Using the

ISOTHERM

2000

W. L. Walker Co., Inc.
Tulsa,Oklahoma

(888) 397- 9255

Operating the ISOTHERM 2000

WARNING:
Static Electricity can cause an EXPLOSION!
BEFORE opening a tank hatch, attach the grounding clamp to the hatch cover.
After you are done, close the tank hatch, THEN remove the grounding clamp.

WARNING:
REPLACE BATTERY WITH ANY GENERAL PURPOSE OR HEAVY DUTY 9-VOLT CELL. FOR LONGER LIFE USE DURACELL 1604, ENERGIZER NO. 522, RADIOSHACK NO. 23-653, EVEREADY NO. 1222, RAYOVAC NO. A1604.

Brief Description
The ISOTHERM 2000 is a hand-held portable digital thermometer designed specifically for use in hazardous locations. The ISOTHERM 2000 is built to be durable and easy to operate. It displays temperature readings on a 7-digit LCD with a backlight for easy reading in all viewing situations.

Turning the ISOTHERM 2000 on
PRESS AND HOLD the power button to keep the Isotherm power on.
When the **POWER** button is DEPRESSED. The display will show:
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This demonstrates that all of the display segments are still working. After the initial display, the ISOTHERM 2000 will switch to displaying the current temperature (as measured by the tip of the attached probe).

ISOTHERM 2000 Instructions
The ISOTHERM 2000 can read temperature in either Fahrenheit or Celsius. It also features a digital calibration tool that allows precision calibration without "tweaking pots" or doing clumsy calibration calculations.

ISOTHERM 2000 KEYPAD

Taking a temperature reading

WARNING:
Static Electricity can cause an EXPLOSION!
BEFORE opening a tank hatch, attach the grounding clamp to the hatch cover.
After you are done, close the tank hatch, THEN remove the grounding clamp.

Take the stainless steel probe and place it in the fluid to be measured. After the probe has been in the fluid for approximately 30 to 45 seconds, turn on the ISOTHERM 2000 and read the current temperature. For the greatest accuracy, leave the probe in the fluid for five minutes or more.

Replacing the battery

WARNING:

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To replace the battery you will need to remove the bottom end of the ISOTHERM 2000's handle. It unscrews similar to a common flashlight. Inside the handle, there is a 9V battery attached to a long connector with leads back into the handle..
  1) Remove the battery from the handle
  2) Remove the battery connector from the battery
  3) Connect the new battery to the connector
  4) Put the battery back into the handle
  5) Replace the end of the handle

Reel Version

  1) Remove the six screws from the face and remove
  2) Remove the battery from the battery holder
  3) Disconnect the battery
  4) Connect the new battery
  5) Put the battery back in the battery holder
  6) Replace the face and screws (be sure that o-ring is seated properly)

Replacing the cable

WARNING:
SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY
AVERTISSEMENT:
LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÉQUE

The probe and cable assembly on the ISOTHERM 2000 is designed to be replaced with minimal effort. Follow these easy steps:
  1) Obtain a good replacement cable (new or rebuilt from W.L. Walker Co., Inc.)
  2) Unwrap the old cable from the ISOTHERM
  3) Unscrew the two screws that attach the end of the cable to the ISOTHERM
  4) Remove the old cable
  5) Attach the new cable to the screws vacated by the old cable
  6) Replace the screws removed in step 3.
  7) Test the connection by turning the unit on. If the unit displays the current temperature correctly then proceed to step 8. Otherwise, check the replacement cable to determine that is attached to the ISOTHERM 2000 properly.
  8) Attach the ground clip to the probe and turn on the ISOTHERM again. If the ISOTHERM still reads the correct temperature, then you are done installing the new cable. If the ISOTHERM now reads SHRT (for short), then you have attached the two ends of the cable backwards. Swap there positions and restart with step 5.
  9) Wind the new cable onto the ISOTHERM

CALIBRATING THE ISOTHERM 2000
You will need to purchase a Calibration Tool (W.L. Walker part number 69550) in order to perform a calibration.

The Calibration Tool
The Calibration Tool is a small box that allows you to calibrate the ISOTHERM. It has four buttons which allow you to adjust the displayed temperature up and down until the desired temperature is displayed. The Tool also has a phone-type jack that the cable (from inside the ISOTHERM 2000 handle) plugs into. If the ISOTHERM is plugged into the Tool, it will automatically turn on into the Calibration mode. For the REEL TYPE use the patch cable that is provided with the calibration tool.

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Using the Calibration Tool 2000
While in the calibration mode, you can adjust the temperature up and down with the Calibration Tool 2000. Press the up button (Save High) on the Tool to increment the temperature shown (make it go up by 0.1 degrees) and press the down button (Save Low) on the Tool to decrement the temperature shown (make it go down by 0.1 degrees). Holding either button will cause the temperature shown to continue incrementing/decrementing until you release it.

CLEAR   ↑   ↓   SHIFT

        Save High   Save Low

CALIBRATION BOX 2000

W.L. Walker Co., Inc.

(888)397-9255

The following page contains the calibration procedure for the ISOTHERM 2000. It details most of the information needed to perform a proper calibration. It is recommended that a copy of the following page be prominently displayed in any calibration area.

ISOTHERM 2000 CALIBRATION PROCEDURE

Plug the ISOTHERM 2000 into the Calibration Tool 2000

The plug is located in the ISOTHERM's handle or calibration compartment(Reel)

NOTE: The Isotherm 2000 MUST remain plugged into the Calibration Tool during the calibration process. Unplugging the Isotherm when moving from the cold bath to the hot bath will cause wrong temperature readings after calibration.

Pick a low calibration temperature

The ice-point (32°F or 0°C) is a good "low" calibration point (it's what we do the factory calibration at). Any other convenient point can be used however, the accuracy of the ISOTHERM can be adversely affected by a badly chosen calibration point. It is suggested that you do the low calibration at the ice-point and then do the high calibration at (or just above) the maximum temperature that will normally be measured by the ISOTHERM being calibrated (or at the maximum temperature less than or equal to 325°F (450°F if you have a high-temperature probe assembly) that you can attain for calibration).

Set the probe into a bath set to the low temperature

This could be a properly prepared ice-bath. You will need a certified Liquid-In-Glass thermometer positioned very close to the probe tip to get the exact temperature of the bath.

Wait for the bath and the probe to settle to the temperature

If you don't wait 5 minutes or more, you won't get a good calibration.

Adjust the ISOTHERM's temperature until it matches the bath temperature

See Using The Calibration Tool 2000(above) to find out how to adjust the shown temp.

Store the Low calibration temperature

While holding down the **SHIFT** button, depress the button marked **SAVE LOW**, you'll see:

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Pick a high calibration temperature

The boiling point of water (212°F or 100°C) is a good "high" point. Any other convenient point can be used however, the accuracy of the ISOTHERM can be adversely affected by a badly chosen calibration point. It is suggested that you do the high calibration at (or just above) the maximum temperature that will normally be measured by the ISOTHERM being calibrated (or at the maximum temperature less than or equal to 325°F (450°F if you have a high-temperature probe assembly) that you can attain for calibration).

Set the probe into a bath set to the high temperature

This could be a pot of boiling water. You will need a certified Liquid-In-Glass thermometer positioned very close to the probe tip to get the exact temperature

Wait for the bath and the probe to settle to the temperature

If you don't wait 5 minutes or more, you won't get a good calibration.

Adjust the ISOTHERM's temperature until it matches the bath temperature

See Using The Calibration Tool 2000(above) to find out how to adjust the shown temp.

Store the High calibration temperature

While holding down the **SHIFT** button, depress the button marked **SAVE HIGH**, you'll see:

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Clearing the Calibration (Resetting it to the Factory Calibration)
If you wish to reset the ISOTHERM to the Factory Calibration, you will need to be in the calibration mode (turn the ISOTHERM on by plugging it into the Calibration Tool 2000).
Once in the calibration mode, press and hold the **SHIFT** button, then press the button marked **CLEAR**, you'll see:

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Any calibrations that have been done since the last time the ISOTHERM was in the factory will be cleared and the ISOTHERM will be reset to the calibration that was performed at the factory.

Troubleshooting
There are several troubleshooting displays that may appear on the screen:

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nEEd ► bAtt
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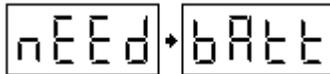
The "nEEd bAtt" display will appear if the battery is almost dead. Once this message starts appearing, you will want to replace your battery immediately to prevent down-time for the unit.

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OPEn
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The "OPEn" display could appear in the following cases:
1)   There is no Probe & Cable assembly attached to the ISOTHERM
2)   The Probe & Cable assembly is improperly installed
3)   The Probe & Cable assembly is malfunctioning (most likely)
        Examine the cable looking for kinks or breaks. Also pay close attention to where the cable enters the probe.
4)   The ISOTHERM's electronics are malfunctioning

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Shrt
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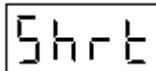
The "Shrt" (for SHORT) display could appear in the following cases:
1)   The Probe & Cable assembly is malfunctioning (most likely)
        Examine the cable looking for kinks or breaks. Also pay close attention to where the cable enters the probe.

Returning Units for Repair
When you need to return an ISOTHERM or Probe and Cable assembly to W.L. Walker for repair, you will need to fill out a copy of the ISOTHERM REPAIR TAG located at the end of this document and include it with the unit you are returning

TROUBLESHOOTING TABLE

PROBLEM(S)	POSSIBLE CAUSE(S)	WHAT TO DO
I can't turn the ISOTHERM on	A dead battery.	Replace the battery
	Bad battery connection.	Check battery connector & battery cable
	Electronics locked up.	Disconnect battery and reconnect it
	Electronics malfunctioning.	Return ISOTHERM for repair
I can't calibrate the ISOTHERM 2000	Calibration box was not plugged into the ISOTHERM 2000	Plug the cal-box into the ISOTHERM
	Using incorrect procedure.	Review the ISOTHERM MARK calibration instructions
I can't get a good, stable reading	Temperature hasn't stabilized	Wait about 5 minutes and see if the reading stabilizes
	Improper calibration	Clear the calibration and then see if you get a stable reading.(see the document: "Calibrating the ISOTHERM 2000" for instructions on clearing the calibration)
	The probe & cable is Malfunctioning	Return the probe and cable for repair and/or replace the probe & cable assembly with a new one.

ISOTHERM REPAIR TAG

FOR FASTEST SERVICE, SHIP TO:
W.L. Walker Co., Inc.
1201 South Main Street
Tulsa, OK 74119

CUSTOMER INFORMATION: DATE:____/____/____

       Name: _____

       Address: _____

                       _____

       Contact: _____ Phone #: (__ __ __)__ __ __ - __ __ __ __

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ISOTHERM INFORMATION

       COMPLETE UNIT:
            Circle Model: Mark I / Mark II / Mark IX / 2000 /2000 Reel
            Serial #:   _____

       PROBE & CABLE ONLY:
            Circle type: Normal (black) / High Temp(orange)

Description of Problem (be as detailed as possible):
_____
_____
_____

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WALKER LAB USE:

Date @ Tulsa: ____/____/____ by _____
Description of Estimate:_____
_____
_____
Date Estimate completed: ____/____/____ by _____
Date Repair authorized: ____/____/____ by _____ PO# _____
Comments:_____
_____
_____
Date Repair complete: ____/____/____ by _____
Date Shipped: ____/____/____ by _____