HIGH/LOW TEMPERATURE ALARM & MONITOR

Item #107722

INSTRUCTION MANUAL

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## ILLUSTRATIONS

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DESCRIPTION

The IMS Hi-Lo Alarm & Monitor is a temperature monitor that displays the temperature from any type-J thermocouple or any device with a type-J thermocouple output.

If the temperature goes below the programmable low temperature setpoint or above the programmable high temperature setpoint, the following occurs:

- An alarm goes into effect.
- A loud horn sounds.
- An alarm-condition light flashes.
- The low alarm or high alarm indicator light goes on, to indicate which setpoint has been passed.

PREPARATION FOR USE

Refer to Figure 1 on page 9 for parts identification.

1. Early models have holes cut in bottom panel. Install plugs in those holes. Plugs are shipped in plastic bag with monitor.

2. To hang monitor temporarily on vertical surface:

   Hang monitor on screw with a 1/4" head and 1/8" shank. Use key-shaped slot on back of monitor.

3. To mount monitor permanently:
   a. Remove two screws from front panel. Swing panel open as shown in Figure 2 on page 10.
   b. Use provided screws run through holes in back panel to secure unit to any flat surface.
   c. Close front panel. Reinstall screws.

4. To use monitor as a free-standing unit:

   Install stand on bottom. To do this, remove 2 screws from bottom of monitor. Put stand in place and install screws through holes in stand.
PREPARATION FOR USE (continued)

5. Install miniature, type-J thermocouple plug onto leads from an iron/constantan, type-J thermocouple. White is positive and red is negative.

- Any leads or extensions must be iron/constantan, or reading will not be accurate. Always connect iron to iron (white to white) and constantan to constantan (red to red). Use 26 gauge or larger wire (the lower the gauge, the larger the wire).

- Insulate wires from each other at all connections. This is because iron and constantan wires act as a thermocouple junction any time they join. The monitor always reads the signal from the junction closest to the monitor.

- Plugs, lead wire and various thermocouples are available from IMS. See Optional Equipment list on page 8 for details.

4. Insert thermocouple plug into receptacle on side of monitor.
OPERATION AND ADJUSTMENT

*****

WARNING

This Alarm & Monitor uses electrical power that could cause electrocution or shock. Use extreme caution when adjusting, calibrating or servicing this device with the front panel off. Those procedures must be done only by qualified electrical technicians.

*****

1. **Power Up.**

   Plug monitor into 3-prong, grounded, 115V, 60 hz, single-phase receptacle.

   a. Digital Display will show temperature from thermocouple.

   b. High or low alarm may go off when monitor is first powered up. Press alarm silencing button to stop alarm horn while you adjust monitor.

   c. Allow three minutes for monitor to warm up before taking any critical measurements.

2. **Set Alarm Setpoints.**

   **NOTE**

   If you do not need to use the low alarm, set it well below the lowest temperature that your process will reach. If you do not need to use the high alarm, set it well above the highest temperature that your process will reach.

   a. While pressing low alarm setpoint button, turn low alarm setpoint adjusting screw until setpoint you want is on digital display.
OPERATION AND ADJUSTMENT (continued)

b. While pressing high alarm setpoint button, turn high alarm setpoint adjusting screw until setpoint you want is on digital display.

c. If you cannot get setpoint where you need it by using adjusting screws, make coarse adjustment as follows:

(1) Unplug monitor.

(2) Remove two screws on front of panel, and swing panel off to side.

(3) Slightly turn coarse adjusting screw of the alarm that needs to be brought into range. Turning clockwise will raise the range. Counterclockwise will lower it.

(4) Close front panel. Plug monitor in. Try again to set alarm setpoint.

(5) Repeat steps 1 through 4 until you are able to set both alarm setpoints where you need them.

(6) Re-install screws in front of panel.

3. **Single-Point Calibration.**

Monitor is two-point calibrated at factory, using sensors traceable to National Bureau of Standards. It should be much more accurate than any thermocouple or sensor you use.

You can single-point-calibrate monitor to make up for any inaccuracy in thermocouple, sensor or connections. Procedure is on following page.
OPERATION AND ADJUSTMENT (continued)

a. Unplug monitor.

b. Insert thermocouple or sensor into area in which temperature is known. Most accurate would be insulated cup of warm water with body-temperature thermometer in it.

If using monitor for much higher temperatures, insert thermocouple into area that is close to temperature range in which it will be used.

Calibration will be as accurate as thermometer or temperature measuring device used during calibration.

c. Remove two screws on front of panel, and swing panel off to side.

d. Plug monitor in. Let it run for 3 or 4 minutes to warm up. If digital display does not show correct temperature, slowly turn zero screw until display is correct.

e. Unplug monitor. Reinstall front panel and screws.


This device can be adjusted for a delay of 1 second, 30 seconds or 60 seconds from the time the temperature passes the alarm limit until the alarm horn and light go off.

To make the adjustment:

a. Unplug monitor.

b. Remove two screws on front panel and swing panel off to side.

c. For HI side and for LO side, put time delay jumper across 1 sec, 30 sec, or 60 sec posts. Delay does not have to be same for high and low alarms.

d. Close panel and reinstall screws.
OPERATION AND ADJUSTMENT (continued)

5. **Normal Operation.**
   
a. Digital display will show thermocouple temperature.

b. If temperature goes over high alarm setpoint or under low alarm setpoint, the following will occur:
   
   - Alarm horn will sound.
   
   - Alarm warning indicator will flash.
   
   - Low alarm or high alarm indicator will light.

   c. Press alarm silencing button to turn off alarm horn and alarm warning indicator.

   Low alarm or high alarm indicator will remain lit until temperature comes back within alarm limits.
TROUBLESHOOTING

1. Symptoms of open T/C, T/C leads or T/C plug:
   - Display rises fast.
   - Alarm is triggered.
   - Display settles on single digit "1" in far left position of display.

2. Symptoms of reversed T/C, T/C leads or T/C plug:
   - While actual temperature is 150°F or more, display shows below 0°F.
   - While actual temperature is about +50°F, display shows about 100°F.
   - Display may still be fairly accurate at actual temperature of about 70°.
## OPTIONAL EQUIPMENT

<table>
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<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Mini Male Plug, Type-J</td>
<td>TCXX-MP1260</td>
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<td>Mini Cable Clamp</td>
<td>TCXX-CC1280</td>
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<tr>
<td>Mini Female Jack, Type-J</td>
<td>TCXX-FJ1210</td>
</tr>
<tr>
<td>Thermocouples</td>
<td>Large selection; Ask IMS sales engineer</td>
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<tr>
<td>Thermocouple Lead Wire</td>
<td>Large selection; Ask IMS sales engineer</td>
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<td>IR-Type Temperature Sensor</td>
<td>Ask IMS sales engineer</td>
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WARNING
ELECTRICAL SHOCK HAZARD
Do not operate device with cover removed. Cover shown open here for illustration only.
SERVICE RECORD
AND NOTES