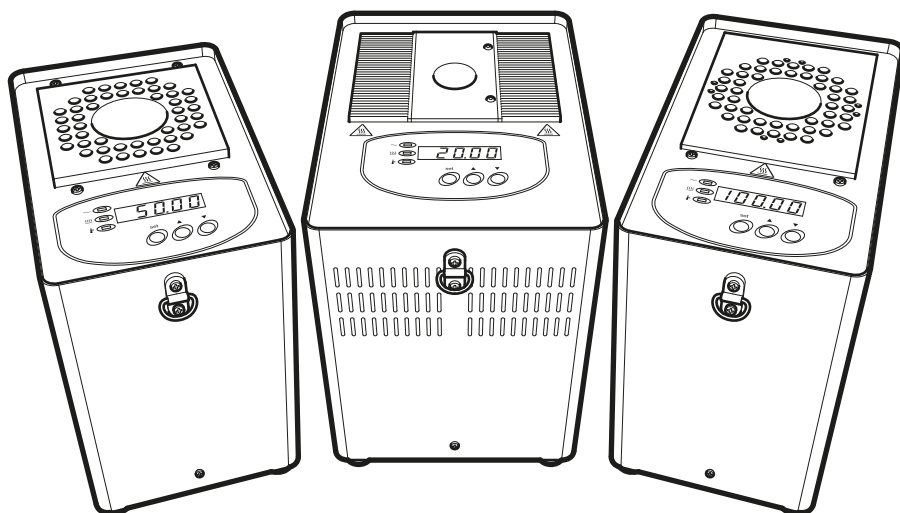


Cole-Parmer®

HBC-100 & HBC-200 Series Heating Block Calibrators



Instruction Manual
7002714-CPB Version 3

Cole-Parmer®
essentials

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INTRODUCTION

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

The HBC-100 & HBC-200 Series Calibrators are designed to provide safe and convenient calibration of a wide range of thermal sensors. It features fast heat up times, with accuracy and repeatability.

Applications

The HBC unit can calibrate temperature probes without the need to return them to a specialist laboratory. To ensure accuracy the unit must be operated in an environment with a stable ambient temperature.

The thermal sensors are placed in a well in the temperature controlled block. A number of inserts with different dimension wells are available to match standard probe sizes: these are detailed towards the back of this manual.

Maintaining a set temperature

The required temperature is set on the calibrator and the operation of the probe is checked. ukAS certificate can be provided, contact your dealer for details.

BEFORE USE

Before using the Calibrator please make sure you have read this manual carefully. If there is any doubt relating to the proper use of this equipment, the staff at Antylia Scientific Ltd. or your supplier will be happy to assist you.

Unpacking

When unpacking the unit please ensure that the following have been removed from the packaging:

HBC-100 or HBC-200 Series Block Calibrator

Extraction tool

Mains cables (UK and EU or US)

Operator's manual

The user is advised to keep the original packaging in case the instrument ever needs to be returned for service or repair. Antylia Scientific Ltd. accepts no responsibility for damage incurred unless the unit is correctly packed and transported in its original packaging.

SAFETY AND INSTALLATION

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

WARNING

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

Cole-Parmer 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 use combustible substances near hot objects.
- DO NOT operate the instrument in the vicinity of inflammable liquids or gases.
- DO NOT place any liquid directly into the instrument.

Operator Safety

All operators of Cole-Parmer 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 Antylia Scientific Ltd. the protection provided by the equipment to the operator may be impaired.


All Cole-Parmer instruments are designed to conform to international safety requirements and are fitted with an over-temperature cut-out.

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

Installation

The unit should be carried using both hands. Never move or carry the instrument when in use or connected to the mains electricity supply.

1. All Cole-Parmer instruments are supplied with a power cable; this may be integral or plug-in.




2.  Before connecting the instrument to the mains electricity supply, check the voltage against the rating plate (located on the back of the unit). **Please note that the unit must be earthed to ensure proper electrical safety.** Connect the mains cable to a suitable plug according to the table below.

Connections	220V-240V, 50/60Hz	110V-120V, 50/60Hz
Live	Brown	Black
Neutral	Blue	White
Earth	Green/yellow	Green

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. Place the unit on a suitable flat bench or in a fume cupboard if required, ensuring that the air inlet vents on the underside are free from obstruction.

4. Plug the mains cable into the socket on the back of the instrument.
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 over-temperature indicator

6. Switch on the instrument. Symbols on or near the power switch of the unit have the following meanings:
 - I Mains Switch On
 - O Mains Switch Off

Replacement cable

Should the mains lead need replacement, a cable of 1mm² of harmonized code H05VV-F connected to an IEC320 plug should be used. **IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN.**

Environmental Conditions

The Calibrator is designed to operate under the following conditions:

- Indoor use
- Ambient temperature range +5°C to +40°C
- Altitude to 2000m
- Relative humidity up to 95%
- Mains supply fluctuations not exceeding 10%
- Over voltage category II IEC 60364-4-443
- Pollution degree 2
- Use with a minimum distance all-around of 200mm from walls or other items

Note: The control specifications are quoted at an ambient temperature of 20°C. The specification may deteriorate outside an ambient temperature of between 10°C and 30°C.

The unit has been tested for radio frequency interference and is certified under EN61326.

Guarantee

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

This manual has been prepared for the convenience of Cole-Parmer customers and nothing in this manual shall be taken as a warranty, condition or representation concerning the description, merchantability, fitness for purpose or otherwise of the unit or components.

Notwithstanding the description and specification(s) of the instruments contained in the operator's manual, Cole-Parmer reserves the right to make such changes as it sees fit to the instruments or to any of the components.

SÉCURITÉ ET CONSIGNES D'INSTALLATION

Veuillez lire attentivement toutes les instructions de ce document avant d'utiliser le Calibrator.

AVERTISSEMENT

Les TEMPÉRATURES ÉLEVÉES SONT DANGEREUSES car elles peuvent provoquer de graves brûlures chez l'opérateur et enflammer les matériaux combustibles.

Cole-Parmer 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 :



- PROCÉDER AVEC PRUDENCE ET PORTER DES GANTS POUR SE PROTÉGER LES MAINS
- NE PAS utiliser de matériaux combustibles auprès d'objets chauds.
- NE PAS utiliser l'appareil à proximité de liquides ou de gaz inflammables
- NE PAS verser de liquides directement dans l'appareil.

Sécurité de L'Opérateur

Tous les utilisateurs de produits Cole-Parmer doivent avoir pris connaissance des consignes et instructions nécessaires à la garantie de leur sécurité. Important: cet appareil doit impérativement être manipulé par un personnel qualifié et être 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 Antylia Scientific Ltd., la protection pour l'utilisateur ne serait alors plus garantie.

Tous les appareils Cole-Parmer sont conçus pour répondre aux normes de sécurité internationales et sont dotés d'un coupe-circuit en cas de surchauffe.

En cas de problème de sécurité, couper l'alimentation électrique au niveau de la prise murale et enlevez la prise connectée à l'appareil.

Installation

Porter l'appareil à deux mains. Ne jamais déplacer ou transporter l'appareil lorsqu'il est en fonctionnement ou branché à l'alimentation électrique.

1. Tous les appareils Cole-Parmer sont livrés avec un câble d'alimentation qui peut être intégré à l'appareil ou à raccorder.



2. Avant de raccorder l'appareil à l'alimentation électrique sur secteur, vérifier la tension requise indiquée sur la plaque d'identification (située au dos de l'appareil). **Il est important que l'appareil soit relié à la terre pour assurer la protection électrique requise.** Brancher le câble secteur sur une prise appropriée, voir tableau ci-après.


<i>Connexions</i>	<i>220V-240V, 50/60 Hz</i>	<i>115V, 50/60 Hz</i>
Phase	Marron	Noir
Neutre	Bleu	Blanc
Terre	Vert/jaune	Vert

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 %.

3. Placer l'appareil sur une surface plane ou si nécessaire sous une hotte d'aspiration, veiller à ce que les trous d'aération situés sous l'appareil ne soient pas obstrués.

- Raccorder le câble d'alimentation à la prise située à l'arrière de l'appareil.
- 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

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

I Interrupteur secteur en position Marche

O Interrupteur secteur en position Arrêt

Câble de rechange

S'il s'avère nécessaire de remplacer le cordon d'alimentation, utiliser un câble de 1 mm² conforme à la norme H05VV-F relié à une prise IEC320. **EN CAS DE DOUTE, CONSULTER UN ELECTRICIEN QUALIFIE.**

Conditions Environnementales

Le Calibrator est conçu pour fonctionner dans les conditions suivantes:

- Pour un usage intérieur seulement
- Température ambiante +5°C à +40°C
- Altitude inférieure à 2000m
- Humidité relative ne dépassant pas 95%
- Fluctuations de l'alimentation n'excédant pas 10% de la valeur nominale
- Catégorie II IEC 60364-4-443 de surtension
- Degré de pollution 2
- Utiliser à une distance minimale sur le pourtour de 200mm par rapport aux murs et autres équipements

Remarque: Les paramètres sont indiqués pour une température ambiante de 20°C. Ces caractéristiques peuvent se détériorer en dehors d'une température ambiante de 10 à 30°C.

L'appareil a été testé en matière de radiofréquences et est certifié selon la norme EN61326.

Garantie

Appareil est garanti contre tout défaut de matériaux ou vice de fabrication pendant la période précisée sur la carte de garantie jointe. Cette période s'applique à compter de la date d'achat. Au cours de cette période, toutes les pièces défectueuses seront remplacées gratuitement dans la mesure où la défaillance n'est pas due à un accident, une mauvaise utilisation ou une négligence. Toute réparation sous garantie sera effectuée par le fournisseur.

Le présent manuel a été exclusivement rédigé à l'attention des clients de la marque Cole-Parmer et rien dans son contenu ne doit être pris comme une garantie, une condition ou une affirmation concernant la description, la commercialisation, l'adéquation à un usage particulier de l'appareil ou de ses composants.

Malgré la description et les caractéristiques techniques des appareils données dans le manuel de l'utilisateur, la société Cole-Parmer se réserve le droit d'apporter les changements nécessaires à l'appareil ou à tout élément qui entre dans sa composition.

SICHERHEITS- UND INSTALLATIONSINFORMATIONEN

Lesen Sie diese Anleitung vor Verwendung des Calibrator bitte sorgfältig durch.

ACHTUNG

HOHE TEMPERATUREN STELLEN EINE GEFAHRENQUELLE DAR. Sie können schwere Brandverletzung verursachen und brennbare Stoffe entzünden.

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



- UMSICHTIG VORGEHEN UND SCHUTZHANDSCHUHE TRAGEN
- KEINE brennbaren Stoffe in der Nähe heißer Gegenstände verwenden
- Das Gerät NICHT in der Nähe entzündlicher Flüssigkeiten oder Gase betreiben
- Flüssigkeiten NICHT direkt auf das Gerät auftragen.

Sicherheit des Bedienpersonals

Alle Benutzer von Cole-Parmer 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 Cole-Parmer entsprechen den internationalen Sicherheitsbestimmungen und sind mit einem automatischen Übertemperaturabschalter ausgestattet.

Wenn ein Sicherheitsproblem auftreten sollte, muß das Gerät ausgeschaltet und vom Stromnetz getrennt werden.

INBETRIEBNAHME

Das Gerät mit beiden Händen tragen. Das Gerät unter keinen Umständen transportieren, wenn es in Betrieb ist, oder während das Gerät noch am Netz angeschlossen ist.

1. Alle Geräte von Cole-Parmer werden mit einem Netzkabel geliefert, das entweder eingesteckt wird oder fest mit dem Gerät verbunden ist.



2. Vor dem Anschluss bitte kontrollieren, ob die Stromversorgung den Angaben auf dem Typenschild (auf der Geräterückseite) entspricht. **Um die elektrische Sicherheit zu gewährleisten, muss dieses Gerät geerdet werden.** Schließen Sie das Netzkabel entsprechend der folgenden Tabelle an einen geeigneten Stecker an.


Anschluss	220V-240V, 50/60Hz	110V-120V, 50/60Hz
Phase	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%.

3. Stellen Sie das Gerät auf einen geeigneten ebenen Tisch oder in einem Abzugsschrank auf und sorgen Sie dafür, dass die Lufteinlassschlitze auf der Geräteunterseite nicht blockiert sind.

4. Stecken Sie das Netzkabel in die Buchse auf der Geräterückseite ein.
5. Wenn die Anzeigenlampchen an der Vorderseite leuchten, hat dies folgende Bedeutung:

 : Gerät ist eingeschaltet

 : Gerät heizt

 : Übertemperaturschutz ist ausgelöst

6. Schalten Sie das Gerät ein:

- I Netzschalter Ein
- O Netzschalter Aus

Ersatzkabel

Bei einem eventuellen Austausch des Netzkabels wird ein Kabel vom Typ H05VV-F mit 1 mm² Adernquerschnitt und Europastecker (IEC 320) benötigt.

IM ZWEIFELSFALL EINEN ELEKTRO-FACHMANN HINZUZIEHEN.

Umweltbedingungen

Der Calibrator ist für den Einsatz unter folgenden Bedingungen ausgelegt:

- Gebrauch in Innenräumen
- Umgebungstemperatur zwischen +5°C to +40°C
- Höhe: bis zu 2000 m
- Relative Feuchte nicht über 95%
- Netzspannungsschwankungen nicht über 10%
- Überspannungsklasse 2 IEC 60364-4-443
- Verschmutzungsgrad 2
- Der Mindestabstand zwischen dem Gerät und umgebenden Wänden oder Gegenständen muss 200mm betragen

Hinweis: Die Gerätespezifikationen beziehen sich auf eine Umgebungstemperatur von 20°C und können sich außerhalb des Bereichs 10°C bis 30°C verschlechtern.

Das Gerät wurde auf HF-Störeinflüsse geprüft und entspricht den EMV-Bedingungen nach EN61326.

Garantie

Cole-Parmer gewährleistet, dass dieses Gerät für den auf der Garantiekarte angegebenen Zeitraum keine Herstellungs- und Materialmängel aufweist. Dieser Zeitraum tritt ab dem Verkaufsdatum in Kraft. Innerhalb dieses Zeitraums werden alle defekten Teile kostenlos ausgetauscht, soweit der Defekt nicht auf einen Unfall, Missbrauch oder Nachlässigkeit zurückzuführen ist. Wartungsarbeiten, die unter diese Garantie fallen, müssen von der Verkaufsstelle für dieses Gerät gehandhabt werden.

Diese Anleitung wurde zur Information der Kunden von Cole-Parmer erstellt und stellt in keinsten Weise eine Gewährleistung, Bedingung oder Darstellung bezüglich der Beschreibung, Marktgängigkeit oder Zweckdienlichkeit dieser Geräte oder Bauteile dar.

Unabhängig von Beschreibung und Spezifikation(en) des hier beschriebenen Geräts behält sich Cole-Parmer das Recht vor, Änderungen an diesem Gerät oder dessen Bauteilen vorzunehmen.

INFORMAZIONI SULLA SICUREZZA E L'INSTALLAZIONE

Leggere attentamente il presente manuale prima di usare il Calibrator.

AVVERTENZA

Le ALTE TEMPERATURE SONO PERICOLOSE in quanto possono provocare serie ustioni agli operatori e dare fuoco al materiale combustibile.

La Cole-Parmer 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:



- PRESTARE ATTENZIONE ED INDOSSARE GUANTI PROTETTIVI PER LE MANI
- NON usare sostanze combustibili vicino ad oggetti caldi
- NON mettere in funzione lo strumento nei pressi di liquidi o gas infiammabili
- NON collocare alcun tipo di liquido direttamente nello strumento.

Sicurezza Dell'Operatore

Il personale che utilizza l'apparecchiatura Cole-Parmer 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 Antylia Scientific Ltd., la protezione fornita dall'apparecchiatura all'utilizzatore potrebbe essere a rischio.


Tutte le unità Cole-Parmer sono state progettate in conformità ai requisiti internazionali di sicurezza e sono equipaggiate con un interruttore anti surriscaldamento.

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

Installazione

Occorre trasportare lo strumento usando entrambe le mani. Non spostare né trasportare lo strumento quando è in funzione o collegato all'alimentazione elettrica di rete.

1. Tutti gli strumenti Cole-Parmer sono forniti con un cavo di alimentazione; può essere integrale o plugin.

2.  Prima di collegare lo strumento all'alimentazione elettrica di rete, controllare la tensione confrontandola con la targhetta riportante i valori nominali (si trova sul retro dell'unità). **Notare che al fine di garantire la corretta sicurezza elettrica, occorre che l'unità sia messa a terra.** Collegare il cavo di rete ad una presa idonea secondo la tabella riportata alla pagina successiva.


Connessione	220V-240V, 50/60Hz	110V-120V, 50/60Hz
Sotto tensione	Marrone	Nero
Neutro	Blu	Bianco
Terra	Verde/giallo	Verde

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%.

- Collocare l'unità su un banco piano idoneo o in una cappa aspirante se necessario, assicurandosi che gli sfriati delle prese d'aria nella parte inferiore non siano ostruiti.
- Inserire il cavo di rete nella presa che si trova sul retro dello strumento.
- 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

- Accendere lo strumento:

- | | |
|---|-----------------------------|
| I | Interruttore di rete Acceso |
| O | Interruttore di rete Spento |

Cavo di ricambio

Qualora occorra sostituire il cavo di rete, si dovrà utilizzare un cavo di 1mm² codice armonizzato H05VV-F collegato ad una spina IEC 320. **IN CASO DI DUBBIO, RIVOLGERSI A UN ELETTRICISTA QUALIFICATO.**

Condizioni Ambientali

Il Calibrator è stato progettato per funzionare nelle seguenti condizioni:

- uso interno
- range di temperatura ambiente da +5°C a +40°C
- altitudine massima 2000 m.
- umidità relativa non superiore all'95%
- oscillazione dell'alimentazione di rete non superiore al 10%
- categoria di sovratensione II IEC 60364-4-443
- grado di inquinamento 2
- Con distanza minima tra i lati dell'apparecchio e il muro o altri oggetti di almeno 200mm

Nota: le specifiche di controllo sono indicate ad una temperatura ambiente di 20°C. Le specifiche potrebbero peggiorare fuori da una temperatura ambiente compresa tra 10°C e 30°C.

Lo strumento è stato collaudato per interferenze da radiofrequenze ed è certificato secondo la norma EN61326.

Garanzia

Lo strumento è garantito da qualsiasi difetto nei materiali o nella lavorazione per il periodo specificato nella scheda di garanzia allegata. Questo periodo è valido dalla data di acquisto; entro tale periodo, tutte le parti difettose saranno sostituite gratuitamente, a condizione che il difetto non sia la conseguenza di un incidente, un uso improprio o negligenza. L'assistenza secondo quanto stabilito dalla presente garanzia deve essere ottenuta dal fornitore dello strumento.

Il presente manuale è stato preparato ad uso dei clienti di Cole-Parmer e niente di quanto in esso contenuto costituisce garanzia, condizione o rappresentanza riguardo la descrizione, la commerciabilità, l'idoneità allo scopo o altrimenti dell'unità o dei componenti.

Nonostante la descrizione e le specifiche dello strumento contenuti nel manuale dell'operatore, Cole-Parmer si riserva il diritto di apportare le modifiche ritenute opportune agli strumenti o a qualsiasi loro componente.

INFORMACIÓN DE SEGURIDAD E INSTALACIÓN

Lea atentamente este manual antes de utilizar el Calibrator.

ADVERTENCIA

LAS ALTAS TEMPERATURAS SON PELIGROSAS, ya que pueden ocasionar quemaduras graves a los operarios y prender el material combustible. Cole-Parmer 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:



- TENGA CUIDADO Y LLEVE GUANTES DE PROTECCIÓN PARA PROTEGERSE LAS MANOS
- NO utilice sustancias combustibles cerca de objetos calientes
- NO utilice el instrumento cerca de líquidos o gases inflamables
- NO coloque un líquido directamente en el instrumento.

Seguridad Del Operario

Todos los usuarios de equipos Cole-Parmer 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 Cole-Parmer han sido diseñados para cumplir con los requisitos internacionales de seguridad y traen incorporados un sistema de desconexión en caso de sobre temperatura.

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

Instalación

El instrumento se debe transportar con las dos manos. No mueva ni lleve el instrumento cuando se utilice o esté conectado al suministro eléctrico principal.

1. Todos los instrumentos Cole-Parmer se suministran con un cable de alimentación, que puede ser integrado o 'enchufable'.

2.  Antes de conectar el instrumento al suministro eléctrico, compruebe que el voltaj coincida con el indicado en la placa de régimen (situada en la parte trasera de la unidad). **El instrumento debe disponer de una toma de tierra para garantizar la seguridad eléctrica adecuada.** Conecte el cable de alimentación a un enchufe adecuado según la siguiente tabla.

Conexión	220V-240V, 50/60Hz	110V-120V, 50/60Hz
Con corriente	Marrón	Negro
Neutro	Azul	Blanco
Toma de 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.


3. Sitúe la unidad sobre una mesa plana o en una campana de laboratorio si es necesario, y asegúrese

de que los orificios de ventilación situados en la parte inferior no tienen ninguna obstrucción.

4. Conecte el cable de alimentación en el enchufe situado en la parte trasera del instrumento.
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

 indicatore di riscaldamento

 indicatore di surriscaldamento

6. Encienda el instrumento:

I Interruptor de alimentación encendido

O Interruptor de alimentación apagado

Cable de repuesto

Si es necesario sustituir el cable de alimentación, se debe utilizar un cable de 1mm² de código armonizado H05VV, conectado a un enchufe IEC320. **EN CASO DE DUDA, PÓNGASE EN CONTACTO CON UN ELECTRICISTA.**

Condiciones Ambientales

El Calibrador está diseñado para utilizarse en las condiciones siguientes:

- Uso en interior
- Intervalo de temperatura ambiente +5°C a +40°C
- Altitud: hasta 2000 m
- Humedad relativa no superior al 95%
- Fluctuaciones del suministro eléctrico no superiores al 10%
- Categoría de sobrevoltaje II IEC 60364-4-443
- Nivel de contaminación 2
- Separado de paredes u otros objetos a una distancia mínima de 200mm

Nota: Las especificaciones de control corresponden a una temperatura ambiental de 20°C. Las especificaciones pueden empeorar si se utiliza el instrumento fuera del intervalo de temperatura comprendido entre 10°C y 30°C.

Se han realizado pruebas para comprobar la interferencia de radiofrecuencia del instrumento, el cual cumple la normativa EN61326.

Garantía

El instrumento está garantizado contra cualquier defecto en el material o la fabricación durante el período especificado en la tarjeta de garantía que se adjunta. Este período entra en vigor a partir de la fecha de compra. Durante este período, se reemplazarán sin cargo alguno todas las piezas defectuosas, a condición que el defecto sea resultado de un accidente, uso incorrecto o negligencia. El distribuidor del instrumento proporcionará información sobre las reparaciones realizadas bajo esta garantía.

Este manual se ha preparado con una finalidad informativa para los clientes de Cole-Parmer y ninguna parte del manual se deberá considerar como una garantía, condición o reflejo con respecto a la descripción, comerciabilidad, idoneidad para un fin determinado o de otro tipo de la unidad o sus componentes.

Con independencia de la descripción y las especificaciones del instrumento que se indican en el manual del operario, Cole-Parmer se reserva el derecho de realizar cambios en el instrumento o en cualquiera de sus componentes cuando lo estime oportuno.

SPECIFICATION

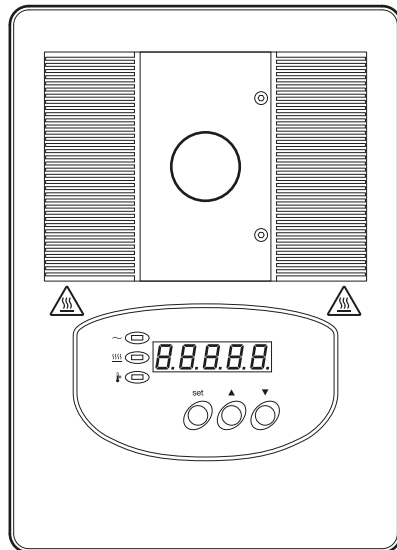
HBC-100-140F Specification

The figures stated in the specification are as measured 0-50 mm from the base of the well of the insert, using an SPRT, at the time of calibration.

Minimum temperature	*45°C below ambient Typically -20°C in an ambient of 25°C
Maximum temperature	140°C
Temperature accuracy	±0.3°C
Temperature uniformity	±0.2°C
Temperature stability after 10 minutes	±0.05°C
Display resolution	0.01°C
Set point display resolution	0.1°C
Heat up rate 5 minutes	20°C to 100°C
Cool down rate 9 minutes	100°C to 0°C
Fan cooling Automatic	Automatic
Dimensions Height x Width x Depth	273mm x 207mm x 289mm
Large well in the block:	Depth / Diameter 130mm / 38.2mm
Weight	11Kg

Options

- Central Well for inserts, see the list of inserts
- Full bi-directional RS232 Comms Port 9way D type plus software and cable
- Soft carry case
- Hard carry case
- UKAS calibration certificate



*Although temperature can be set to -40°C this can only be achieved in an ambient of 5°C.

HBC-200-425F Specification

The figures stated in the specification are as measured 0-50 mm from the base of the well of the insert, using an SPRT, at the time of calibration.

Minimum temperature	20°C above ambient
Maximum temperature	425°C
Temperature accuracy	±0.3°C
Temperature uniformity	±0.2°C
Temperature stability at 200 after 10 minutes	±0.03°C
Temperature stability at 425 after 10 minutes	±0.05°C
Display resolution	0.01°C
Set point display resolution	0.1°C
Heat up 12 minutes	20°C to 400°C
Cool down 21 minutes	400°C to 100°C
Fan cooling Automatic	Automatic
Dimensions Height x Width x Depth	270mm x 170mm x 255mm
Large well in the block:	Depth / Diameter 130mm / 38.2mm
Weight	6.3Kg

Options

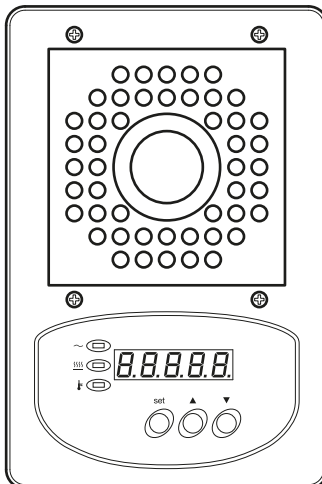
Central Well for inserts, see the list of inserts

Full bi-directional RS232 Comms Port 9way D type plus software and cable

Soft carry case

Hard carry case

UKAS calibration certificate



HBC-200-650F Specification

The figures stated in the specification are as measured 0-50 mm from the base of the well of the insert, using an SPRT, at the time of calibration.

Minimum temperature	25°C above ambient
Maximum temperature	650°C
Temperature accuracy	±0.4°C
Temperature uniformity	±1°C
Temperature stability after 10 minutes	±0.09°C
Display resolution	0.01°C
Set point display resolution	0.1°C
Heat up 35 minutes	20°C to 600°C
Cool down 30 minutes	600°C to 200°C
Fan cooling Automatic	Automatic
Dimensions Height x Width x Depth	278mm x 170mm x 300mm
Large well in the block:	Depth / Diameter 152mm / 38.2mm
Weight	9.6Kg

Options

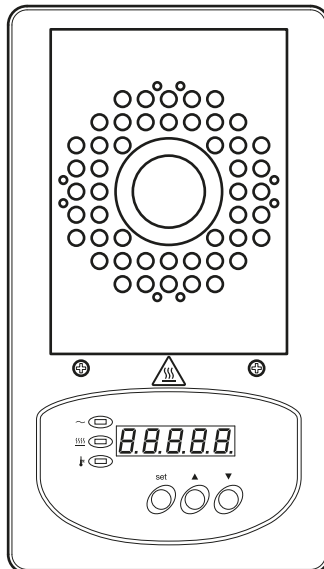
Central Well for inserts, see the list of inserts

Full bi-directional RS232 Comms Port 9way D type plus software and cable

Soft carry case

Hard carry case

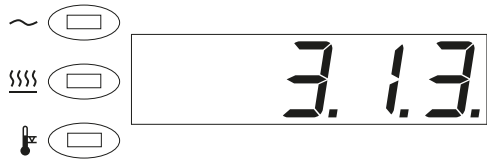
UKAS calibration certificate



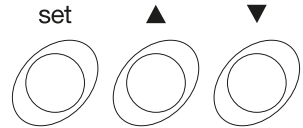
OPERATION

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 "3.13" would be shown as follows:



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

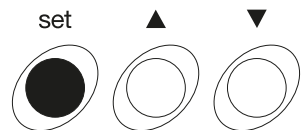


The Front Panel Controls

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

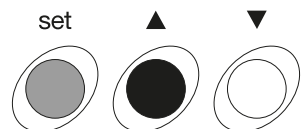
The SET temperature Button

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.

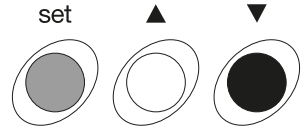


The DOWN ARROW Button

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



Power to the Block Indicator

The next indicator shows when there is power to the block.

When the set temperature is different to the block temperature this indicator will light. If the light is on continuously the block is getting constant power. The only exception is described under Over-Temperature Indicator. As the temperature approaches the set temperature the indicator will flash. When set temperature is reached the indicator will stay on for shorter periods.



Sensor fault Indicator

If there should, for any reason, be a sensor fault, the bottom indicator will light. The power to the block will have been switched off and the unit will begin to return to ambient even if the power light is on (the light staying on or not depends on which circuit has sensed a fault).



Setting the units for temperature

The unit will normally be set to display in °C, if you require it to work and display in °F press both the UP ARROW and DOWN ARROW buttons at the same time. To convert back, press both buttons again.

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. Power is switched on to the block (and the indicator comes on) if the set temperature is higher or lower than the block temperature.
3. When the measured temperature approaches the set temperature, the "power to the block" indicator will begin to flash. As the measured temperature stabilises the indicator will stay on for shorter periods.
4. There will be a time-lag between the block and the insert achieving the set temperature due to thermal contact between them. The display may reach temperature in 2 or 3 minutes while the insert may take 5 minutes or more to reach temperature.

Overtemperature cut-out

The unit is fitted with an overtemperature cut-out. It will operate if a fault develops and the unit exceeds its maximum operating temperature. The cutout will remove power to the heaters or peltiers and return the unit to ambient temperature.

If the cut-out trips, the unit needs to be turned off and then turned on again to reset it.

If the unit is switched off and then switched on again quickly this may cause the overtemperature cut-out to trip. If this occurs, turn the unit off, wait 5 seconds or more then switch it on again.

Repeated tripping of the cut-out may indicate a fault and you should contact your supplier for more information.

After Use



When you have finished heating samples, remember that parts of the unit inserts and associated accessories may be very hot. Take the precautions listed earlier. We recommend that the inserts should be allowed to cool to 70°C before being removed from the HBC unit. They will still have to be handled with care

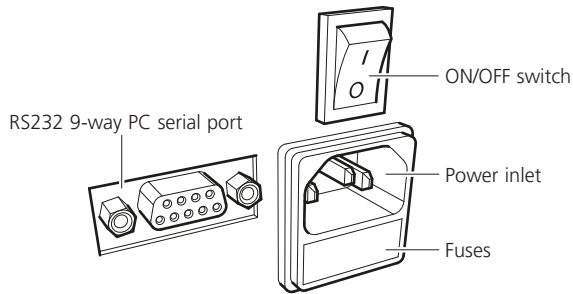
If you need to remove an insert while it is hot, fit the extractor tool into the locating holes and lift the insert out carefully. Never leave the extractor tool in the insert while it is being used in the HBC unit.

RS232 Serial Interface (where applicable)

The calibrator may send data logging information to a PC or compatible computer by connecting the unit and the PC via an RS232 cable, and installing the "Calsoft" software, available free of charge from our web-site.

Ensure that there is a connection made before the calibrator is switched on.

The RS232 cable must be fitted to both the unit and the PC before either unit is powered up, otherwise, data integrity cannot be guaranteed. Once the cable is fitted, it does not matter which unit is powered up first.



The following tables indicate the cable specifications for a 9-way PC serial port:

Calibrator		PC
9-way female D type		9-way female D type
pin	signal	pin
Case	F.GND	Case
3	TxD	3
2	RxD	2
7	RTS	7
8	CTS	8
6	DSR	6
1	CD	1
4	DTR	4
5	S.GND	5

Sending data to the PC

The procedure for sending data to the PC is described in the instructions supplied with the software. The PC must be properly connected by the RS232 cable and running Calsoft to accept or display data.

ADDITIONAL INFORMATION

User Maintenance

NOTE THAT THIS EQUIPMENT SHOULD ONLY BE DISMANTLED BY PROPERLY TRAINED PERSONNEL. REMOVING THE 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. Cole-Parmer will accept no responsibility for any damage to units that are improperly packed for shipment. If in doubt, contact your supplier. See the Decontamination Certificate supplied with your unit.

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 with a cloth dipped in water or ethanol (methanol can also be used). No part of the case or cover should be immersed in the solvents. Do not use acetone or abrasive cleaners.

Before using any cleaning or decontamination method except those recommended in this manual, the responsible body should check with Cole-Parmer that the proposed method will not damage the equipment.

Fuses

Your unit is protected by two fuses. They 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.

Fault Finding

HELP display: If HELP is displayed there is a problem with the internal sensing device. The calibrator should be returned to your supplier for repair.

Over-temperature cut-out: If the over-temperature cut-out trips it can be reset by switching the unit off, waiting a few seconds, then swiftly it on again. If it repeatedly trips, please contact your local supplier.

Should you have any problems with your Calibrator which cannot be easily remedied, you should contact your supplier and return the unit if necessary. Please include details of the fault observed and remember to return the unit in its original packing. Antylia Scientific Ltd. accepts no responsibility for damage to units which are not properly packed for shipping: if in doubt, contact your supplier, giving the full serial number of the unit.

TECHNICAL SUPPORT AND SERVICING

If you require further technical or application assistance please contact:

Email: cptechsupport@antylia.com

Phone: +44 (0)1785 810433

For servicing information please contact:

Antylia Scientific Ltd. Service Department, Beacon Road, Stone, Staffordshire, ST15 0SA,

Email: cpsservice@antylia.com.

Phone: +44 (0)1785 810475

We are continually striving to improve our products and software. If you have any comments and suggestions on how we can do things better please send them to us at: cptechsupport@antylia.com

REPLACEMENT PARTS

Part No.	Description
6101058	Insert extractor
FCAB10UK	Mains cable, 230V UK units
FCABLEEU	Mains cable, 230V units
FCABLEUS	Mains cable, 120/100V units

ACCESSORIES

Part No.	Description
FCAL232	CALSOFT PC software kit (includes RS232 cable) Supplied with models with RS232 connection
FCALFCSE	Soft carrying case
FCALFCSH	Hard Carrying case
FDB00CP	Cooling probe 425 & 650 requires an insert with a 10mm diameter or larger hole
6103890	RS232 Cable only

INSERTS

Inserts are made from aluminium or aluminium-bronze and must be ordered separately from the calibrator. Each insert is stamped for identification.

		HBC-100-140F and HBC-200-425F Inserts				HBC-200-650F Inserts	
		Aluminium Inserts: Immersion depth 114.3 mm or 4.5"				Aluminium Bronze Inserts: Immersion depth 152.4 mm or 6"	
		Part No.	Diameter			Part No.	Diameter
Metric	FINSALA	5 off 6mm		Metric	FINSABA	5 off 6mm	
	FINSALB	1 off each 10mm, 8mm, 6mm, 4.5mm, 3mm			FINSABB	1 off each 10mm, 8mm, 6mm, 4.5mm, 3mm	
	FINSALC	2 off 6mm, 2 off 10mm			FINSABC	2 off 6mm, 2 off 10mm	
	FINSALD	2 off 6mm, 2 off 12mm			FINSABD	2 off 6mm, 2 off 12mm	
	FINSALE	1 off 6mm			FINSABE	1 off 6mm	
	FINSALZ	1 off 20mm			FINSABZ	1 off 20mm	
Imperial	FINSALF	5 off 1/4"		Imperial	FINSABF	5 off 1/4"	
	FINSALG	1 off each 3/8", 5/16", 1/4", 3/16", 1/8"			FINSABG	1 off each 3/8", 5/16", 1/4", 3/16", 1/8"	
	FINSALH	2 off 1/4", 2 off 3/8"			FINSABH	2 off 1/4", 2 off 3/8"	
	FINSALI	2 off 1/4", 2 off 1/2"			FINSABI	2 off 1/4", 2 off 1/2"	
	FINSALJ	1 off 1/4"			FINSABJ	1 off 1/4"	
	FINSALL	1 off 9/16"			FINSABL	1 off 9/16"	
	FINSALM	1 off 5/8"			FINSABM	1 off 5/8"	
	FINSALN	1 off 3/4"			FINSABN	1 off 3/4"	
FINSALO	1 off 11/16"		FINSABO	1 off 11/16"			
Blank	FINSALK	BLANK (A blank insert may be drilled to suit your application)		Blank	FINSABK	BLANK (A blank insert may be drilled to suit your application)	



This product meets the applicable CE Directives and UKCA Legislation 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 practise. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advise before use, contact the manufacturer.

Declaration of Conformity is available to view online at www.coleparmer.com

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Email: enquiries@antylia.com

Ordering Information

Order No.	Series	Model	Legacy SKU
16102-04	HBC-100-140FR	HBC-100	FDB140FR
16102-05	HBC-100-140FS	HBC-100	FDB140FS
16102-28	HBC-200-425FR	HBC-200	FDB425FR
16102-15	HBC-200-425FS	HBC-200	FDB425FS
16104-46	HBC-200-650FR	HBC-200	FDB650FR
16104-47	HBC-200-650FS	HBC-200	FDB650FS

Warranty Registration



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