Six-Zone Temperature Monitor
Model DTM6

Item #110360

INSTRUCTION MANUAL

December 2009
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SAFETY SUMMARY

This manual uses the following words to show different levels of danger:

DANGER means that you are very likely to be killed or injured if you don't take the needed steps to avoid the hazard. This is the highest level of warning.

WARNING is for a situation where you could be killed or injured if you don't avoid the hazard.

CAUTION means you could receive moderate or minor injuries, or equipment could be damaged if you don't avoid the hazard.

The following general alert apply to this equipment:

DANGER

LIVE ELECTRIC PARTS could cause DEATH or SHOCK.

Lock out and tag out power before doing service.

Only qualified electricians are to do electrical work.

DESCRIPTION

The IMS DTM6 Six Zone Temperature Monitor is a display device with six type J thermocouple inputs. It displays the temperature from the input selected by the operator. Selection is simple, using a knob on the front panel. Inputs are easily labeled.

The DTM6 can be wall mounted or used on a bench top, with the stand that is included. Also included are six mini plugs for the thermocouple inputs.

CONNECTIONS

Refer to photo on page 7 to identify parts.

1. To hang monitor temporarily on vertical surface:
   a. Hang monitor on screw with a 1/4" head and 1/8" shank.
   b. Use key shaped slot on back of monitor.

2. To mount monitor permanently:
   a. Install monitor where there is not too much heat or vibration.
   b. Remove two screws from front panel. Swing panel open.
   c. Use provided screws, run through holes in back panel, to secure unit to any flat surface.
   d. Close front panel. Reinstall screws.
   e. To use monitor as a free standing unit:
      i. Install stand on bottom.
      ii. To do this, remove 2 screws from bottom of monitor. Put stand in place and install screws through holes in stand.

CONNECTIONS (continued)

3. For each thermocouple; install miniature, type J thermocouple plug onto leads from an iron/constantan, type J thermocouple. White is positive and red is negative.

> NOTE
>
> A thermocouple can be an input for both the six zone monitor and another monitor or device. The connections must be parallel, must use type J thermocouple wire and must have the correct polarity.

- 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 6 for details.

4. Insert thermocouple plugs into jacks on side of monitor.

5. It is a good idea to write on the front panel what the source is for each input. Label maker labels and grease pencils work well for this purpose. The surface can be wiped with alcohol. Standard pencil can be used, but you cannot erase hard or often without damaging the surface.

6. Plug monitor into grounded, 115/60/1 outlet.

OPERATION

DANGER

LIVE ELECTRIC PARTS could cause DEATH or SHOCK.

Lock out and tag out power before doing service.

Only qualified electricians are to do electrical work.

This 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. Whenever monitor is plugged in, it will display temperature from input selected on knob. Allow three minutes for monitor to warm up before taking any critical measurements.
2. Turn knob to different positions to read different temperatures.
3. If temperatures are not what you would expect, check calibration of monitor according to instructions on next page.

CALIBRATION

Monitor is two point calibrated at factory, using probes traceable to National Institute of Standards and Technology. It should be much more accurate than any thermocouple or probe you use.

You can single point calibrate monitor (set zero) to make up for inaccurracy of thermocouples, probes or connections you are using. If you will be using monitor for very high temperatures, the span will also need to be adjusted. Call IMS for information on setting span.

The calibration will affect all readings; you cannot calibrate just one input. If one thermocouple is more important than the others, you can calibrate to that thermocouple; though the others may then be off a little.

CALIBRATION (continued)

1. Unplug monitor.

2. Insert 2 or 3 thermocouples or probes into area in which temperature is known. Best is insulated cup of warm water (150°) with body temperature thermometer in it.

   Calibration will be as accurate as thermometer used during calibration.

3. Plug monitor in. Let it run for 3 or 4 minutes to warm up.

4. Turn knob to select each thermocouple you are using for calibration.

   If display is different for the thermocouples, you know that one or more input is faulty. It could be the thermocouple or connections.

   If display shows about the same wrong temperature for all thermocouples, you need to calibrate the monitor. Do not try calibration to correct an error of more than about 8°F.

5. To calibrate:

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

      There is a screw marked "ZERO" on the side of the front panel. Slowly turn zero screw until display is correct. Clockwise will increase reading; counterclockwise will decrease it.

   ii. Unplug monitor. Reinstall front panel and screws.

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TROUBLESHOOTING

1. Symptoms of open T/C, T/C leads or T/C plug:

   - Display rises fast.
   - 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

Description	Item No.
Mini Male Plug, Type J	103684
Mini Cable Clamp (used with mini male plug)	103677
Mini Female Jack, Type J (used with mini male plug for extension cables)	103668

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SERVICE RECORD AND NOTES