



User Manual



IVF Thermometer



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CONTENTS

Introduction	1
Intended Use	1
Warranty	1
Disposal	1
Screws	2
Batteries	2
Probe	4
Using the IVF Thermometer	4
Media Measurement	5
Incubator Measurement	5
Probe in holder	5
Surface Measurement	6
Care and Maintenance	7
Troubleshooting	7
Calibration	7
Specification & Applicable Part Numbers	8
RI Returns System	9
Contact Details	9

Introduction

The IVF Thermometer has been specially designed for IVF laboratories, as an independent temperature control monitor. Laboratories use the IVF Thermometer to verify that any temperature-controlled equipment is performing as desired. The unit is waterproof and is calibrated for use with refrigerators, incubators and heated stages.

Intended Use

To measure the temperature of temperature-controlled equipment typically used in a IVF laboratory.

Contraindication: It is not intended that this device come into direct contact with any tissue samples being treated in a clinical setting, or with media which is in direct contact with such samples.

Warranty

This instrument has been carefully assembled and tested, and is warranted against faulty workmanship and materials for two years from the date of purchase.

During the warranty period any defective instrument will be repaired or replaced at the discretion of the manufacturer. This warranty does not cover damage or failure resulting from misuse or accident.


Modification, adjustment or any alteration with the internal arrangement of the instrument shall absolve the manufacturer from any liability in respect of the instrument.

Disposal

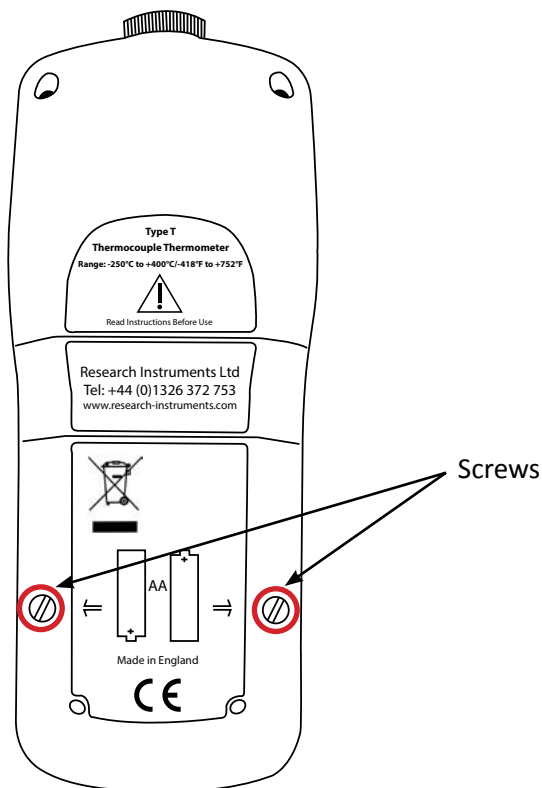


When the IVF Thermometer has reached the end of its life, it must not be disposed of with normal waste. Return it to RI to be destroyed in an environmentally safe way, or use a local facility for the disposal of waste electronic equipment.

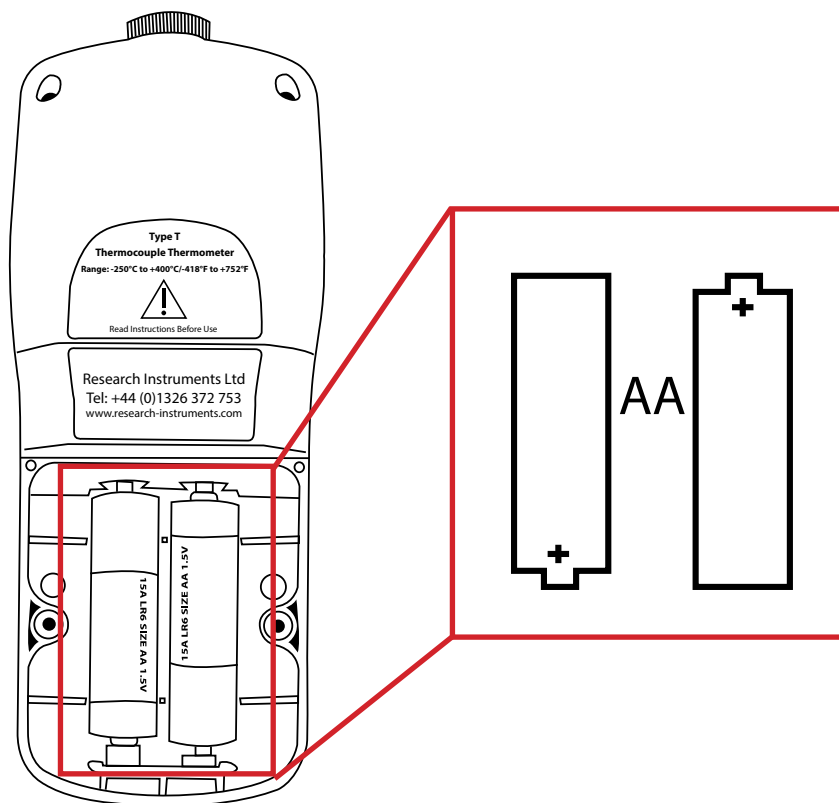
Batteries

The IVF Thermometer is powered by two AA batteries. Non-rechargeable or rechargeable batteries may be used. We recommend either alkaline or low-self-discharge Nickel Metal Hydride (NiMH) types. Replace the batteries when the low battery indicator  appears on the display.

1. Remove the battery cover by undoing the two screws using a flat-bladed screwdriver.



2. Fit the batteries as shown. The orientation of the batteries must be as shown on the diagram on the battery cover.



If the meter is not going to be used for an extended period then remove the batteries. This will prevent any possible damage from battery leakage.

Probe

The IVF Thermometer is supplied with a miniature thermocouple which is ideally suited for temperature measurement in small volumes of liquid. Also available from RI is a robust probe suitable for larger volumes of liquid, and a cryo-probe optimised for cryopreservation temperatures.

Connect the probe to the socket at the top of the meter and tighten the screw collar. Remove the white plastic sleeve from the probe tip before use, but keep the sleeve to protect the probe when it is not being used.


Note: The tip of the probe is made with very thin wires. Always handle the probe gently to minimise the risk of breakage.

Using the IVF Thermometer



Please note the offset value stated on the current calibration certificate and adjust your reading accordingly.

Turn the meter on by pressing the **ON** button for about half a second. The model number “2110” will flash in the display briefly and the meter will begin measuring.

Press the **HOLD** button to freeze the currently measured value. This can be useful when writing down temperatures. The symbol  will show on the display. Press the **HOLD** button again to return to the live display.

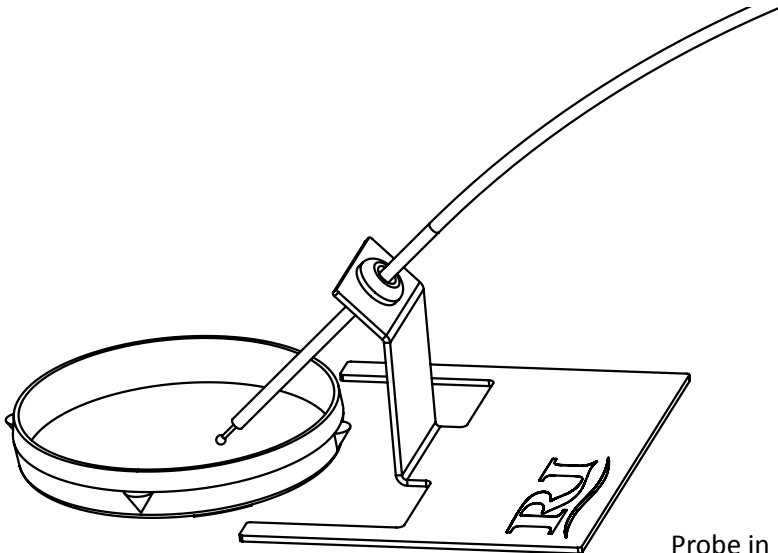
To switch the meter off, press and hold the **OFF** button. The meter will also automatically switch off after about five minutes if no buttons have been pressed. It will not automatically switch off if the **HOLD** is active.



Contraindication: It is not intended that this device come into direct contact with any tissue samples being treated in a clinical setting, or with media which is in direct contact with such samples.

Media Measurement

To check the temperature of media in a culture dish we recommend preparing a test dish in your normal manner but with water drops instead of culture media. The probe tip is waterproof so the tip can be immersed directly in the water drop. Allow the reading to settle before recording or adjusting the temperature. The probe can be held by hand or placed in the holder supplied.



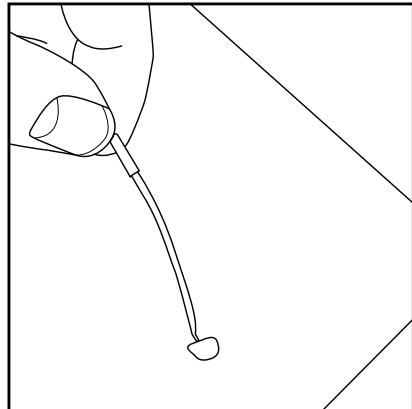
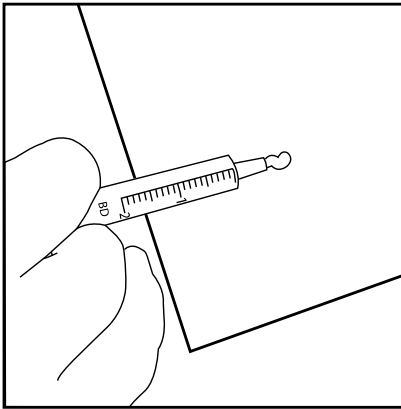
Incubator Measurement

If the incubator has a dedicated access port for temperature measurement then pass the probe through this port and ensure it is correctly sealed. Otherwise, the probe cable is thin enough to pass through the door seal. Refer to the incubator instructions for further details.

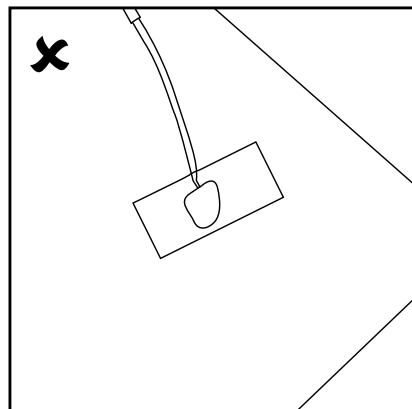
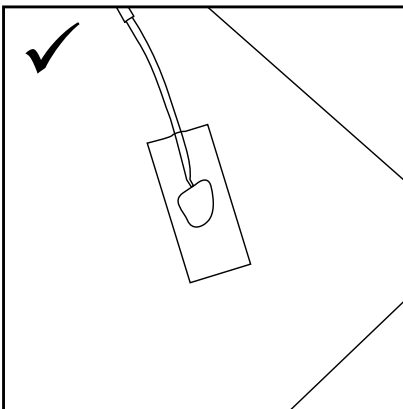
Surface Measurement

A kit containing heat transfer paste and suitable tape is available from RI.

1. Squeeze a small amount of heat transfer paste onto the surface to be measured.
2. Insert the tip of the probe into the paste.



3. Cut a short piece of the adhesive tape provided and secure the probe to the surface by placing the tape lengthways as shown. If the tape is placed across the probe it can fall out easily.



Care and Maintenance

Immersion in media solutions will accelerate corrosion of the probe tip due to the salt content of the media. Similarly, long-term exposure to humidified air inside an incubator may accelerate corrosion. To prolong the life of the probe, we suggest using plain water drops instead of culture media when checking the temperature in a Petri dish (see page 5).

After each use, rinse the probe tip in plain water, blot dry gently and allow to air dry. Then replace the plastic cap before storing.

Troubleshooting

Display shows “O-C” (open circuit); this means the probe has failed. The most common cause of failure is a broken wire at the tip. Failed probes cannot be repaired and must be replaced.

Calibration

We recommend calibrating the IVF Thermometer annually. This can be done by RI, but it may be more convenient for most users to use a local test company. We recommend calibration be conducted by a test house accredited to national standards. The meter should be calibrated to the specifications shown on page 8.

Calibration does not involve adjusting the meter, rather comparison to a traceable standard offset. For example, if the calibration certificate shows a reading of 37.3°C at an actual 37.0°C then the meter will do this consistently. This offset can be allowed for when making measurements.

Replacing a probe always requires a new calibration. Similarly, the meter can be used with more than one probe, but each probe should be calibrated separately with the meter, and care should be taken to apply the correct offset for each probe.

The cryo-probe does not require calibration as the inherent accuracy is sufficient for the purpose. See the specification table on the following page.

Specification & Applicable Part Numbers

Probe Type	Standard microdrop probe
Accuracy	UKAS-certified offset. Measurement at calibration points repeatable to $\pm 0.2^{\circ}\text{C}$
Sensor	T-type thermocouple
Calibration points	5°C , 37°C , 45°C
Units	Celsius ($^{\circ}\text{C}$)
Operation time on battery	Approx. 500 hours, depending on battery capacity
Dimensions	15.5cm x 6.7cm x 4cm
Weight of units	250g

Probe Type	Optional robust probe
Temperature range	0 to $+100^{\circ}\text{C}$
Accuracy (calibrated)	$\pm 0.2^{\circ}\text{C}$ ($\pm 0.4^{\circ}\text{F}$) over the range -20°C to $+70^{\circ}\text{C}$ (-4°F to $+158^{\circ}\text{F}$) 0.1% of reading / $\pm 0.2^{\circ}\text{C}$ ($\pm 0.4^{\circ}\text{F}$) elsewhere (whichever is greater).
Accuracy (uncalibrated)	$\pm 0.5^{\circ}\text{C}$ ($\pm 0.9^{\circ}\text{F}$) over the range -20°C to $+70^{\circ}\text{C}$ (-4°F to $+158^{\circ}\text{F}$) 0.1% of reading / $\pm 0.2^{\circ}\text{C}$ ($\pm 0.4^{\circ}\text{F}$) elsewhere (whichever is greater).
Calibration	Optional

Probe Type	Optional cryo-probe
Tempertaure range	0 to -200°C
Accuracy	$\pm 1.5\%$ of reading or 1°C , whichever is greater
Probe length	150mm
Probe diameter	1.5mm
Probe sheath	Stainless steel
Calibration	Not required

Part Number	Description
7-90-001	Standard microdrop probe replacement
7-90-011	Optional cryo-probe
7-90-013	Optional robust probe
7-90-003	Spare probe and holder
7-90-006	Spare probe holder

RI Returns System

1. Contact RI to obtain a Returned Materials Authorisation (RMA) number.
Note: Goods will not be replaced or refunded without prior agreement and clearly stating the RMA number.
2. Pack the item carefully in its original packaging. RI will not accept responsibility for damage due to incorrect packaging. Replacement items or additional repairs will be invoiced.
3. Clearly label the package with the RMA number. Mark the package ***“Urgent - Returned Items For Repair”*** and ship to the address overleaf. Goods should be insured for their full value during shipping.

Contact Details

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For all queries or service issues please contact your authorised distributor or RI's service team on service@research-instruments.com

Feedback

Thank you for purchasing an RI product. To help RI develop the best tools for ART, we rely on customer feedback. If you have any suggestions for how we can improve our products or the information we provide with them, please send them to feedback@research-instruments.com. Your feedback will help us develop the product and supporting materials to meet your future needs.

Thank you

