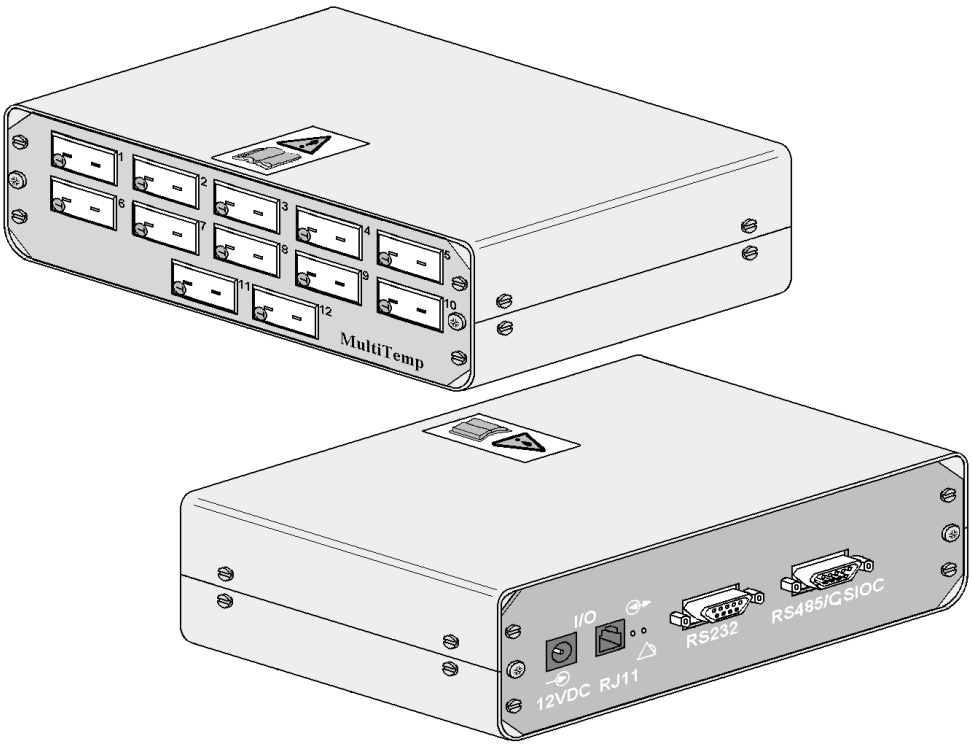
Electrothermal
A Bibby Scientific Company



MULTITEMP – MULTI-INPUT TEMPERATURE MEASURING MODULE.

ATS10001 for use with Integrity 10 Reaction Station.

INSTRUCTION BOOK.

Please take your time to read this Instructions book in order to understand the safe and correct use of your new Bibby Scientific product.

It is recommended the Responsible Body for use of this equipment reads this Instruction book and ensures the user(s) are suitably trained in its operation.

In the interest of continued development Bibby Scientific Limited *reserve the right to alter or modify the design and /or assembly process of their products without prior notification.*

This product is manufactured in Great Britian by Electrothermal, part of the Bibby Scientific Group of companies.

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1. INTRODUCTION.

The Multi Temp product provides multiple temperature sensor input capability, allowing up to 12 thermocouple sensors to be monitored simultaneously. Output is via standard RS232 interface.

The product has been designed to interface with Bibby Scientific's RS10, RS12 and Integrity 10 and 6 Reaction stations.

2. SYMBOLS AND USING THIS INSTRUCTION BOOK.

2.1. Throughout this Instruction book the following symbols are shown to identify conditions which pose a hazard to the user, or to identify actions that should be observed. These symbols are also shown on the product, or its packaging. When a symbol is shown next to a paragraph or statement it is recommended the user takes particular note of that instruction in order to prevent damage to the equipment or to prevent injury to one's self or other people.

The Responsible Body and the Operator should read and be familiar with this Instruction book in order preserve the protection afforded by the equipment.

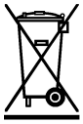
To prevent injury or equipment damage it is the manufacturer's recommendation that all persons using this equipment are suitably trained before use.

2.2. **Symbols defined**.

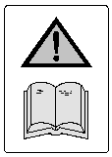
Caution, risk of danger. See note or adjacent symbol.

Caution / risk of electric shock

Recyclable Packing Material



Do not dispose of product in normal domestic waste.



Refer to Instruction book.

Bio Chemical Hazard. Caution required. May require decontamination.

This symbol indicates a 12Volt DC input socket.

(This socket is redundant when the equipment is connected directly to an RS10 / RS12).

This symbol adjacent to a flashing LED indicates communication in normal working condition.

I/O

This symbol adjacent to a illuminated LED indicates the presents of power.

This symbol adjacent to a permanently illuminated neon indicates an error status. Intermittent illumination indicates normal use.

RS232

Text adjacent to a connector indicates an RS232 communication port.

RS485/GSIOC

Text adjacent to a connector indicates an RS485/GSIOC communication port.

3. SAFETY INFORMATION.

This product has been designed for safe operation when used as detailed in accordance with the Manufacture's instructions.

NOTE: Failure to use this equipment in accordance with the manufacture's operating instruction may compromise your basic safety protection afforded by the equipment and may invalidate the warranty / guarantee. The warranty / guarantee does not cover damaged caused by faulty installation or misuse of the equipment.

3.1. Prevention of Fire and Electric shock.

To prevent a risk of fire or electric shock, **DO NOT** open your product case without authorisation. Only qualified Service personnel should attempt to repair this product

Connect this product into your Electrothermal Reaction Station only as illustrated in the section Installation.

Ensure the Mains Power Supply conforms to rating found on the data plate located on the back of this Product and the Power supply unit supplied with this product.

This equipment should only be used in conjunction with Electrothermal Reaction Station. Connection to any other system from Electrothermal or third party manufacturer may cause temperature control to fail resulting in fire or explosion.

3.2. General Safe Operating Practice *(Applicable to RS10 and RS12 Reaction Stations)*.

Always follow good laboratory practice when using this equipment. Give due recognition to your company's safety and legislative health & safety procedures and all associated legislation applicable to your areas of operation. Check laboratory procedures for substances being heated and ensure all hazards (e.g. explosion, implosion or the release of toxic or flammable gases) that might arise have been suitably addressed before proceeding. When heating certain substances the liberation of hazardous gases may require the use of a fume cupboard or other means of extraction.

Ensure equipment is used on a clean, dry, non-combustible, solid work surface with at least 300mm suitable clearance all around from other equipment.

Ensure your Reaction Station is positioned on a clean, dry, non-combustible surface with a sufficient space for the power cable to RS10 and mains input lead and plug set to enter / exit without undue bend stresses. Ensure a suitable clearance for air flow and heat dissipation.

Do not position the Reaction Station so that it is difficult to connect / disconnect from the power cable assembly.

Do not position the Reaction Station so that it is difficult to connect / disconnect from the coolant fluid supply.

Do not position the Reaction Station so that it is difficult to connect

/ disconnect data and communication cables.

Do not position the Reaction Station or Multitemp PSU so that the on / off switch is inaccessible.

Do not immerse any part of this Reaction Station System including your Multitemp module in water / fluid.

Do not spill substances onto your Reaction Station or Multitemp Module. If spillage does occur, disconnect unit from mains supply and follow instructions as detailed in Section 'Maintenance'.

Do not cover the Reaction Station or PSU or obstruct cooling fans and cooling louvers whilst in use.

It is **not** recommended that any heating apparatus is left unattended during operation.

Only use Original Equipment manufacture's spares and accessories. Ref Section 10.

The equipment is not spark, flame or explosion proof and has not been designed for use in hazardous areas in terms of BSEN 60079-14:1997. Keep flammable, low flash point substances away from the apparatus.

Do not operate or handle any part of the Reaction Station System with wet hands.

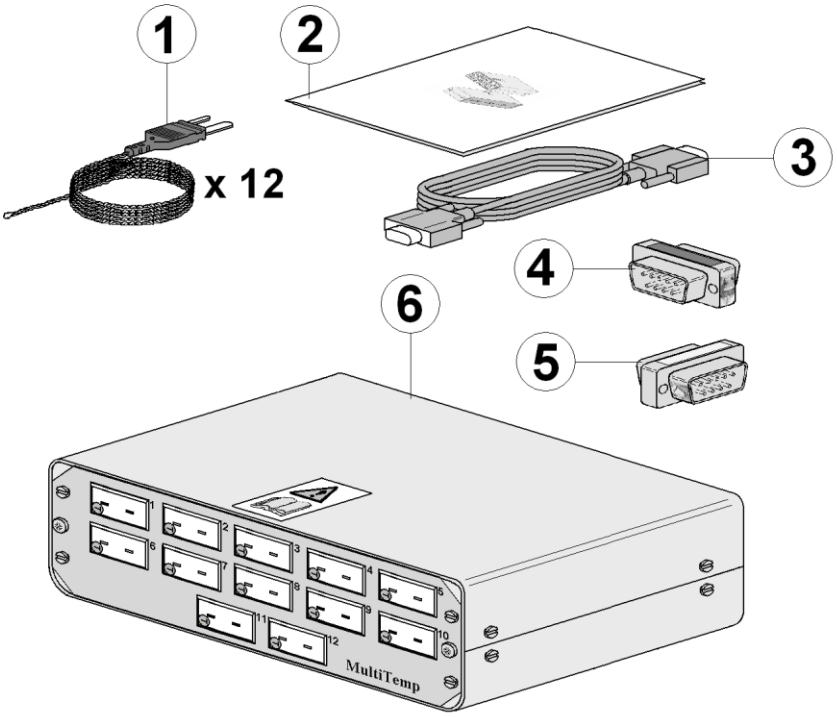
Do not touch the heating surface of your Reaction Station whilst in use.

Do not lean or stretch over equipment.

Keep the Mains Plug and Lead set cable away from the heating surface.

4. UNPACK AND CONTENTS.

4.1. Please check the contents of your carton against the diagram.



Item	Qty	Pt No	Description
1	12	M7542	Thermocouple ‘T’ type.
2	1	M7559	Instruction Book
3	1	M7444	Data cable
4	1	M7553	Adaptor Null Modem
5	1	M7554	Gender Changer
6	1	ATS10001	Multitemp Unit.

For your future reference please record your products Serial and Model numbers.	*Unit Serial Number*	*Unit Model/Cat Number.*

5. INSTALLATION

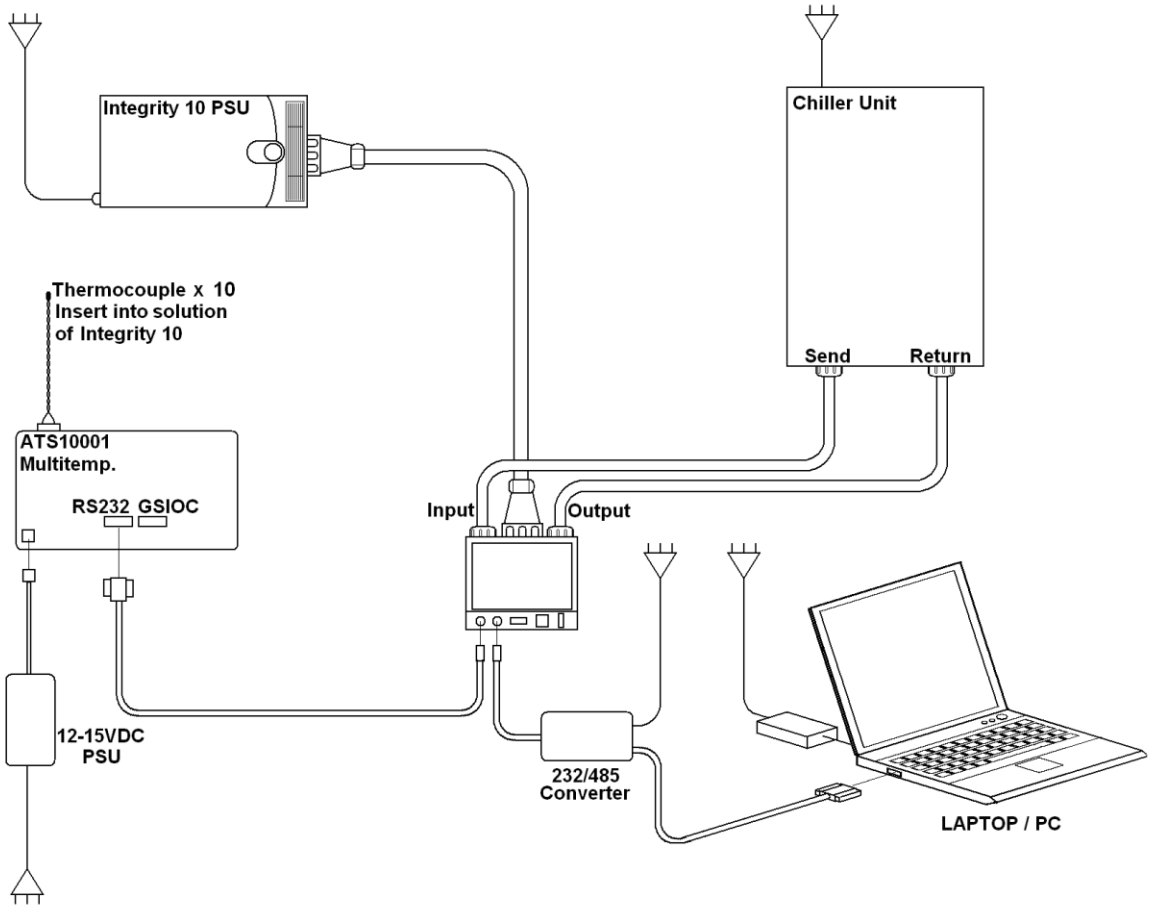
5.1. Electrical safety and installation.

5.1.1. This equipment is designed for safe use under the following conditions:-.

- Indoor use.
- Altitude up to 2000 meters.
- Temperatures between 5°C and 40°C.
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
- Mains supply voltage fluctuations up to ± 10% of the nominal voltage.
- Transient over voltages typically present on the mains supply.
- Applicable rated pollution degree 2.

5.2. Connection.

5.2.1. Connect the RS232 plug on the Multitemp to the RS232/485 of the Integrity 10 unit



5.2.2. Connect the required number of ‘T’ type thermocouples to the Multitemp input sockets numbered 1 to 10

5.2.3. Position the thermocouple sensors at the desired measurement locations. Ensure the sensors selected are of a suitable type, with respect to chemical resistance, rigidity for positioning accuracy, and physical dimensions.

Warning.  Do not install the Multitemp on a surface which may become flooded due to the poor condition of a chilled water supply.

5.3. Installation direct to a PC.

5.3.1. This method of installation allows up to ten temperature readings to be displayed, but requires and independent 12 Volt DC power supply.

6. ENVIRONMENTAL PROTECTION.

6.1. Electrothermal has given due consideration to environmental issues within the design and manufacturing process without compromising end product performance and value.

6.2.  Packaging materials have been selected such that they may be sorted for recycling.

6.3.  At the end of your product and accessories life, it must not be discarded as domestic waste. Ref: EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment Directive (WEEE). Please contact your distributor / supplier for further information. For end users outside of the EU consult applicable regulations.

6.4. This product should only be dismantled for recycling by an authorised recycling company.

This product and accessories must be accompanied by a completed Decontamination Certificate prior to any disposal. Copies of the Certificate are available from your distributor of Bibby Scientific products, or you may copy and enlarge from 'Appendix A' of this instruction book.

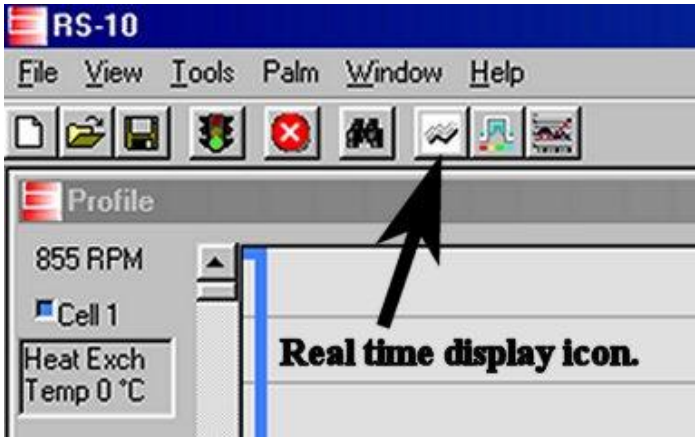
Bibby Scientific's Electrothermal branded product range is registered with the Environment Agency under the name of as Electrothermal Engineering Limited as being a producer of WEEE (Waste Electronic and Electrical Equipment) through b2b Compliance, an authorised waste collection compliance scheme.

7. PRODUCT OPERATION.

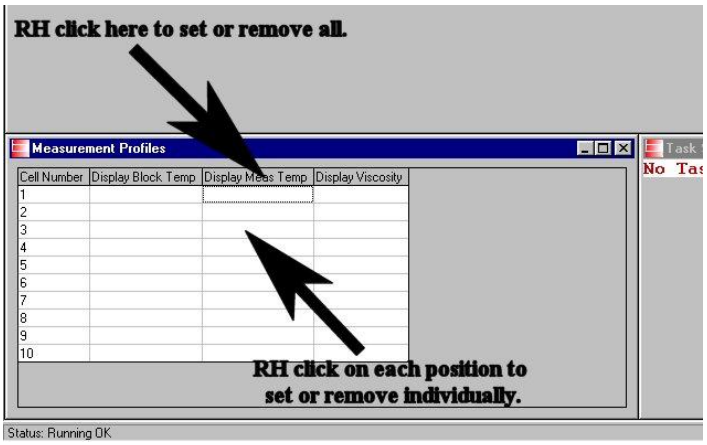
7.1. RS10 PC control.

7.1.1. Using the installed RS10 PC software create or open a chemistry profile as detailed in the software instructions.

7.1.2. To display the Multitemp data select the real Time Display Icon from the Main Tool Bar.



7.1.3. You can now select channels (1 to 10) for viewing. (Note that only the positions that have T type thermocouples connected to Multi Temp should be enabled). If all ten channels are to be displayed, position the mouse cursor over the **Display Meas Temp** box in the **Measurement Profile Window**, click the RH mouse button and select **Set All**. To hide or display each individual channel RH click on the particular measurement profile and select **Add to / Remove** from the profile.



7.1.4. To run your profile click on the **Traffic Light** Icon from the **Toolbar** as detailed in your PC Software Instructions.

7.1.5. The selected channel temperatures will now be displayed in the Real Time Data Graph Window. The data will also be recorded in the Results.csv file.

7.2. RS10 PC Control Client.

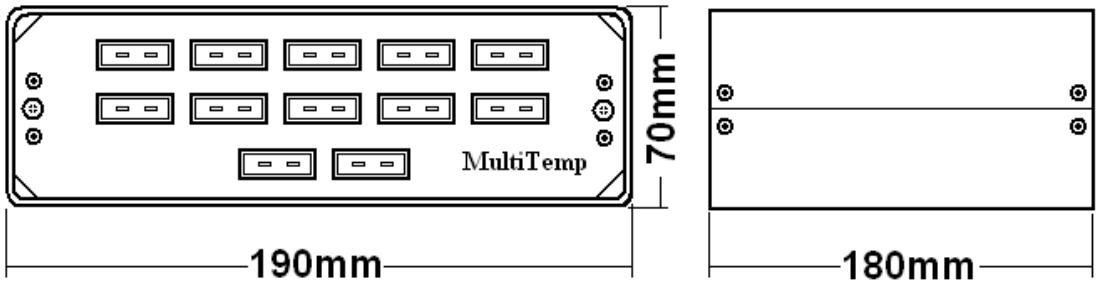
Operate the RS10 using the Multitemp as detailed in the RS10 PC Control Client Instruction Book.

8. TECHNICAL SPECIFICATIONS.

8.1. Specifications.

Mains Input Supply Voltage	12v – DC from RS10/RS12 Aux socket or external power supply.
Number of inputs	12 x T type thermocouple sockets. (positions 11 and 12 only available when used with RS12.
Temperature measurement range	-40°C to +160°C.
Temperature accuracy	-/+ 0.2°C
T type class 1 thermcouple accuracy	-/+ 0.5°C
Temperature resolution	0.1°C
Power consumption	<500mW

8.2. Dimensions and Weight (unpacked).



8.3. The Ingress Protection rating for the Multitemp temperature measuring module has been classified as IPX0.

9. MAINTENANCE.

The Multitemp temperature measuring module is not serviceable.

Routine maintenance should include inspection of all system cables.

Use a dry cloth for cleaning.

Responsible body should confirm with the manufacturer that any intended method of decontamination will not damage the equipment.

 Maintenance should only be carried out under the direction of the Responsible Body, by a competent electrician. Failure to do so may result in damage to the product and in extreme cases be a danger to the end user.

With proper care in operation this equipment has been designed to give many years of reliable service. Contamination or general misuse will reduce the effective life of this product and may cause a hazard.

Maintenance for the unit should include:

DO NOT USE SOLVENTS FOR CLEANING ANY PART OF THIS EQUIPMENT.

In the event of spillage switch off and unplug this product from the mains electrical supply. Wipe off all excess liquid from the product and surrounding area using an absorbent soft cloth. Allow sufficient time for any ingressed liquid to evaporate before commencing with use.

If in doubt please consult Customer Support. Refer to section 10.

If the equipment has been exposed to contamination, the Responsible Body is responsible for carrying out appropriate decontamination. If hazardous material has been spilt on or inside the equipment, decontamination should only be undertaken under the control of the Responsible Body with due recognition of possible hazards. Before using any cleaning or decontamination method, the Responsible Body should check with the manufacturer the proposed method will not damage the equipment.

Prior to further use, the Responsible Body shall check the electrical safety of the unit. Only if all safety requirements are met can the unit be used again. The above procedure is intended as a guide. Should spillage occur with a toxic or hazardous fluid then special precautions may be necessary.

Decontamination Certificate.

Note: In the event of this equipment or any part of the unit becoming damaged, or requiring service, the item(s) should be returned to the manufacturer for repair accompanied by a decontamination certificate. **Copies of the Certificate are available from Distributor/Manufacturer. Appendix A of this instructions book may be copied and enlarged.**

At the end of life, this product must be accompanied by a Decontamination Certificate. See section 6.3 and 6.4

10. CUSTOMER SUPPORT.

For help and support in using this product, please contact Customer Services at the following address.

Bibby Scientific Limited.
Beacon Road,
Stone,
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- General enquiries : **info@bibby-scientific.com**
- Order enquiries : **sales@bibby-scientific.com**
- Technical support : **electrothermalhelp@bibby-scientific.com**

- **www.electrothermal.com**

For the America's and Canada, contact:
Techne Incorporated, 3 Terri Lane,
Suite 10 Burlington, NJ 08016 USA.

Toll free:800-225-9243Tel: 609-589-2560
Fax: 609-589-2571
Email: **labproducts@techneusa.com**
Http www.techneusa.com

11. PARTS AND ACCESSORIES.

AZS4257	12 Pack thin wire, T type Thermocouples.
AZS4255	RS232 Communication Lead.
AZS4256	Null Modem Adapter
AZS4258	9-Pin D-Type gender Adapter.

APPENDIX 'A'. DECONTAMINATION CERTIFICATE.

Bibby Scientific Limited. Beacon Road, Stone, Staffordshire ST15 0SA. Great Britain

Tel: +44(0)1785 812121. Fax: +44(0)1785 810405 **E-mail: electrothermalhelp@bibby-scientific.com**

DECONTAMINATION CLEARANCE CERTIFICATE

For the Inspection, Repair or Return of Medical, Laboratory or Industrial Equipment.

Prior to a Service Engineer working on equipment that has been in an environment where substances hazardous to health may have been used, you are requested to provide the following information:

CUSTOMER DETAILS

Company:-

Address:-

Department:-

Contact Name:-

Tel No:-

Fax No:- Post Code:-

Product Description

Model No:- Serial No:-

Has the equipment been exposed to any of the following, Please answer all questions by deleting YES/NO as applicable and by providing details in section 2 below.

A. Blood, body fluids, Pathological specimens	YES/NO	Provide details if YES
B. Biodegradable material that could become a hazard	YES/NO	Provide details if YES
C. Other biohazard	YES/NO	Provide details if YES
D. Chemical or substances hazardous to health	YES/NO	Provide details if YES
E. Radioactive substances State name(s) and quantities of isotopes and checks made for residual activity	YES/NO	Provide details if YES
F. Other hazards	YES/NO	Provide details if YES

2. Please provide details of any hazard present as indicated above. Include details of names and quantities of agents as appropriate:-

3. Your method of decontamination (please describe):-

4. Are there likely to be any areas of residual contamination (please specify)

I declare that the above information is true and complete to the best of my knowledge and belief.

Authorised signature:- Name (please print):-

Title/Position:-

For and behalf of:- Date:-

12. EC DECLARATION OF CONFORMITY.

CE marked products and associated accessories covered by this Instruction book conform to the essential requirements of the following directives:

EMC Directive.
Low Voltage Directive.

A full copy of the EC Declaration / Conformity document can be obtained from the manufacture at the email address : **info@bibby-scientific.com**

Distributors Stamp

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- **www.electrothermal.com**

For the America's and Canada, contact:
Techne Incorporated, 3 Terri Lane,
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