

Instruction Manual
M6877 / Version 9.7

Please take your time to read this Instruction Manual in order to understand the safe and correct use of your new Electrothermal product.

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

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In the interest of continued development Cole-Parmer Ltd. reserve the right to alter or modify the design and /or assembly process of their products without prior notification.

This product is manufactured in the United Kingdom by Electrothermal, part of the Cole-Parmer Group of companies.

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1. INTRODUCTION.

- 1.1. The Electrothermal range of Electric Bunsen's have a high temperature heat source designed for general purpose laboratory use. They are suitable for the non-contact radiant heating of materials in test tubes, crucibles, small flasks and beakers.
- 1.2. Each Bunsen radiant heater bowl is constructed within a robust, corrosion resistant cylindrical stainless steel housing. The replaceable heater assembly consists of a coiled resistance heater. This in turn is formed around the outer surface of a ceramic bowl. The heater assembly is then mounted in the top of the Bunsen's cylindrical housing. Air circulation / cooling vents are provided in the lower half of the Bunsen housing ensuring that the base remains cool enough to touch whilst operational. A detachable cowl is supplied with the Bunsen to deflect heat from the medium surface when hand holding the Bunsen (with heat-resistance gloves).

2. SYMBOLS AND USING THIS INSTRUCTION MANUAL.

2.1. Throughout this instruction manual 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 Instructions manual 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.



Protective conductor terminal to be earthed.
(Do not loosen or disconnect).



Caution / risk of electric shock



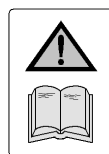
Recyclable Packing Material.



Do not dispose of product in normal domestic waste.



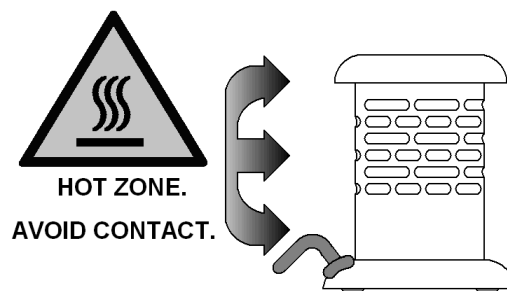
Caution. Hot surface.



Refer to Instructions Manual



Bio Chemical Hazard. Caution required. May require decontamination.



Hot Zone on product BA6101.

3. SAFETY INFORMATION.

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

NOTE: Failure to use this equipment in accordance with the manufactures operating instructions 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.



Replace fuses only with the type as listed in section, 'Technical Specifications and Parts and Accessories' (See fuse type and rating).



Ensure the Mains Power Supply conforms to rating found on the data plate located on the under-side of this product and that of your MC Controller.



Never Operate this equipment without connection to earth / ground. Ensure the mains supply voltage is correctly earthed / grounded in accordance with current area legislation.

3.2. General Safe Operating Practice.



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 400mm suitable clearance all around from other equipment.



It is recommended that suitable protective eye glasses and gloves be worn when using this product.



Do not touch the upper part of this product while in use. The surface temperature will burn.



Do not position the product so that it is difficult to disconnect from the MC Controller / Power supply.



Do not touch the heating element or any glass vessel whilst in use.



Do not lean or stretch over equipment when in use.



Do not immerse unit in water or fluids.



Do not spill substances onto this product. If spillage does occur, disconnect unit from mains supply and follow instructions as detailed in Maintenance. (Section 9).



Do not cover this product whilst in use. **Do not** block or obstruct ventilation slots / airways.



Do not leave this product switched on when not in use.



Do not thermally insulate the exposed upper section of this product, as the insulation used may obstruct the convection cooling airways around the rim and cause the product to overheat.



It is not recommended to leave any heating apparatus unattended during operation.



Only use Original Equipment manufactures 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 product with wet hands.



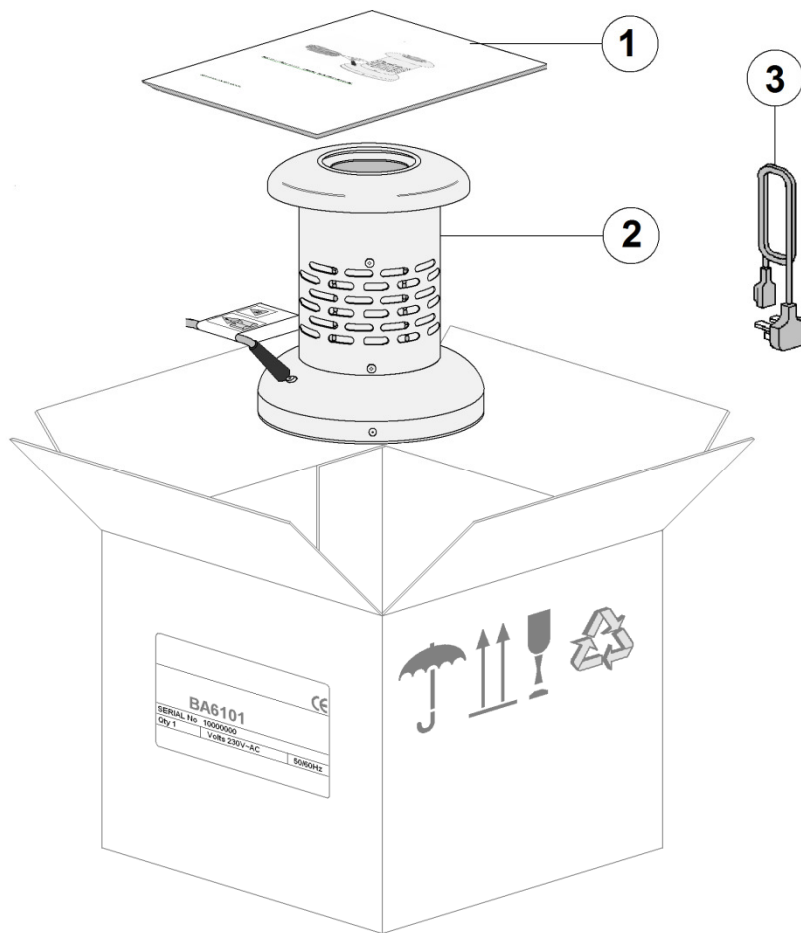
It is recommended this product be used with an Electrothermal MC5 Controller (Energy Regulator). However for high temperature use it may be connected directly to the mains electricity supply. Extra safety care should be used.



Keep the Mains cord and lead set away from the heating surface.

4. UNPACK CONTENTS.

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



Item No	Description	Qty
1	Instructions Manual	1
2	Electric Bunsen	1
3	Mains leads in BA6101 or BA6101/C (UK and Schuko lead)	1
	Mains lead in BA6101X1 or BA6101/CX1 (US lead)	


	<i>Serial Number</i>	<i>Unit Model/Cat Number</i>
For future reference please record your products Serial and Model Numbers.		

5. INSTALLATION.

5.1. Electrical Safety and Installation.


5.1.1. This equipment is designed to be safe 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 $\pm 10\%$ of the nominal voltage.
- Transient overvoltages typically present on the mains supply. (Overvoltage category II)
- Applicable rated pollution degree 2.

5.1.2.  This equipment must be earthed / grounded to a fixed earth / grounded mains socket outlet. The mains supply is to earthed / grounded in accordance with current legislation.

5.1.3. Check the voltage on the product data label on this product unit and those of any accompanying electrical accessory. Ensure the rating conforms to your local supply.

5.1.4. It is recommended this product be connected to a mains supply source which incorporated a RCD or GFCI device.

5.1.5.  Do not install this product or Controller on a surface which may become flooded.

5.1.6. The unit is supplied with a Mains cord and lead set. Always wire the product as follows.



Green / Yellow or **Green** = **Earth / Ground**
Blue or **White** = **Neutral**
Brown or **Black** = **Live / line hot.**

5.2. **Observation:** the surface of the heating element of a Bunsen will upon receipt look slightly discoloured. This discolouration is normal and occurs at the factory during test when the product is first heated up.

5.3. The Electrothermal MC5 Controller is recommended for use with our Electric Bunsen's.

6. ENVIRONMENTAL PROTECTION.

- 6.1. Maximum consideration has been given 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.

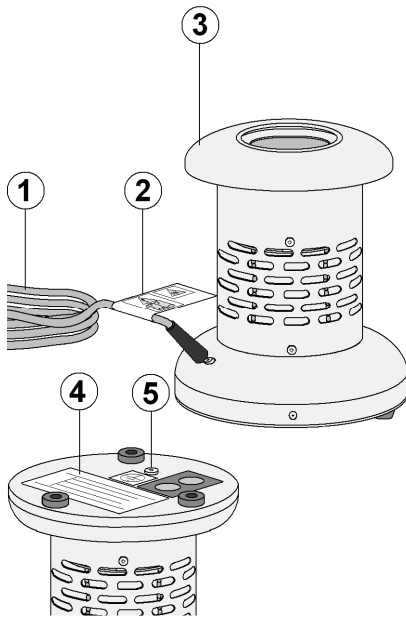


This product and accessories must be accompanied by a completed Decontamination Certificate prior to any disposal. Copies of the Certificate are available from Distributor/Manufacturer.

7. PRODUCT OPERATION.

7.1. For general use, it is recommended this product be operated with an Electrothermal MC5 Controller (Energy Regulator).

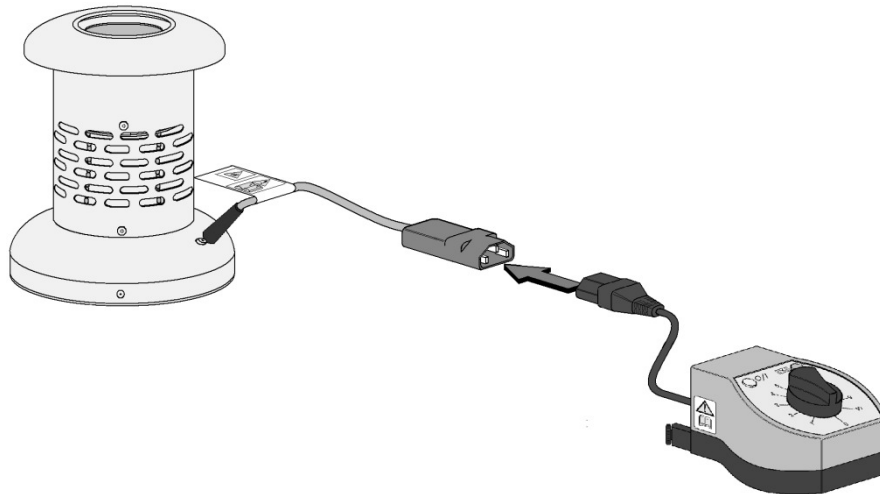
Overview of Bunsen



Item	Description
1	Mains input cord set. With Male IEC socket.
2	Warning labels. (Hot surface and refer to this Instructions Manual).
3	Cowl.
4	Data Plate:- Located on underside of product. (Refer to for correct input mains supply voltage).
5	Earth continuity test point

7.2. Use with MC 5 Controller. (BA6101/C).

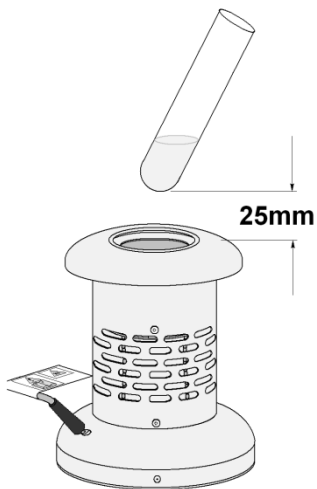
7.2.1. Couple the output IEC socket from the MC controller to the IEC plug of the Bunsen.



7.2.2. Check the data plate voltage conforms to local supply. Connect the MC controller to the mains electricity supply.

7.2.3. Rotate the regulator knob to increase power to the Bunsen. This will increase the operating temperature. The White neon on the MC 5 controller will indicate the presence of mains electricity. The Amber neon will pulse as the controller applies power indicating when mains electricity is being supplied to the Bunsen. (Refer to MC 5 controller Instructions manual for complete operation).

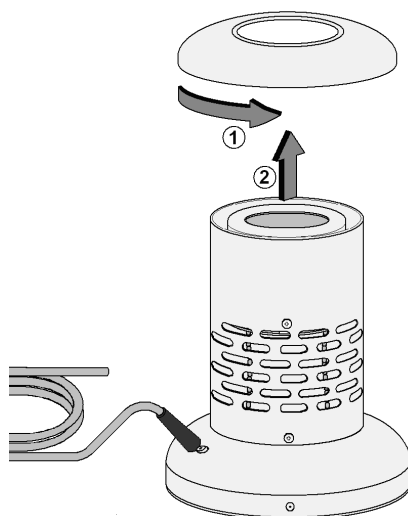
7.2.4. For effective heating of sample place the test tube so that it is positioned approximately 25mm directly above the top of the Bunsen, thus allowing for maximum vertical radiation into the vessel.




7.2.5. For quick heating, the test tube should be positioned so that it is just inside the mouth of the ceramic heating bowl.





7.2.6. Non-contact crucible heating may be achieved by removing the cowl. It is recommended that heat resistant gloves should be worn when removing the cowl). The cowl is removed by rotating in the direction indicated in the illustration below.



7.2.7. A proprietary retort stand and clamp should be used to securely hold and position vessels over the Bunsen ceramic heating bowl.

7.2.8.  Parts of the Bunsen get very hot during operation, do not move the Bunsen when still connected to power or still hot. Refer to diagram of hot zones at the end of section 2.2 and 3.2 for safe operating distance.

7.2.9.   Do not fill the inner ceramic bowl with liquid or any other substance.

7.3. Use without an MC controller.

7.3.1. Plug the IEC end of the mains cable into the Bunsen IEC lead. Connect the moulded plug to your power supply and switch on at the mains.

NOTE: The Bunsen will commence heating on full power immediately, ensure it is positioned in a safe environment, see paragraph 3.2 – General Safe Operating Practice.

8. TECHNICAL SPECIFICATION.

8.1. Specification.

Mains Input Supply Voltage

BA6101 Mains Input Supply Voltage	230V AC at 50/60Hz.
BA6101/C Mains Input Supply	230V AC at 50/60Hz.
BA6101X1 Mains Input Supply	110V – 120V AC at 50/60Hz.
BA6101/CX1 Mains Input Supply	110V – 120V AC at 50/60Hz.

Mains Input Power Cord and Plug set

BA6101 , Mains Power Cord	IEC – C-14 plug (UK) and (Schuko). Replace only with equivalent cable. Lead set with moulded plug UK Plug
BA6101X1 Mains Power Cord	IEC – C-14 plug Replace only with equivalent cable. Lead set with moulded plug USA Plug

Power Consumption in Watts.

BA6101, BA6101/C Without controller (see controller Instruction Manual).	480W Max
BA6101X1, BA6101/CX1	430W Max

Replaceable Fuse Rating (Amps)

BA6101, BA6101/C.	F4A Radial Lead Quickblow.
BA6101X1, BA6101/CX1	F5A Radial Lead Quickblow.

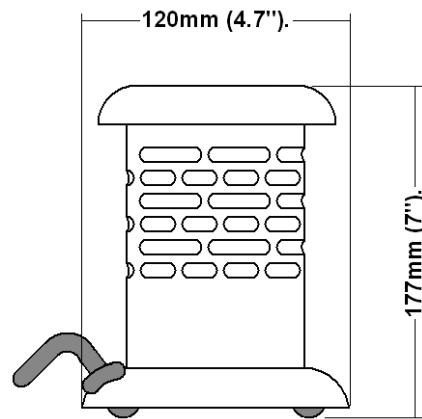
Maximum Operating Temperature 800°C

Case Construction. Stainless steel – Brushed finish.

Heating Element Construction. Resistance coiled wire and ceramic coned former.

8.2. The Ingress protection rating for this product range is IPX0.

8.3. Dimensions and Weight (unpacked).



Weight 0.5Kg (1.1lb).

9. MAINTENANCE.

9.1. General Information.



Unplug the unit from the mains voltage supply and allow it to cool before undertaking any maintenance tasks.



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:

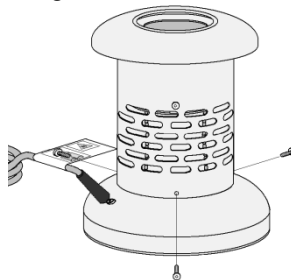
- Periodic electrical safety testing (an annual test is recommended as the minimum requirement).
- Regular inspection for damage with particular attention to the mains lead and plug set.
- Routine cleaning of the equipment should be undertaken using a clean cloth.

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

9.2. Fuse Replacement.

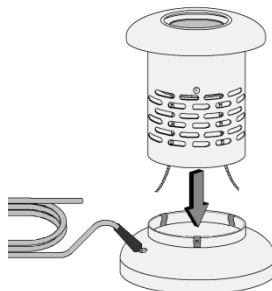
This equipment has Line and Neutral fuses fitted within the product. Replacement of the fuses should only be carried out with the product unplugged from the mains power supply, and only by a competent electrician under the direction of the Responsible Body.

9.2.1. Remove the screws securing the base of the unit to the main body.

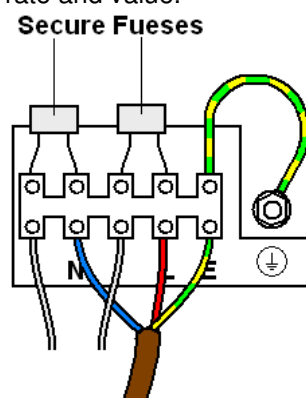


9.2.2. Carefully ease the base away from the main body. The fuses are connected via the connection block secured to the base.

Note: Care should be taken not to stress the heater element and case earth wires.



9.2.3. Unscrew the terminal block positions and remove the fuses. Fit replacement fuses of the correct rate and value.



9.2.4. Reinsert the base into the body and secure using the previously removed screws.

9.2.5.  **Prior to further use, the Responsible Body shall check the electrical safety of the unit.**

9.3. Decontamination.

In the event of spillage switch off and unplug this product from the mains electrical supply. Wipe off all excess liquid from the reaction block 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.**

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

10. PARTS AND ACCESSORIES.

Part Code	Description	Qty
AZ9131	Fuse: F4A 250V Radial lead Quickblow. (BA6101, BA6101/C) Fuse:	10
AZ9132	F5A 250V Radial Lead Quickblow. (BA6101X1, BA6101/CX1)	10
HH179(S)	Mains cord and moulded IEC plug and lead set (UK) 230V – 10A BS1363/A (BA6101, BA6101/C)	1
HH180(S)	Mains cord and moulded IEC plug and lead set (Europe) 230V (BA6101, BA6101/C)	1
CRM6288	Mains cord and moulded IEC plug and lead set (USA) 115V (BA6101X1, BA6101/CX1)	1
REBA6101	Replacement heater Element. (BA6101, BA6101/C)	1
REBA6101X1	Replacement heater Element. (BA6101X1, BA6101/CX1)	1

11. CUSTOMER SUPPORT.

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

Cole-Parmer Ltd.

Beacon Road,
Stone,
Staffordshire,
ST15 0SA,
United Kingdom
Tel: +44 (0)1785 812121

General enquiries: cpinfo@coleparmer.com
Order enquiries: cpsales@coleparmer.com
Technical support: cptechsupport@coleparmer.com

www.electrothermal.com

CE This product meets the applicable EC harmonised standards for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications. We cannot be sure that other equipment used in its vicinity will meet these standards

and so we cannot guarantee that interference will not occur in practice. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advice before use, contact the manufacturer.



EU Declaration of Conformity

Product	Laboratory Equipment	File Number	P225
Manufacturer	Cole-Parmer Ltd Beacon Road Stone, Staffordshire ST15 0SA United Kingdom		

This declaration of conformity is issued under the sole responsibility of the manufacturer

Object of Declaration Electric Bunsen
(reference the attached list of catalogue numbers)

The object of the declaration described above is in conformity with the relevant Union Harmonisation Legislation:

Low Voltage Directive	2006/95/EC	(until 19 April 2016)
	2014/35/EU	(from 20 April 2016)
EMC Directive	2004/108/EC	
RoHS Directive	2011/65/EC	

References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:

IEC/EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements.
IEC/EN 61010-2-010:2003	Particular requirements for laboratory equipment for the heating of materials.
IEC/EN 61326-1:2006	Electrical equipment for measurement, control and laboratory use. EMC requirements. Part 1: General requirements (Class A).

Signed for and on behalf of the above manufacturer


Additional Information Year of CE Marking: 1996

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Authorised Representative P Day

Title General Manager

Signature 



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