

# PRODUCT SPECIFICATION SHEET

MODEL: **Series 559**

REV.

DESCRIPTION: **Digital Indicating Temperature Controller**

CUSTOMER PN: **Generic**

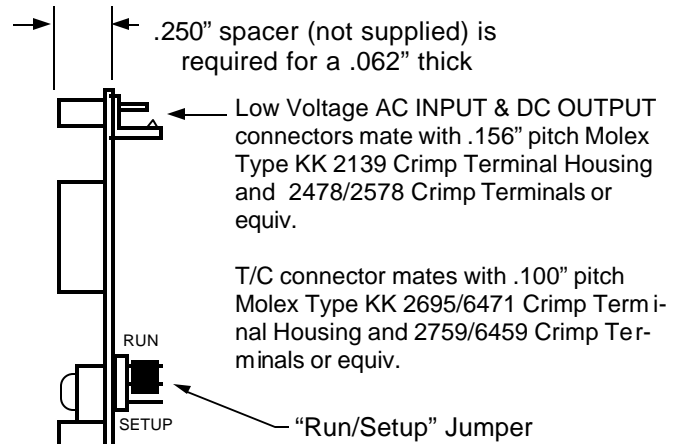
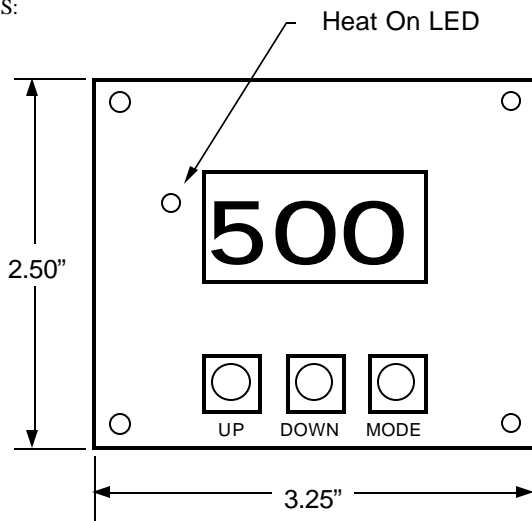
DATE: **12/12/03**

**INPUT VOLTAGE:** 10 to 28VAC, 50/60Hz, 50ma max. (not including output current).  
**CONTROL OUTPUT:** 12 to 39VDC un-regulated at 200ma max. and 4.3VDC regulated at 20ma max. to drive external EMR or SSR.  
**CONTROL MODE:** On-Off with adjustable hysteresis of 1 to 10°F (factory default 4°F)  
**SET POINT RANGE:** 50°F to 650°F with programmable set point limits  
**SENSOR:** Type "K" Thermocouple  
**DISPLAY:** 3 digit seven segment .56" H Red LED  
**MEMORY:** Non-volatile memory retains time & temperature settings  
**AMB. OPER .TEMP:** 0 to 70°C (32 to 158°F )

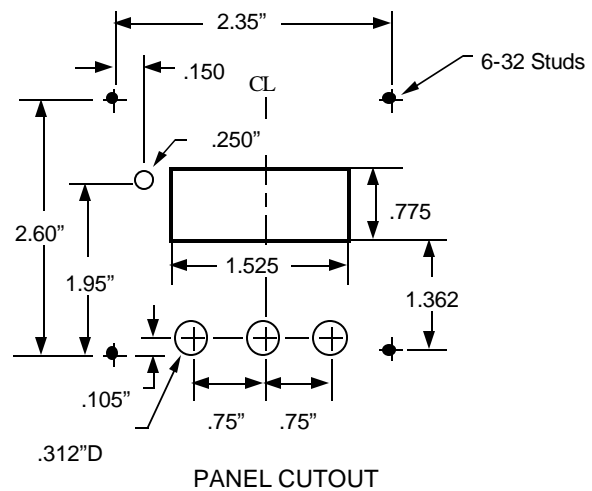
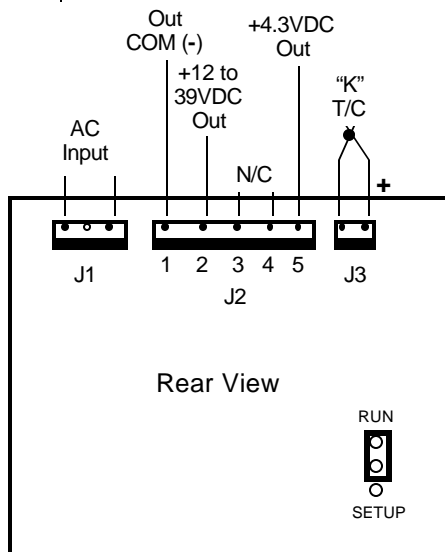
**CAUTION**

Due to the possibility of interaction between the two different output voltages which could result in permanent damage to the controller only one output should be connected at a time.

**DIMENSIONS:**



**NOTE: This jumper must be in the "Run" position before controller is powered up.**



LTR

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# SERIES 559 OPERATING INSTRUCTIONS

## Power up

Be sure that the "Run/Setup" jumper is in the "Run" position before powering up the controller. When power is first the software revision level controller will momentarily display while the controller does some internal error checking. If the process temperature is below set point the control output will energize and begin heating the process to the last used set point temperature. While warming up the display will flash "Lo" until the set point is attained for the first time.

The "Heat On" LED illuminates whenever the control output is energized.

## Viewing Set Point & Process Temperature

In the factory default mode "rdY" is continuously displayed after the set point temperature has been achieved. Pressing the "Mode" button will display the process temperature and pressing either the "Up" or "Down" button will momentarily display the set point.

The default setting can be changed so that the normal display is the set point temperature (see Setup Programming below).

## Setting the Set Point Temperature

Press and hold the "Up" or "Down" button for 3 seconds until the set point value begins to change. Release the button when the desired set point temperature is displayed. After 5 seconds the new set point value will be stored and the display will return to normal.

## High/Low Temperature Warning

On power-up or when the set point is changed the display will flash "Lo" or "Hi" until the new set point temperature is achieved.

## Sensor Fault Detection

An open thermocouple will cause the output to de-energize (heater turns off) and the "Prb" to be displayed

## Relay Failure Detection

If the temperature exceeds the set point by 50°F (usually due to a welded or shorted relay) the display will flash "Err".

## Setup Mode

A "Setup Mode" is provided to allow programming of certain parameters. Setup is accessed by moving the shorting jumper on back of the controller to the "Setup" position while the controller is powered. **Be sure to move the shorting jumper back to the "Run" position after programming is complete.**

When in the setup mode the display prompts with the parameter code to indicate which parameter is currently being programmed. The "Up" or "Down" button is used to display and change the parameter value. Pressing the "Mode" button saves the new value and advances to the next parameter. The following is a list of the programmable parameters, the parameter codes and the range of acceptable values.

<u>Parameter</u>	<u>Code</u>	<u>Values</u>	<u>Default</u>
Hysteresis (Differential)	DiF	1 to 10°F	4°F
Set Point Low Limit	SPL	50 to 400°F	50°F
Set Point High Limit	SPH	SPL+50 to 650°F	650°F
°F or °C Display Units	F-C	F or C	F
Normal Display	DSP	SP, Pr or rdY	rdY
Sensor Offset	oFS	-50°F to +50°F	0
Set Point Lock	LOC	On or Off	Off

## Initializing (Loading Defaults)

There may be situations where it desirable to initialize the controller with the original factory default values. This would be done by following the steps below.

1. Turning off the power.
2. Move "Run/Setup" jumper to "Setup".
3. Press and hold the "Down" button while turning power On.
4. Turn power off again and move "Run/Setup" jumper to "Run".

## SERIES 559 CALIBRATION INSTRUCTIONS

**CAUTION - Calibration of this controller requires specialized instrumentation and technical skill. This should only be attempted by qualified technical or service personnel following the steps below.**

1. Turn power Off.
2. Connect a Thermocouple Calibrator (ambient compensated millivolt source) to the Thermocouple input.
3. Set the calibrator for type "K" thermocouple.
4. Move "Run/Setup" jumper to "Setup".
5. Press the "Up" button while turn power On.
6. The display will prompt with the number "50" (for 50°F).
7. Set the calibrator for 50°F, wait 10 seconds then press the "Mode" button.
8. The display will now show the number "300" (for 300°F).
9. Repeat step 6 as required setting the calibrator to the displayed temperature, waiting 10 seconds then pressing the "Mode" button.
10. When the display shows "CAL" turn power Off and move the "Run/Setup" jumper back to "Run".
11. Calibration is complete.