



DB-3D with RS232
Dri-Block®
Operator's Manual

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Techne a the trade mark

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NOTES

Introduction

Please read all the information in this booklet before using the unit.

Warning

HIGH TEMPERATURES ARE DANGEROUS: they can cause serious burns to operators and ignite combustible material.

Techne have taken great care in the design of these units to protect operators from hazards, but Operators should pay attention to the following points:

- USE CARE AND WEAR PROTECTIVE GLOVES TO PROTECT HANDS;
- DO NOT put hot objects on or near combustible objects;
- DO NOT operate the unit close to inflammable liquids or gases;
- DO NOT place any liquid directly in your unit;
- At all times USE COMMON SENSE.

Operator Safety

All Operators of Techne equipment must have available the relevant literature needed to ensure their safety.

It is important that only suitably trained personnel operate this equipment, in accordance with the instructions contained in this manual and with general safety standards and procedures. If the equipment is used in a manner not specified by Techne the protection provided by the equipment to the Operator may be impaired.

All Techne units have been designed to conform to international safety requirements and are fitted with an overtemperature cutout. On some models, the cutout is adjustable and should be set to suit the application. On all other models the cutout is preset to protect the unit.

If a safety problem should be encountered, switch off at the mains socket and remove the plug from the supply.

Installation

1. All Techne units are supplied with a power cable. This may be integral or plug-in.
2. Before connecting the mains supply, check the voltage against the rating plate. The rating plate is on the rear of the unit. Connect the mains cable to a suitable plug according to the table below.

Note that the unit must be earthed to ensure proper electrical safety.

<i>Connections</i>	<i>220V-240V</i>	<i>110V-120V</i>
Live	Brown	Black
Neutral	Blue	White
Earth	Green/yellow	Green

The fused plug supplied with the mains lead for use in the UK is fitted with the following value fuse to protect the cable: 5 AMP.

The fuse in the unit protects the unit and the operator

Note that units marked 230V on the rating plate work at 220V; units marked 120V work at 110V. In both cases, however, the heating rate will degrade by approximately 8%.

3. Plug the mains cable into the socket on the rear of the unit.
4. Place the unit on a suitable bench or flat workspace, or in a fume cupboard if required, ensuring that the air inlet vents on the underside are free from obstruction.
5. Note that the following symbols may be next to the indicator lamps on the front panel of the units and have the following meanings:

~	:	the power indicator
⚡	:	the heater indicator
🔥	:	the overtemperature indicator

6. Symbols on or near the power switch of the unit have the following meanings:

I	:	mains switch On
O	:	mains switch Off

After use

When you have finished heating samples, remember that parts of the unit – the tubes, blocks and associated accessories – may be very hot. Take the precautions listed earlier.

Guarantee

The unit is guaranteed against any defect in material or workmanship for the period specified on the enclosed guarantee card. This period is from the date of purchase, and within this period all defective parts will be replaced free of charge provided that the defect is not the result of misuse, accident or negligence. Servicing under this guarantee should be obtained from the supplier.

Notwithstanding the description and specification(s) of the units contained in the Operator's Manual, Techne (Cambridge) Limited hereby reserves the right to make such changes as it sees fit to the units or to any component of the units.

This Manual has been prepared solely for the convenience of Techne (Cambridge) Limited customers and nothing in this Instruction Book shall be taken as a warranty, condition or representation concerning the description, merchantability, fitness for purpose or otherwise of the units or components.

Operator maintenance

NOTE: THAT THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. REMOVING THE SIDE, FRONT OR REAR PANELS EXPOSES POTENTIALLY LETHAL MAINS VOLTAGES. THERE ARE NO OPERATOR MAINTAINABLE PARTS WITHIN THE EQUIPMENT.

In the unlikely event that you experience any problems with your unit which cannot easily be remedied, you should contact your supplier and return the unit if necessary. Please include any details of the fault observed and remember to return the unit in its original packing. Techne accept no responsibility for damage to units which are not properly packed for shipping: if in doubt, contact your supplier. See the Decontamination Certificate supplied with your unit.

1. Cleaning

Before cleaning your unit ALWAYS disconnect it from the power supply and allow it to cool below 50° C.

Your unit can be cleaned by wiping with a damp soapy cloth. Care should be exercised to prevent water from running inside the unit. Do not use abrasive cleaners.

2. Overtemperature cutout

In the event of no heater power, check the mains plug and lead. Repeated operation of the cutout indicates a serious fault: you may need to return the unit to your supplier for repair.

3. Fuses

Your unit is protected by one or two fuses. These should only be changed by suitably qualified personnel.

If the fuses blow persistently, a serious fault is indicated and you may need to return the unit to your supplier for repair.

Introduction

Veuillez lire attentivement toutes les instructions de ce document avant d'utiliser l'appareil.

Avertissement

DANGER DE TEMPERATURES ELEVEES : les opérateurs peuvent subir de graves brûlures et les matériaux combustibles risquent de prendre feu.

Techne a apporté un soin tout particulier à la conception de ces appareils de façon à assurer une protection maximale des opérateurs, mais il est recommandé aux utilisateurs de porter une attention spéciale aux points suivants :

- PROCEDER AVEC SOIN ET PORTER DES GANTS POUR SE PROTEGER LES MAINS.
- NE PAS poser d'objets chauds sur ou près de matériaux combustibles.
- NE PAS utiliser l'appareil à proximité de liquides ou de gaz inflammables.
- NE PAS verser de liquide directement dans l'appareil.
- FAIRE TOUJOURS PREUVE DE BON SENS.

Sécurité de l'opérateur

Tous les utilisateurs de produits Techne doivent avoir pris connaissance des manuels et instructions nécessaires à la garantie de leur sécurité.

Important : cet appareil doit impérativement être manipulé par un personnel qualifié et utilisé selon les instructions données dans ce document, en accord avec les normes et procédures de sécurité générales. Dans le cas où cet appareil ne serait pas utilisé selon les consignes précisées par Techne, la protection pour l'utilisateur ne serait alors plus garantie.

Tous les appareils Techne sont conçus pour répondre aux normes de sécurité internationales et sont dotés d'un coupe-circuit en cas d'excès de température. Sur certains modèles, ce coupe-circuit est réglable pour s'adapter à l'application désirée. Sur d'autres modèles, il est pré-réglé en usine pour assurer la protection de l'appareil.

Dans le cas d'un problème de sécurité, coupez l'alimentation électrique au niveau de la prise murale et enlevez la prise connectée à l'appareil.

Installation

1. Tous les appareils Techne sont livrés avec un câble d'alimentation qui peut être intégré à l'appareil ou à raccorder.
2. Avant de brancher l'appareil, vérifiez la tension requise indiquée sur la plaque d'identification. Raccordez le câble électrique à la prise appropriée en vous reportant au tableau ci-dessous. **Il est important que l'appareil soit relié à la terre pour assurer la protection électrique requise.**

Connexions	220V-240 V	110V-120 V
Phase	marron	noir
Neutre	bleu	blanc
Terre	vert/jaune	vert

Le fusible à l'intérieur de l'appareil est destiné à assurer la protection de l'appareil et de l'opérateur.

Remarque : les appareils dont la plaque indique 230 V peuvent fonctionner sur 220 V, et ceux dont la plaque indique 120 V peuvent fonctionner sur 110 V. Dans les deux cas cependant, la capacité de chauffage diminuera d'environ 8 %. La plaque d'identification se trouve à l'arrière de l'appareil.

3. Raccordez le câble d'alimentation à la prise située à l'arrière de l'appareil.
4. Placez l'appareil sur un plan de travail ou surface plane, ou le cas échéant, dans une hotte d'aspiration, en s'assurant que les trous d'aération situés sous l'appareil ne soient pas obstrués.
5. Les symboles ci-dessous situés à côté des témoins lumineux sur la face avant de l'appareil ont la signification suivante :

 : témoin d'alimentation

 : témoin de chauffage

 : témoin d'excès de température

6. Les symboles situés sur ou à côté de l'interrupteur de l'appareil ont la signification suivante :

I : arrêt

O : marche

Après utilisation

Lorsque vous avez fini de chauffer les échantillons, n'oubliez pas que certaines parties de l'appareil - les éprouvettes, leurs supports et autres accessoires - risquent d'être très chaudes. Il est donc recommandé de toujours prendre les précautions citées plus haut.

Garantie

L'appareil est garanti contre tout défaut ou visde fabrication pour la durée figurant sur la carte de garantie, à compter de la date d'achat de l'appareil. Au cours de cette période, toutes les pièces défectueuses seront remplacées gratuitement, dans la mesure où la défaillance n'est pas due à une mauvaise utilisation, un accident ou une négligence. Toute réparation sous garantie sera effectuée par le fournisseur.

Malgré la description et les spécifications de l'appareil données dans le manuel de l'utilisateur, Techne (Cambridge) Limited se réserve le droit d'effectuer les changements nécessaires à l'appareil ou à tout élément qui entre dans sa composition.

Ce manuel a été exclusivement rédigé à l'attention des clients de Techne (Cambridge) Limited, et aucun élément de ce guide d'instructions ne peut être utilisé comme garantie, condition ou représentation concernant la description, commercialisation, adaptation aux conditions d'utilisation ou autre des appareils ou leurs composants.

Entretien utilisateur

IMPORTANT : CET APPAREIL NE PEUT ETRE DEMONTE QUE PAR DU PERSONNEL QUALIFIE.
LORSQUE LES PANNEAUX AVANT, ARRIERE ET LATERAUX SONT DEMONTES, L'OPERATEUR EST EXPOSE A DES TENSIONS QUI PEUVENT ETRE MORTELLES.
CET APPAREIL NE CONTIENT AUCUN ELEMENT QUI DEMANDE UN ENTRETIEN DE LA PART DE L'UTILISATEUR.

Dans le cas peu probable où votre appareil présente un défaut de fonctionnement auquel il est difficile de remédier, il est alors préférable de contacter votre fournisseur et, le cas échéant, de renvoyer le matériel. Veuillez inclure une description détaillée du problème constaté et retourner l'appareil dans son emballage d'origine. Techne ne sera pas tenu responsable des dommages subis par tout appareil dont l'emballage est inadéquat pour le transport. Pour plus de sûreté, contactez votre fournisseur. Voir le certificat de décontamination livré avec le produit.

1. Nettoyage

Avant de nettoyer l'appareil, assurez-vous TOUJOURS que le câble d'alimentation est déconnecté et laissez la température redescendre en dessous de 50 °C.

Utilisez un chiffon imprégné d'eau savonneuse pour nettoyer l'appareil. Veillez à ne pas introduire d'eau dans l'appareil. N'utilisez pas de produits abrasifs.

2. Coupe-circuit d'excès de température

- En l'absence de puissance de chauffe, vérifiez la prise et le câble d'alimentation puis réglez la commande du coupe-circuit (si votre appareil est doté de ce mécanisme).
- Si la sécurité se déclenche trop souvent, il s'agit d'un problème plus sérieux. Nous vous conseillons dans ce cas de prendre contact avec votre fournisseur pour réparation.

3. Fusibles

La protection de l'appareil est assurée par un ou deux fusibles dont le remplacement ne peut être effectué que par un personnel qualifié.

Si les fusibles sautent sans arrêt, il s'agit d'un problème sérieux. Nous vous conseillons dans ce cas de prendre contact avec votre fournisseur pour réparation.

Einleitung

Bitte lesen Sie diese Bedienungsanleitung komplett bevor Sie dieses Gerät benutzen.

Warnung

HOHE TEMPERATUREN SIND GEFÄHRLICH: sie können dem Bediener ernsthafte Verletzungen zufügen und brennbare Materialien können sich leicht entzünden.

Techne hat bei der Konstruktion dieses Gerätes sehr darauf geachtet, daß der Bediener vor Gefahren geschützt ist. Dennoch sollten Sie auf die folgenden Punkte achten:

- SEIEN SIE VORSICHTIG UND TRAGEN SIE SCHUTZHANDSCHUHE
- Legen Sie heiße Gegenstände NICHT auf oder in die Nähe von leicht brennbaren Materialien; vermeiden Sie Arbeiten in der Nähe von leicht entzündbaren Flüssigkeiten oder Gasen.
- Bringen sie KEINE Flüssigkeiten direkt in Ihr Gerät.
- Benutzen Sie immer den normalen Menschenverstand

Sicherheit des Anwenders

Alle Benutzer von Techne Geräten müssen Zugang zu der entsprechenden Literatur haben, um ihre Sicherheit zu gewähren.

Es ist wichtig, daß diese Geräte nur von entsprechend geschultem Personal betrieben werden, das die in dieser Gebrauchsanweisung enthaltenen Maßnahmen und allgemeine Sicherheitsbestimmungen und -vorkehrungen beachtet. Wenn das Gerät anders eingesetzt wird als vom Hersteller empfohlen, kann dies die persönliche Sicherheit des Anwenders beeinträchtigen. Die Geräte von Techne entsprechen den internationalen Sicherheitsbestimmungen und sind mit einem automatischen Übertemperaturabschalter ausgestattet. Bei einigen Modellen ist der Übertemperaturabschalter verstellbar und sollte je nach Anwendung entsprechend eingestellt werden. Bei allen anderen Modellen ist der Temperaturschutz voreingestellt um Schäden am Gerät zu vermeiden. Wenn ein Sicherheitsproblem auftreten sollte, muß das Gerät ausgeschaltet und vom Stromnetz getrennt werden.

Installation

1. Alle Techne Geräte werden mit einem Stromanschlußkabel geliefert. Dieses ist entweder fest mit dem Gerät verbunden oder zum Einstecken.
2. Vergleichen Sie, ob die Spannung Ihrer Stromversorgung mit den Angaben auf dem Typenschild des Gerätes übereinstimmen. Verbinden Sie das Stromanschlußkabel mit einer geeigneten Stromversorgung gemäß der nachstehenden Tabelle. Achtung: Das Gerät muß geerdet sein, um die elektrische Sicherheit zu gewährleisten!

<i>Verbindungen</i>	<i>220V-240V</i>	<i>110V-120V</i>
Stromführend	Braun	Schwarz
Neutral	Blau	Weiß
Erde	Grün/Gelb	Grün

Geräte, die für 230 Volt ausgelegt sind, können auch bei 220 Volt arbeiten, Geräte für 120 Volt auch bei 110 Volt. In beiden Fällen verringert sich die Aufheizrate um ca. 8%. Das Typenschild befindet sich hinten am Gerät.

3. Stecken Sie das Stromkabel in die vorgesehene Buchse hinten am Gerät.
4. Stellen Sie das Gerät auf eine ebene Arbeitsfläche bzw. (falls erforderlich) unter einen Laborabzug. Beachten Sie, daß die Entlüftungsrillen an der Geräteunterseite immer frei zugänglich sind.
5. Wenn die Anzeigenlampchen an der Vorderseite leuchten, hat dies folgende Bedeutung:

 : Gerät ist eingeschaltet

 : Gerät heizt

 : Übertemperaturschutz ist ausgelöst

6. Die Symbole auf oder neben dem EIN/AUS-Schalter an der Geräterückseite bedeuten:

I : An

O : Aus

Nach dem Gebrauch

Vergessen Sie nicht, daß Teile des Gerätes (die Gefäße, die Blöcke und andere Zubehörteile) nach dem Erhitzen von Proben noch sehr heiß sein können. Bitte beachten Sie die oben genannten Vorsichtsmaßnahmen.

Garantie

Die Garantiedauer des Gerätes ist auf der beiliegenden Garantiekarte angegeben und schließt Fehler im Material oder der Verarbeitung ein. Die Garantiedauer beginnt am Tag des Einkaufs. Sämtliche defekte Teile werden innerhalb dieses Zeitraumes kostenlos ersetzt unter der Voraussetzung, daß dem Defekt keine unsachgemäße Handhabung, Fahrlässigkeit oder ein Unfall zugrundeliegt. Der unter diese Garantie fallende Service wird vom Lieferanten geleistet.

Ungeachtet der in dieser Gebrauchsanweisung enthaltenen Beschreibungen und Spezifikationen, behält sich Techne (Cambridge) Limited hiermit das Recht vor, Änderungen an den Geräten bzw. an einzelnen Geräteteilen durchzuführen. Diese Gebrauchsanleitung wurde ausschließlich dazu erstellt, um Kunden die Handhabung der Techne-Geräte zu erleichtern. Nichts in dieser Gebrauchsanleitung darf als Garantie, Bedingung oder Voraussetzung verstanden werden, sei es die Beschreibung, Marktgängigkeit, Zweckdienlichkeit oder sonstiges bezüglich der Geräte oder deren Bestandteile.

Wartung durch den Bediener

BEACHTEN SIE, DASS DIESES GERÄT NUR VON TECHNISCHEN FACHKRÄFTEN GEÖFFNET UND DEMONTIERT WERDEN DARF.

DURCH ENTFERNEN DES GERÄUSES ODER GEHÄUSETEILEN SIND BAUTEILE MIT LEBENGEFÄHRLICHEN SPANNUNGEN FREI ZUGÄNGLICH.

IM INNERN DES GERÄTES BEFINDEN SICH KEINE TEILE, DIE VOM ANWENDER GEWARTET WERDEN MÜSSEN.

Falls Ihr Gerät nicht ordnungsgemäß arbeitet, wenden Sie sich an Ihren Lieferanten oder senden Sie das Gerät wenn nötig zurück. Fügen Sie eine genaue Beschreibung des Defektes bei. Verpacken Sie das Gerät möglichst im Originalkarton. Bitte beachten Sie, daß Techne und thermo-DUX keine Haftung bei Transportschäden aufgrund unzureichender Verpackung übernehmen. Setzen Sie sich im Zweifelsfall mit Ihrem Lieferanten in Verbindung. Bitte beachten Sie die Entgiftungsbescheinigung, die Sie mit dem Gerät erhalten haben.

1. Reinigen

Bevor Sie Ihr Gerät reinigen, sollten Sie

- zuerst den Netzstecker ziehen
- das Gerät unter 50°C abkühlen lassen.

Ein feuchtes Tuch mit Seifenlösung reinigt Ihr Gerät am besten. Achten Sie darauf, daß kein Wasser in das Gerät gelangt. Verwenden Sie keine Scheuermittel.

2. Übertemperaturabschalter

- Der Übertemperaturschutz ist ein empfindliches mechanisches Teil. Schon eine Erschütterung kann diesen auslösen.
- Falls die Heizung nicht funktioniert, überprüfen Sie zuerst Netzstecker und Kabel. Setzen Sie dann den Übertemperaturabschalter (an der Rückseite des Gerätes) wieder zurück, indem Sie den roten Knopf einmal bis zum Anschlag drücken.
- Wenn der Übertemperaturabschalter wiederholt auslöst, liegt ein größerer Defekt vor. Das Gerät muß zur Reparatur an Ihren Lieferanten eingesandt werden.

3. Sicherungen

Die Stromzuleitung ist durch ein oder zwei Sicherungen geschützt. Diese sollten nur durch qualifiziertes Fachpersonal ausgetauscht werden. Wenn die Sicherung wiederholt durchbrennt, liegt ein größerer Defekt vor. Das Gerät muß zur Reparatur an Ihren Lieferanten eingesandt werden.

Introducción

Le rogamos lea cuidadosamente la información contenida en este folleto antes de manipular el aparato.

Aviso

LAS TEMPERATURAS ELEVADAS SON PELIGROSAS: pueden causarle graves quemaduras y provocar fuego en materiales combustibles.

Techne ha puesto gran cuidado en el diseño de estos aparatos para proteger al usuario de cualquier peligro; aún así se deberá prestar atención a los siguientes puntos:

- EXTREME LAS PRECAUCIONES Y UTILICE GUANTES PARA PROTEGERSE LAS MANOS;
- NO coloque objetos calientes encima o cerca de objetos combustibles;
- NO maneje el aparato cerca de líquidos inflamables o gases;
- NO introduzca ningún líquido directamente en el aparato;
- UTILICE EL SENTIDO COMUN en todo momento.

Seguridad del usuario

Todos los usuarios de equipos Techne deben disponer de la información necesaria para asegurar su seguridad.

De acuerdo con las instrucciones contenidas en este manual y con las normas y procedimientos generales de seguridad, es muy importante que sólo personal debidamente capacitado opere estos aparatos. De no ser así, la protección que el equipo le proporciona al usuario puede verse reducida.

Todos los equipos Techne han sido diseñados para cumplir con los requisitos internacionales de seguridad y traen incorporados un sistema de desconexión en caso de sobretemperatura. En algunos modelos el sistema de desconexión es variable, lo que le permite elegir la temperatura según sus necesidades. En otros, el sistema de desconexión viene ya ajustado para evitar daños en el equipo.

En caso de que surgiera un problema de seguridad, desconecte el equipo de la red.

Instalación

1. Todos los aparatos Techne se suministran con un cable de alimentación. Puede ser fijo o independiente del aparato.
2. Antes de conectarlo, compruebe que el voltaje corresponde al de la placa indicadora. Conecte el cable de alimentación a un enchufe adecuado según la tabla expuesta a continuación. El equipo debe estar conectado a tierra para garantizar la seguridad eléctrica.

<i>Conexiones</i>	220V-240V	110V-120V
Linea	Marrón	Negro
Neutro	Azul	Blanco
Tierra	Verde/amarillo	Verde

Asegúrese de que los equipos marcados 230V en la placa indicadora funcionan a 220V y de que los equipos marcados 120V funcionan a 110V. No obstante, en ambos casos la velocidad de calentamiento se verá reducida en un 8% aproximadamente. La placa indicadora está situada en la parte posterior del equipo.

3. Conecte el cable a la toma de tensión en la parte posterior del equipo.
4. Sitúe el aparato en un lugar apropiado tal como una superficie de trabajo plana, o si fuera necesario incluso en una campana con extractor de humos, asegurándose de que las entradas de aire en la parte inferior no queden obstruidas.
5. Los símbolos, que pueden aparecer junto a las luces indicadoras en el panel frontal del equipo, tienen los siguientes significados:



: Indicador de potencia

: Indicador del calor

: Indicador de sobretemperatura

6. Los símbolos que se encuentran en o cerca del interruptor de alimentación tienen los siguientes significados:

I : Interruptor principal encendido

O : Interruptor principal apagado

Después de su uso

Cuando haya finalizado el calentamiento de muestras, recuerde que las piezas del equipo, tales como tubos, bloques y demás accesorios, pueden estar muy calientes. Tome las precauciones mencionadas anteriormente.

Garantía

Este aparato está garantizado contra cualquier defecto material o de fabricación durante el periodo especificado en la tarjeta de garantía adjunta. Este plazo inicia a partir de la fecha de compra, y dentro de este periodo todas las piezas defectuosas serán reemplazadas gratuitamente siempre que el defecto no sea resultado de un uso incorrecto, accidente o negligencia. Mientras se encuentre bajo garantía las revisiones las debe llevar a cabo el proveedor.

A pesar de la descripción y las especificaciones de los aparatos contenidas en el Manual del Usuario, Techne (Cambridge) Limited se reserva por medio de este documento el derecho a efectuar los cambios que estime oportunos tanto en los aparatos como en cualquier componente de los mismos.

Este manual ha sido preparado exclusivamente para los clientes de Techne (Cambridge) Limited y nada de lo especificado en este folleto de instrucciones se tomará como una garantía, condición o aseveración de la descripción, comerciabilidad o adecuación para cualquier fin específico de los aparatos o sus componentes.

Mantenimiento

ESTE APARATO DEBE SER DESMONTADO SOLO Y EXCLUSIVAMENTE POR PERSONAL DEBIDAMENTE CAPACITADO.

EL RETIRAR LOS PANELES LATERALES, FRONTALES O TRASEROS SUPONE DEJAR AL DESCUBIERTO TENSION DE LA RED PELIGROSA.

EL EQUIPO NO CONSTA DE NINGUNA PIEZA DE CUYO MANTENIMIENTO SE PUEDA ENCARGAR EL USUARIO.

En el caso improbable de que experimentara algún problema con su aparato que no pudiera resolver con facilidad, debería ponerse en contacto con su proveedor y devolverlo si fuera necesario. Indique de forma detallada todos los defectos que haya notado y devuelva el equipo en su embalaje original. Techne no aceptará responsabilidad alguna por daños causados en equipos que no estuvieran debidamente embalados para su envío; si tuviera alguna duda, póngase en contacto con su proveedor. Sirvase consultar el Certificado de Descontaminación suministrado con su aparato.

1. Limpieza

Antes de limpiar su aparato, desconéctelo SIEMPRE de la fuente de alimentación y permita que se enfríe por debajo de los 50°C.

Este aparato se puede limpiar pasándole un paño húmedo enjabonado. Hágalo con cuidado para evitar que caiga agua dentro del mismo. No utilice limpiadores abrasivos.

2. Desconexión en caso de sobretemperaturas

El sistema de desconexión en caso de sobretemperaturas es un dispositivo mecánico sensible (una sacudida mecánica podría desconectarlo).

- Si el calefactor no recibiera alimentación, compruebe el enchufe y el cable de la toma de corriente; a continuación vuelva a ajustar el control del dispositivo (si su equipo lo lleva montado).
- Una desconexión repetida indicaría una avería grave; puede que tenga que devolverle el aparato a su proveedor para su reparación.

3. Fusibles

Su aparato está protegido por uno o dos fusibles. Sólo deben cambiarlos personal debidamente capacitado.

Si los fusibles se fundieran repetidamente, esto indicaría una avería grave y puede que tuviera que devolverle el aparato a su proveedor para su reparación.

Introduzione

Prima di utilizzare l'apparecchio, leggere tutte le informazioni contenute in questo manuale.

Attenzione

Le alte temperature sono pericolose: possono causare ustioni gravi all'utilizzatore e possono causare la combustione di materiale infiammabile.

La Techne ha posto particolare cura nel progettare questo strumento, al fine di proteggere gli operatori da eventuali pericoli, ma gli utilizzatori devono prestare attenzione ai seguenti punti:

- Utilizzare con attenzione e indossare guanti protettivi;
- Non mettere vicini oggetti caldi o oggetti infiammabili;
- Non azionare il riscaldatore Techne vicino a liquidi infiammabili o benzine;
- Non introdurre nessun liquido all'interno dell'unità;
- In ogni caso Usare Buon Senso.

Sicurezza per l'utilizzatore

Il personale che utilizza l'apparecchiatura Techne deve avere a disposizione la documentazione necessaria al fine di assicurare la loro incolumità.

È importante che solo personale adeguatamente addestrato utilizzi questo apparecchio, in conformità alle istruzioni contenute in questo manuale e nel rispetto delle normative e procedure generali di sicurezza. Se l'apparecchio è utilizzato in modo non specificato da Techne, la protezione fornita dall'apparecchiatura all'utilizzatore potrebbe essere a rischio.

Tutte le unità Techne sono state progettate in conformità ai requisiti internazionali di sicurezza e sono equipaggiate con un interruttore anti surriscaldamento. Su alcuni modelli, l'interruttore è regolabile e dovrebbe essere impostato secondo l'utilizzo. In tutti gli altri modelli l'interruttore è prerogato per proteggere l'unità.

Se si dovesse verificare qualche problema di sicurezza, disconnettere l'apparecchio dalla rete.

Installazione

1. Tutti gli apparecchi Techne sono forniti di un cavo di alimentazione. Questo può essere integrato nell'apparecchio o separato.
2. Prima di collegare l'apparecchio alla presa di alimentazione, controllare il voltaggio indicato sulla targhetta. La targhetta identificativa si trova sul retro dell'apparecchio. Collegare il cavo di alimentazione in una presa appropriata secondo la tabella seguente.

L'apparecchio deve essere collegato alla messa a terra per assicurare la giusta sicurezza elettrica.

<i>Connessioni</i>	<i>220V-240V</i>	<i>110V-120V</i>
Tensione	Marrone	Nera
Neutro	Blu	Bianco
Terra	Verde/Giallo	Verde

Il fusibile all'interno dell'apparecchio protegge l'apparecchiatura e l'utilizzatore.

Tenere presente che gli apparecchi riportanti sulla targhetta 230 V funzionano a 220V. Gli apparecchi riportanti 120V funzionano a 110V. Comunque, in entrambi i casi la velocità di riscaldamento diminuirà approssimativamente dell'8%.

3. Collegare il cavo elettrico alla presa di corrente sul retro dell'unità.
4. Posizionare l'unità su un luogo adeguato, su una superficie di lavoro piana oppure, se necessario, sotto una cappa aspiratrice, assicurandosi che le prese di aria sulla parte inferiore siano libere da ostruzione.
5. I simboli seguenti, che possono essere collocati in prossimità delle luci di indicazione sul pannello anteriore dell'apparecchio, hanno i seguenti significati:

~

indicatore di potenza

III

indicatore di riscaldamento

⚡

indicatore di surriscaldamento

6. I simboli sopra o vicino l'interruttore di accensione dell'apparecchio hanno i significati seguenti:

I

Acceso

O

Spento

Dopo l'uso

Quando avrete terminato di riscaldare i campioni, ricordate che le parti dell'apparecchio – le provette, i loro supporti e gli altri accessori – possono essere bollenti. Seguire le precauzioni elencate in precedenza.

Garanzia

L'apparecchio è garantito contro ogni difetto del materiale o fabbricazione per il periodo specificato sul certificato di garanzia accluso. Questo periodo decorre dalla data di acquisto, e durante il quale tutte le parti difettose verranno sostituite gratuitamente purché il difetto non sia causato da un uso non appropriato, da cause non imputabili a difetti di fabbricazione o negligenza. L'assistenza durante questo periodo sarà garantita dal fornitore.

Ferme restando la descrizione e le caratteristiche dell'apparecchio contenute nel Manuale d'uso dell'utilizzatore, la Techne Limited (Cambridge) si riserva in ogni caso il diritto di effettuare le modifiche che riterrà necessarie all'apparecchio o ai suoi componenti.

Questo Manuale è stato realizzato esclusivamente a vantaggio dei clienti della Techne Limited (Cambridge) e in alcun modo potrà essere utilizzato come garanzia, condizione o rappresentazione concernente la descrizione, commercializzazione, adeguamento alle condizioni di utilizzo o altro degli apparecchi o delle sue componenti.

Manutenzione

Questo apparecchio dovrà essere aperto esclusivamente da Personale adeguatamente addestrato. La rimozione dei pannelli laterali, frontali o posteriori può esporre potenzialmente a voltaggi di corrente letali. All'interno dell'apparecchio non ci sono parti manutenibili da parte dell'utilizzatore.

Nell'eventualità che si riscontri un problema con l'apparecchio che non può essere facilmente risolto, si dovrà contattare il proprio fornitore e restituire, se necessario, l'apparecchio. Si prega di specificare nel dettaglio i difetti riscontrati e di ricordare di restituire l'apparecchio nel suo involucro originale. La Techne non si fa carico di alcuna responsabilità per danni subiti dall'apparecchio che non sia stato propriamente imballato per il trasporto; in caso di dubbio, rivolgersi al fornitore. Vedere il Certificato di Decontaminazione fornito con il vostro apparecchio.

1. Pulizia

Prima di pulire il vostro apparecchio, disconnettere sempre la presa di alimentazione e lasciare raffreddare sotto i 50° C. Questo apparecchio può essere pulito passando un panno inumidito con sapone. Si deve prestare attenzione onde prevenire l'ingresso dell'acqua all'interno dell'apparecchio. Non utilizzare per la pulizia sostanze abrasive.

2. Disconnessione in caso di surriscaldamento

In caso di non funzionamento dell'apparecchio, controllare la spina elettrica e il relativo cavo collegati alla rete. Ripetute interruzioni del funzionamento dell'apparecchio indicano un serio malfunzionamento: in questo caso restituire l'apparecchio al fornitore per la riparazione.

3. Fusibili

L'apparecchio è protetto da uno o due fusibili. Questi dovrebbero essere sostituiti solo da personale qualificato. Se i fusibili si bruciano frequentemente ciò indica un malfunzionamento serio e in questo caso si consiglia di contattare il fornitore per le riparazioni.

Per informazioni tecniche

Per informazioni tecniche di vendita o sull'assistenza contattare l'agente locale Techne o, direttamente la

Barloworld Scientific Ltd
Beacon Road, Stone
Staffordshire
ST15 0SA, United Kingdom
Telephone: +44(0)1785 812121
Fax: +44(0)1785 813748
e-mail: equipment@barloworld-scientific.com

Oppure:
Techne Inc, 3 Terri Lane,
Suite 10, Burlington,
New Jersey 08016, USA.
Telephone: 609-589-2560
Toll free: 800-225-9243 ext 306
Fax: 609-589-2571
e-mail: labproducts@techneusa.com
Web site: www.techneusa.com

THE DRI-BLOCK®

Please read all the information in this manual before using the unit.

Techne's Dri-Block® heaters provide a safe, dry, constant temperature source in the laboratory. You can use the units for incubation, boiling, inactivation, wet ashing, sample concentration, enzyme analysis and many other clinical and industrial purposes.

The units cover the temperature range from 25°C to 200°C using machined aluminium alloy blocks as the heat transfer medium: temperature control circuits are built into the unit. Independent indicator lights indicate mains power, heater action and overtemperature cut-out. An ON/OFF switch is mounted on the rear panel, together with the mains connector and a double fuse holder.

The units are constructed in PPS plastic, which is strong yet lightweight and can resist sustained temperatures as high as 260°C. Even though the units heat up rapidly, highly efficient insulation ensures that cases remains cool enough to handle even at maximum operating temperatures.

Techne's Dri-Block® range has been designed to comply with all relevant RF (Radio Frequency) interference and electrical safety regulations.

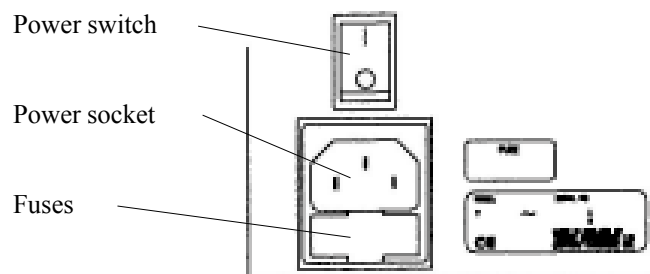
The operating instructions in this Operator's Manual covers one of a range of Dri-Blocks®:

- DB-3D with RS232

The features of individual models are outlined in the 'Specification' section of this manual.

Other units covered in other manuals are:

- DB-1M • DB-2A • DB-2D • DB-2P
- DB-3 • DB-3A



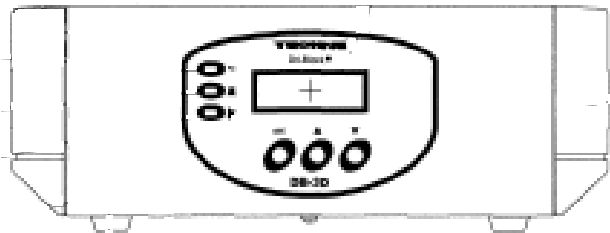
Typical rear connections

SPECIFICATION

The DB-3D with RS232 Dri-Block®

This unit has a recessed chamber which can hold up to three interchangeable insert blocks which accept test tubes or other sample containers. The Temperature is set by 3 front panel buttons with digital display.

The DB-3D is supplied with an extraction tool for removing the insert blocks from the unit.



Working temperature range	Ambient +5°C to 200°C
Settable temperature range	0.0°C to 200.0°C
Temperature stability	±0.1°C at 40°C
Temperature stability	±0.15°C at 100°C
Temperature setting	3 push buttons
Temperature display	4 digit LED
Set point resolution	0.1°C
Set point to accuracy	±1°C
Max temperature variation between blocks	0.2°C at 40° C
Heat up time 30° C to 37° C	11 minutes
Heat up time 30° C to 56° C	15 minutes
Heat up time 30°C to 200°C	25 minutes
Number of blocks	3

Electrical supply

<i>Voltage</i>	<i>Cycles</i>	<i>Power</i>
230V	50Hz-60Hz	650W
110V-120V	50Hz-60Hz	650W

Working Environment (all units)

The Dri-Block® units are designed to work safely under the following conditions:

Ambient temp. range 5°C to 40°C

Humidity Up to 95% relative humidity, non-condensing

Note: The control specifications are quoted for an ambient temperature of 20°C for units fitted with 3 insert blocks type F3506. The specification will be closely held if the ambient temperature is in the range 10°C to 30°C. Outside this range the quoted figures may deteriorate but the unit will still work safely.

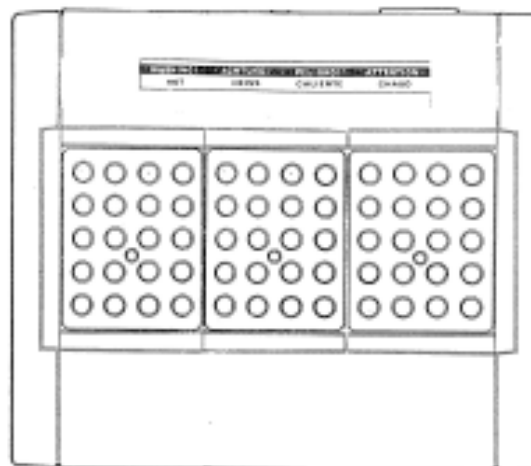
Radio frequency interference tested and passed to EN50081-1.

Immunity Tested and passed to EN50082-1

OPERATION

Preparation

1. Select the insert block(s) appropriate to the application. A list of available blocks is given on page 22 of this manual. Ensure that both the underside of the block(s) and the top of the hotplate are clean; efficient heat conduction between these two surfaces is essential.



Top view showing three insert blocks in place

2. Place the aluminium alloy insert blocks into the well of the unit and place the tubes containing the sample liquid in the blocks.
3. The heater design, temperature sensor and control circuit give good temperature control and uniformity, but make sure that there is a close fit of the tubes in the block to allow efficient heat transfer.
4. If less than the maximum number of insert blocks are fitted it is recommended that you fit plastic half blocks to the space either side of the aluminium block. The dummy blocks have the effect of reducing heat losses, thus improving temperature stability.
5. Plug the mains cable into the socket in the rear of the unit. Connect to the mains electricity supply with the plug provided or one wired correctly for your supply. Switch the power ON from the switch located next to the mains input lead. The mains indicator on the front panel will light (as well as the fuse neon on the mains input unit).

Setting the Overtemperature Cut-out

DB-3D

An adjustable overtemperature cut-out is fitted to these units. As supplied it is set to remove power from the heater should the block temperature exceed approximately 210°C. If you need to prevent the block temperature exceeding a lower value, the overtemperature cut-out may be re-adjusted downwards. Note that the cut-out should be set to trip at least 5°C above the maximum desired operating temperature.

To set the overtemperature cut-out, turn the reset button (located on the back panel of the unit) fully clockwise then:

either:

- Heat the block to the desired cut-out temperature and turn the reset button anti-clockwise until the unit just cuts out.

or:

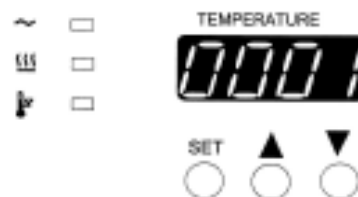
- Heat the block to the required maximum operating temperature and turn the reset button anti-clockwise until the unit just cuts out. Now turn the reset button an additional small amount clockwise.

When the cut-out operates, the unit stops working and the overtemperature cut-out indicator lights.

Remove the block from the unit by screwing the extractor tool into the thermometer hole and lifting the block vertically. Remember that high temperatures are dangerous; wear insulating gloves and take extreme care. Wait for the temperature to fall, perhaps by as much as 40°C, and press the reset button. The unit will now work as usual.

When you Switch On

When you first switch on, the display will show the edition of the software which your unit uses. For example software issue "1" would be shown as follows:

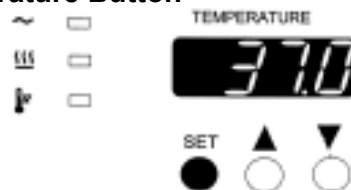


It will display this for 1 second, then the actual temperature of the platten will be indicated.

The Front Panel Controls

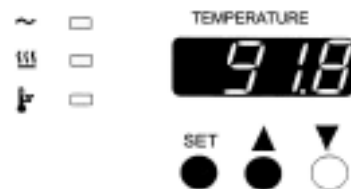
The front panel controls consist of three buttons for controlling the display, a four digit LED display and three indicators.

The SET temperature Button

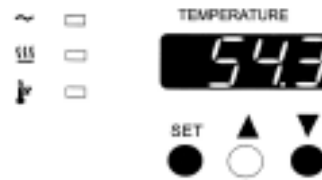


The **SET** temperature button displays the set temperature when pressed.

The UP ARROW Button



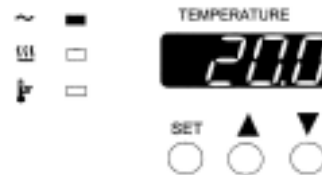
When the **SET** temperature button is held down and the **UP ARROW** button is pressed, the set temperature is increased.

The DOWN ARROW Button

When the **SET** temperature button is held down and the **DOWN ARROW** button is pressed, the set temperature is decreased.

Speed of Change of Set Temperature

Each press of the **UP ARROW** or **DOWN ARROW** buttons will increase or decrease the set temperature by 0.1°C. If the buttons are held down the temperature change will accelerate to 5° per second

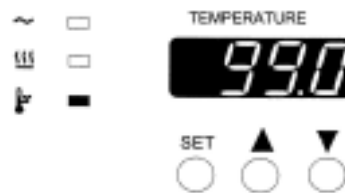
Power Indicator

The top indicator shows that there is power to the unit

Heater Indicator

The next indicator shows when the heater is heating the unit. When the temperature is being set, and the new set temperature is higher than the temperature already in the unit, the heater indicator will light as the unit tries to follow the set temperature. If the light is on continuously the heater is getting constant power. The only exception is described under Over-Temperature Indicator. As the temperature approaches the set temperature the heater indicator will flash. When set temperature is reached the indicator will stay on for shorter periods. If the Dri-Block is above the set temperature then the indicator will be off, as the heater is not getting any power.

DB-3D with RS232 OPERATOR'S MANUAL
Over-Temperature Indicator



If the unit should, for any reason, exceed the temperature set for the over-temperature cutout (see page 17), the over-temperature indicator will light. The heater will have been switched off and the unit will begin to cool even if the heater light is on (the light staying on or not depends on which circuit has sensed an over-temperature).

Setting the Operating Temperature

1. To display the set temperature on the digital display, press and hold the Set Temperature button.
To adjust the set temperature, press the Set Temperature button and hold it while pressing the up or down buttons. When the Set Temperature button is released, the measured temperature is displayed (in degrees Celsius).
2. The heater (and heater indicator) comes on if the set temperature is higher than the current block temperature.
3. When the measured temperature approaches the set temperature, the heater indicator will begin to flash. As the measured temperature stabilises the indicator will stay on for shorter periods.
4. Due to variations in heat losses with different designs of insert block, the actual temperature may vary. The units are calibrated using model F3506 insert blocks. If you need to control the temperature to a greater accuracy than the instrument's set point, place a thermometer in the special hole in one of the blocks. For greater accuracy still, you can place the thermometer in the sample liquid in one of the test tubes. In either of these cases, it may be necessary to readjust the set temperature to achieve the precise temperature required. Allow the temperature of the unit to stabilise after each adjustment.
5. There will be a time lag between the heater platten and the insert block achieving the set temperature due to thermal contact between them. This is particularly true of the DB-3D where the display may reach temperature in 2 or 3 minutes while the insert block may take 12 minutes or more to reach temperature. Guide times are shown in the Specifications.

RS232 Communication with the DB-3D

You can communicate with the DB-3D via a computer and the port on the back of the Dri-Block using the RS232 cable supplied with the Dri-Block.

Settings

The Communication port settings are 9600 baud, no parity, 8 data bits and one stop bit (9600, n, 8, 1).

Receiving temperatures

The command to receive the block temperature is the letter T and the Dri-Block will return a fixed length string: TB+1234.56<CR>LF>.

Set temperature

The command to set the block temperature is the fixed length string: S+1234.5<CR><LF>.

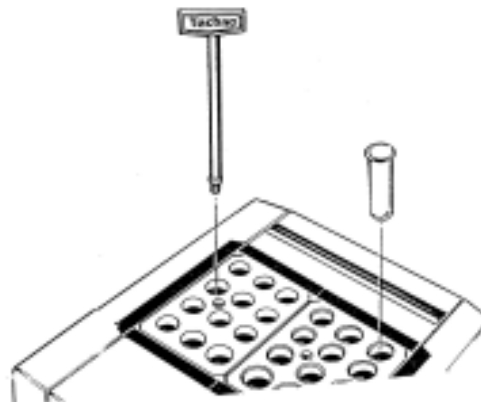
All transmitted characters are echoed.

Only set temperatures within the operating range of the DB-3D will be accepted.

Please note that the alpha characters are always upper case.

After Use

1. When you have finished heating samples, remember that parts of the unit – the tubes, blocks and associated accessories – may be very hot. Take the precautions listed earlier. We recommend that the blocks should be allowed to cool to 70°C before being removed from the Dri-Block®. They will still have to be handled with care
2. If you need to remove an insert block while it is hot, screw the extractor tool into the thermometer hole and lift the block out vertically. Never leave the extractor tool in the block while it is being used in the Dri-Block®.



Removing an insert block with the extractor tool

ADDITIONAL INFORMATION**Insert Blocks**

Insert blocks are made of aluminium alloy and must be ordered separately from the heater units. The following blocks are available from Techne:

<i>Part</i>	<i>Tube Size</i>	<i>Number of Holes</i>	<i>Size</i>
F3501	Plain block	None	95 x 76 x 51
F3502	6mm	30	95 x 76 x 51
F3503	10mm	20	95 x 76 x 51
F3504	12mm	20	95 x 76 x 51
F3505	13mm	20	95 x 76 x 51
F3506	15mm	12	95 x 76 x 51
F3507	16mm	12	95 x 76 x 51
F3508	19mm	8	95 x 76 x 51
F3509	25mm	6	95 x 76 x 51
F3510	10mm cuvettes	2 channels	95 x 76 x 51
F4460	Plain block	Thermometer hole only	95 x 76 x 51
F4461	9mm/7mm	10/20	95 x 76 x 51
F4462	24mm	6	95 x 76 x 51
F4463	26mm	6	95 x 76 x 51
F4464	1.5ml Eppendorf	20	95 x 76 x 51
F4465	0.5ml Eppendorf	30	95 x 76 x 51
F4466	Plastic half block	Plain	95 x 37 x 50
F4470	2 ml Eppendorf	20	95 x 76 x 51
F4471	0.2ml	72	95 x 76 x 51

Operator Maintenance

NOTE THAT THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. **REMOVING THE SIDE, FRONT OR REAR PANELS EXPOSES POTENTIALLY LETHAL MAINS VOLTAGES.** THERE ARE NO OPERATOR MAINTAINABLE PARTS WITHIN THE EQUIPMENT.

In the unlikely event that you experience any problems with your Dri-Block[®] which cannot easily be remedied, you should contact your supplier and return the unit if necessary. Please include any details of the fault observed and remember to return the unit in its original packing. Techne accept no responsibility for damage to units which are not properly packed for shipping: if in doubt, contact your supplier.

1. Cleaning

Before cleaning your unit ALWAYS disconnect from the power supply and allow to cool below 50° C.

Your Dri-Block[®] can be cleaned by wiping with a damp soapy cloth. Care should be exercised to prevent water from running inside the unit. Do not use abrasive cleaners.

Before using any cleaning or decontamination method except those recommended here, the responsible body or operator should check with Techne that the proposed method will not damage the equipment.

2. Overtemperature cut-out

The overtemperature cut-out is a sensitive mechanical device and mechanical shock can cause it to trip.

- In the event of no heater power, check the mains plug and lead, then reset the cut-out control (located at the rear of the unit).
- Repeated operation of the cut-out indicates a serious fault: you may need to return the unit to your supplier for repair.

3. Fuses

Your unit is protected by two fuses. These should only be changed by suitably qualified personnel. If the fuses blow persistently, a serious fault is indicated and you may need to return the unit to your supplier for repair.

DB-3D 230V 2 x F4A; 120/100V 2 x F6.3A

Calibration

Remember that if you change the calibration from that set at the factory you may change the calibration at all temperatures. You may get different calibration with different blocks.

Make sure that you have good thermal contact between the blocks and the heater platen in the Dri-Block. In order to ensure that the calibration you are setting is correct, you will need to use an independent calibrated probe or thermometer.

Measure the actual temperature of the particular block you want to use in the Dri-Block using the calibrated probe or thermometer. If the calibration is not correct then you can follow this procedure. Make sure that the block and the unit are below 35°C.

- a Set the temperature display to 0.0°C. This will ensure that the block is at ambient temperature for the next procedure.
- b Hold down the Up and Down buttons and then press the Set button at the same time for 5 seconds. The display will change from the set temperature, 0.0, to the block temperature to indicate the start of self-calibration.
- c After a period of 25.5 minutes the display will change from the block temperature (eg 40.0°C) to “EEEE”. Measure the actual temperature of the block using the thermometer or probe. Press the ‘SET’ button and either the ‘UP’ or the ‘DOWN’ button to adjust the display to the same temperature as the measured value.
- d Press the ‘UP’ and ‘DOWN’ buttons together to confirm the value. The display will return to the block temperature and the heater will come full on.
- e After a period of 34 minutes the display will change from the block temperature (eg 95.0°C) to “EEEE”.
- f Measure the actual temperature of the block using the thermometer. Press the ‘SET’ button and either the ‘UP’ or ‘DOWN’ button to adjust the display to the same temperature as the measured value.
- g Press the ‘UP’ and the ‘DOWN’ buttons together to confirm the value. The display will return to the block temperature and the unit will control with the new calibration parameters.
- h Set the temperature to the particular temperature you require. Measure the temperature when the block temperature has stabilised. Repeat the procedure as necessary; you may need to put in an off-set.

Replacement Parts

The following parts may be obtained from your Techne dealer if replacements or alternatives are required:

<i>Part Number</i>	<i>Description</i>
6101308	Extraction tool
FCABLEUK	Mains cable with 13amp UK plug (5 amp fuse)
FCABLEEU	Mains cable with R/A Schuko plug
FCABLEUS	Mains cable with 3 pin US plug
FMW11	Techne HI-TEMP 96 TM well plate, pack of 25
FMW12	HI-TEMP 96 TM well cover, pack of 50
F4466	Plastic half block



Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.



UK Office

Keison Products,

P.O. Box 2124, Chelmsford, Essex, CM1 3UP, England.

Tel: +44 (0)330 088 0560

Fax: +44 (0)1245 808399

Email: sales@keison.co.uk

Please note - Product designs and specifications are subject to change without notice. The user is responsible for determining the suitability of this product.