

## **NWHL SERIES USERS MANUAL**

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### MULTI ZONE HIGH TEMPERATURE ALARM

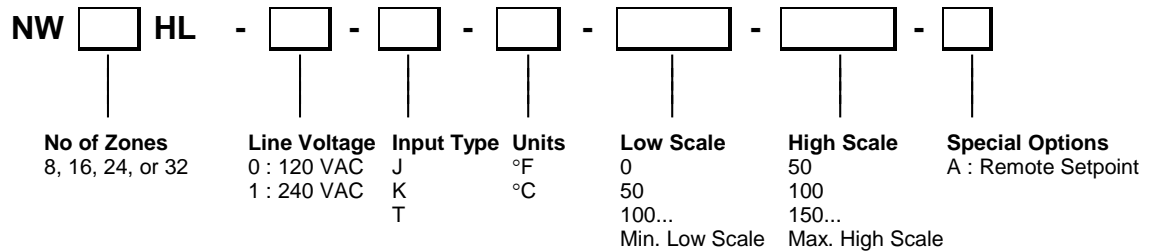


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## 1. Ordering Code (Figure 1)

The following is the ordering code for the NuWave Technologies Multizone High Limit Controller series.



For Example: A 32 Zone High Limit with 120 VAC power input, K type thermocouple with a setpoint adjustable from 300 to 350 °C would be ordered as follows:

**NW32HL-0-K-C-300-350**

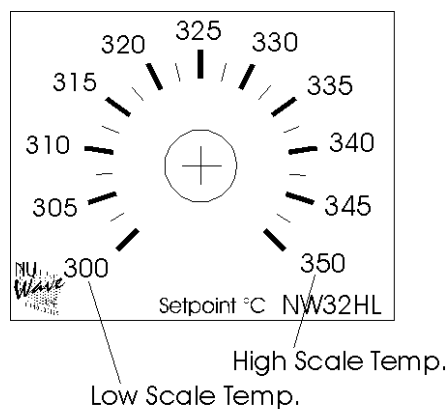
### 1.1 Ranges

The J, K, and T type thermocouples can be ordered with high and low scale temperatures (see figure 2) over any of the following ranges:

(minimum span between the High and Low scale is 50 °C)

Thermocouple Type	Minimum Low Scale	Maximum High Scale
J	-210 °C / -346 °F	760 °C / 1400 °F
K	-270 °C / -454 °F	1370 °C / 2498 °F
T	-270 °C / -454 °F	400 °C / 752 °F

#### 1.1.1 High and Low Scale Temperatures (Figure 2)



### 1.2 Special Options

#### 1.2.1 A: Remote Setpoint

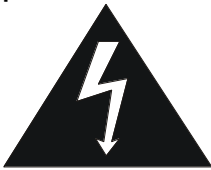
The remote setpoint option refers to the use of a panel mounted potentiometer supplied by NuWave Technologies with an adhesive scale. Please specify the desired wire length between the board and the setpoint potentiometer.

## 2. Installation / Safety Information

Responsibility for determining suitability for use in any application / equipment lies solely on the purchaser, OEM and end user. Suitability for use in your application is determined by applicable standards such as UL, cUL and CE and the completed system involving this component should be tested to those standards.



**WARNING: FIRE HAZARD!!** Even quality electronic components CAN FAIL KEEPING FULL POWER ON! Provide a SEPARATE (redundant) OVER TEMPERATURE SHUTDOWN DEVICE to switch the power off if safe temperatures are exceeded.



**WARNING: HIGH VOLTAGE!!** This unit is installed in an electrical system with high voltage in it. This control must be installed in a GROUNDED enclosure by a qualified electrician in accordance with applicable local and national codes including NEC and other applicable codes. Provide a safety interlock on the door to remove power before gaining access to the device.

### 2.1 Mounting Instructions

The NWHL should be mounted using 6-32 standoffs or screw and spacer combinations. A total of six are required to provide sufficient rigidity for the pluggable connectors. For the mounting hole pattern see Figure 3 below.

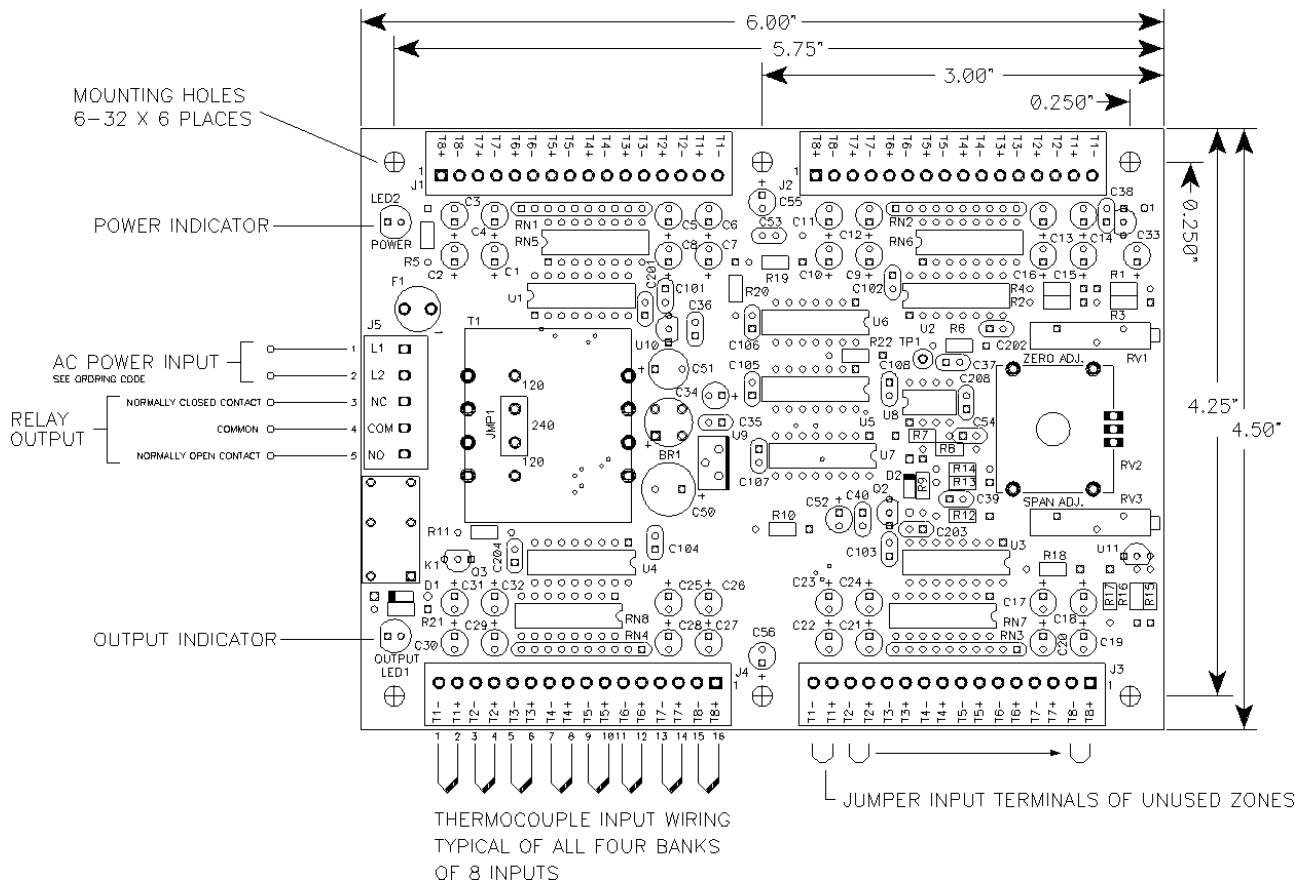
\*Note: The NWHL board should be mounted so that its underside is at least 1/4" away from the mounting surface.

### 2.2 Wiring Instructions

The NWHL uses pluggable screw terminal connectors for ease of harness assembly and convenient board replacement. The Thermocouple connectors can accept up to 18 AWG wire while the Power/Output Connector can accept up to 14 AWG wire.

The Thermocouples and Power/Output connections should be wired as shown in Figure 3 below. It is good practice to keep Power/Output wires away from the Thermocouple wires to prevent any power line noise from coupling into the Thermocouples. Unused Zones must be jumpered.

### 2.3 Wiring Diagram/Mounting Hole Pattern (Figure 3)



## **3. Operation**

### **3.1 Thermocouple Inputs**

The NWHL thermocouple inputs share a common circuit ground. The NWHL should be used in applications that have ungrounded thermocouples. If the unit is used in an application where the thermocouples are grounded, a ground loop may result causing damage or erroneous readings.

#### **3.1.1 Fail-safe Protection**

If any thermocouple input should become open, a upscale fail-safe protection circuit shall force the output on. All unused thermocouple inputs should be jumpered with a wire to prevent the fail-safe from causing an alarm condition.

### **3.2 Setpoint**

The Setpoint Temperature is the temperature that the normally open output of the electromechanical relay will close (within controller accuracy specification). The controller has approximately 2 to 3 °C of hysteresis to prevent output chatter and reduce susceptibility to EMI (Electromagnetic interference).

## 4. Electrical Specifications

- Process Inputs** - 8, 16, 24 or 32 Zones; Type J, K, or T Thermocouples.
- Ref. Junction Tracking** - Better than 0.1°C/°C ambient.
- Setpoint Resolution** - 5% , 5°C for 50 °C setpoint range.
- Setpoint Accuracy** - Range dependent (~5%), 5°C for 50 °C setpoint range.
- Setpoint Indication** - Linearized potentiometer scale.
- Alarm Output** - Single normally open or normally closed relay contact 250 VAC/5A.
- Response Time** - The Alarm on response time is less than 1 sec. The Alarm off response time is less than 5 sec.
- Power Input** - Either 120VAC or 240VAC 50/60Hz fuse protected.  
Less than 5 Watts maximum power consumption.
- Output Status Indication** - Output LED energized when normally open output is closed.
- I/O Connectors** - Pluggable terminal blocks with screw connections for the thermocouples and other I/O wires.
- Ambient Temp. Range** - 0 to 55°C.
- Board Dimensions** - 4.5"x 6".
- Shipping Weight** - Approximately 3 lbs.

## 5. Contact Information

NuWave Technologies, Inc  
866-379-3597  
[www.nuwaveproducts.com](http://www.nuwaveproducts.com)

## 6. Limited Warranty

NuWave Technologies, Inc. warrant this product to be free from defect in workmanship and materials for a period of two (2) years from the date of purchase.

1. Should unit malfunction, return it to the factory. If defective it will be repaired or replaced at no charge.
2. There are no user serviceable parts on this unit. This warranty is void if the unit shows evidence of being tampered with or subjected to excessive heat, moisture, corrosion or other misuse / misapplication.
3. Components which wear or damage with misuse are excluded, e.g. relays.
4. NuWave Technologies, Inc. shall not be responsible for any damage or losses however caused, which may be experienced as a result of the installation or use of this product. NuWave Technologies, Inc. liability for any breach of this agreement shall not exceed the purchase price paid E. & O.E.