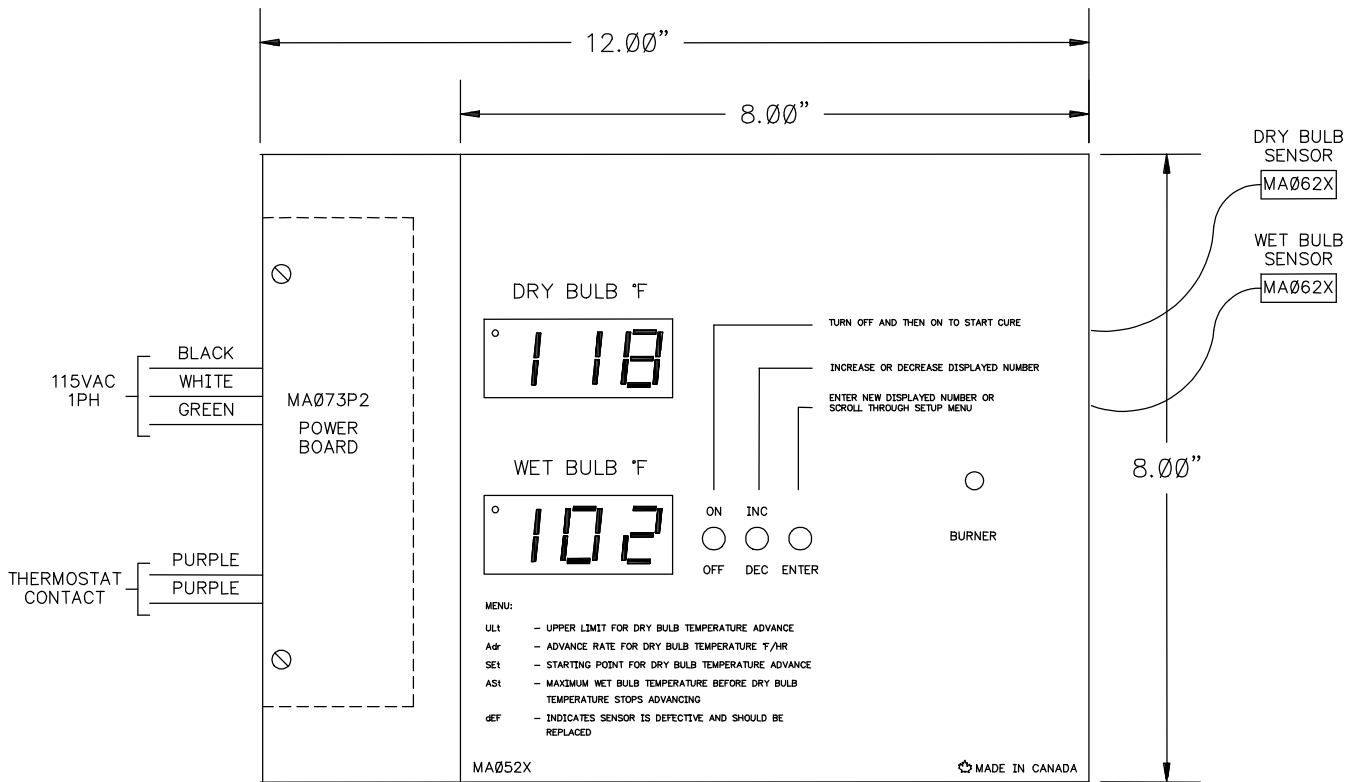


FIGURE 2 – Controller Installation

### 11.0 SPARE PARTS LIST/OPTIONS

ITEM	MODEL NUMBER	REPLACES
Complete Control	MA052X	MA014X
Sensor (Wet or Dry)	MA062X	-----
Power Supply	MA099P1	MA073P1

OPTION	MODEL NUMBER
REMOTE COMPUTER MONITOR WITH 6" TOUCHSCREEN	MA168Y (1)
REMOTE COMPUTER MONITOR WITH 10" TFT TOUCHSCREEN	MA169Y (1)

**NOTES:**

1) EACH UNIT IS WIRELESS AND CONTAINS A MASTER RF TRANSCEIVER. A SLAVE RF TRANSCEIVER UNIT (MA061Y) IS REQUIRED FOR EVERY 28 KILNS TO BE MONITORED. THE MA061Y UNIT IS LOCATED IN THE LAST KILN WITH AN APPROPRIATE ANTENNA WITH ALL KILNS DAISY CHAINED WITH A FOUR CONDUCTOR CABLE TO THE MA061Y UNIT AND TERMINATED WITH A MA063Y TERMINATOR. ALL KILNS REQUIRE AN ADDRESS TO BE SET ON THE ADDRESS SWITCH FOUND ON THE BACK OF THE MA052X MAIN CIRCUIT BOARD.

**11.1 CALL FOR SERVICE**

**FOR SERVICE PLEASE CALL:**

**MACK L. GRADY  
CURECO INCORPORATED**

**PHONE: (252) 569-1714**

**FAX: (252) 569-1716**

**LIMITED WARRANTY**

Micro Automation Inc. warrants each MA052X controller manufactured by it to be free from defects in material and workmanship under normal use and service for the period of one year from date of initial purchase.

All warranty part replacement and repairs must be made by authorized service representatives of Micro Automation Inc. Any outside work or alterations without the written approval from the factory will render this LIMITED WARRANTY void.

The obligations by Micro Automation Inc. specifically excludes any liability for consequential damages, delays, loss of income, expenses, damage to goods or property used in connection with the product sold from whatsoever cause, whether or not such loss is due to negligence of the selling dealer or Micro Automation Inc. **AT NO TIME SHALL Micro Automation Inc. BE LIABLE FOR DAMAGES GREATER IN AMOUNT IN AGGREGATE THAN THE PURCHASE PRICE OF THE PRODUCT IN RESPECT OF WHICH DAMAGES ARE CLAIMED.**

This LIMITED WARRANTY shall not apply to any item, which has been operated in a manner not recommended by Micro Automation Inc.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY, FITNESS OR ADEQUACY FOR ANY PARTICULAR PURPOSE OR USE. Micro Automation Inc. SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT TORT OR OTHERWISE.

## INSTALLATION HINTS

1. Always use primary power and not switched power. In other words make sure the power is not switched with a panel switch or flow switch. In some cases the flow switch oscillates and our system continually resets. Check to see where power comes in from the circuit breaker and connect at this point.
2. Black Wire - 115VAC HOT  
White Wire - Neutral  
Green Wire - Electrical Ground

Make sure there is a good ground connection.

3. The two red wires are the thermostat contacts. Put these in series with the existing thermostat and if a new installation we strongly recommend that a high limit thermostat be used for safety. If you have the mister function then use the two blue wires for control of the water solenoid valve.
4. The existing thermostat has to be 10 degrees higher at all times otherwise our thermostat will not work.
5. The Dry Bulb sensor is marked at the sensor end with red heat shrink while the Wet Bulb sensor is marked with green heat shrink.
6. **DO NOT FLEX THE SENSOR ENDS. THIS WILL DESTROY THE SENSOR. ALSO MAKE SURE THAT THE WET BULB SENSOR IS MOUNTED PROPERLY. MOST OF THE PROBLEMS ARISE FROM THE WET BULB SENSOR TOUCHING WATER, TOUCHING HOT METAL ETC. THE WET BULB SENSOR SHOULD BE PLACED IN A SOCK MATERIAL THAT IS WET AND IN CONTACT WITH AIR ONLY.**
7. **THIS UNIT IS ELECTRONIC AND AS SUCH SHOULD HAVE A BACKUP SAFETY THERMOSTAT WHICH IS MECHANICAL. ON ALL RETROFIT KILNS OUR INSTALLERS WILL CONNECT THE OLD MECHANICAL THERMOSTAT AS A BACKUP SAFETY WHICH SHOULD BE SET 10 DEGREES HIGHER DURING THE CURE. THE INSTALLER WILL EXPLAIN THE USE OF THIS BACKUP AND IT IS THE RESPONSIBILITY OF THE USER TO USE THIS BACKUP AND IF NOT THE USER TAKES THE RESPONSIBILITY OF ANY DAMAGE TO THE CONTENTS OF THE KILN DUE TO OVERTEMPERATURE. IF A KILN HAS NO EXISTING MECHANICAL THERMOSTAT THEN THE INSTALLER WILL INSTALL ONE AT A NOMINAL COST. IF THE USER INTENDS TO INSTALL THE UNIT HIMSELF THEN THESE PRACTICES SHOULD BE FOLLOWED TO MAINTAIN WARRANTY.**

## SAMPLE SETUP

### STARTING CURE

1. Put the ON/OFF switch in the "ON" position. Let's assume the dry bulb temperature in the kiln is 80°F. You would like to start at 85°F and advance to 90°F at 0.50 degrees/hour.
2. To enter the programming mode simply press the ENTER switch down once and you should see "ULt" displayed on the wet bulb display. The dry bulb display should have the kiln temperature displayed which in our case is 80°F. Use the INC/DEC key to increase this number to 90°F by holding it in the upward direction. Press the ENTER switch down and you should see "Adr" displayed on the wet bulb display. As before use the INC/DEC key to select 0.50 degrees/hour. Press the ENTER switch down and you should see "Set" displayed on the wet bulb display. As before use the INC/DEC key to select 85°F. Press the ENTER switch down and you should see "ASt" on the dry bulb display. This setting is required to stop the dry bulb advance at a set wet bulb. If you do not plan to use this then please set it to 170°F using the INC/DEC key. If you see "Adc" on your display then this is the required Wet bulb setting and will be maintained if the damper switch is set to "AUTO". Press the ENTER switch down.
3. Now the controller will bring the kiln temperature to 85°F and then advance to 90°F at 0.50 degrees/hour.

## COMMON PROBLEMS

### 1. **TEMPERATURE IN KILN IS LOWER THAN SET AND BURNER LIGHT IS ON.**

If you are using a mechanical backup thermostat then chances are that it is set lower than the required temperature. This is a backup and it will override the MA052X controller. To correct the problem simply increase the setting on the backup thermostat.

### 2. **TEMPERATURE IS NOT ADVANCING AND MECHANICAL BACKUP IS SET PROPERLY.**

Chances are that the "ASt" setting is too low or the wick is dry and the dry bulb advance is stopped. Check the wick and wet bulb reading. If you are using the wet bulb stop and the wick is wet then the kiln is building up humidity. You can maintain the damper opening and wait for it to clear (preferred) or you can increase the opening or you can disable the wet bulb stop by setting it to 170°F.

### 3. **TEMPERATURE WENT DIRECTLY TO WHERE I WANTED TO ADVANCE TO.**

Chances are you accidentally put the limit temperature in the "SEt" location. This is the starting temperature so the control simply went there.

### 4. **I SET THE CONTROL AND IT DID NOT UPDATE THE INFORMATION.**

Chances are you used the INC/DEC switch to select the value and forgot to press the ENTER switch down to store the value.

### 5. **THE DISPLAY HAS "DEF" ON THE WET BULB DISPLAY.**

Simply replace the wet bulb sensor. The dry bulb temperature will still be maintained.

### 6. **THE DISPLAY HAS "DEF" ON THE DRY BULB DISPLAY.**

Simply replace the dry bulb sensor. The control is inoperative and should be fixed.