



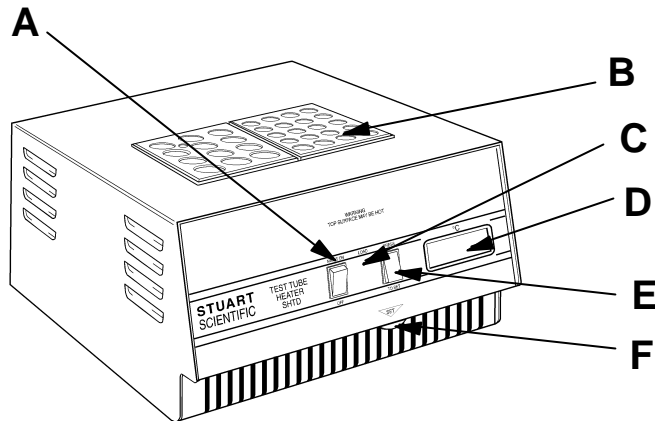
# **BLOCK HEATERS**

**SHT100-SHT100D-SHT200-SHT200D**

## **Instructions for Use**

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**Fig 1: Digital Block Heaters**



- ENGLISH**  
 A = Mains on/off  
 B = Aluminium blocks  
 C = Load indicator  
 D = Display  
 E = Press to set  
 F = Set +/-

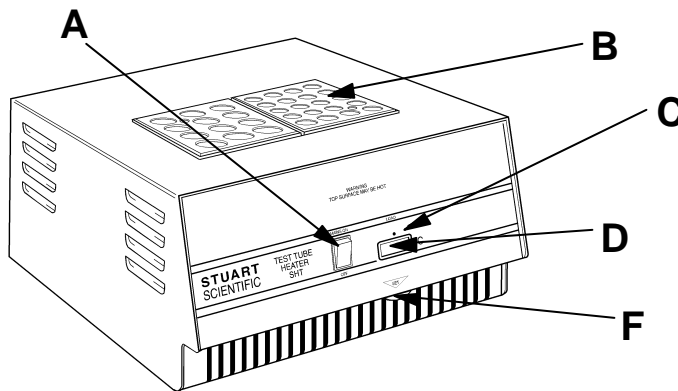
**FRANCAIS**

**ESPAGNOL**

**ITALIANO**

**DEUTCH**

**Fig 2: Analogue Block Heaters**



# ENGLISH

## Before Use

Thank you for purchasing this piece of Stuart equipment. To get the best performance from the equipment, and for your own safety, please read these instructions carefully before use.

This equipment is designed to operate under the following conditions:-

- For indoor use only
- Use in a well ventilated area
- Ambient temperature range +5°C to +40°C
- Altitude to 2000m
- Relative humidity not exceeding 80%
- Mains supply fluctuations not exceeding 10%
- Overvoltage category II IEC664
- Pollution degree 2 IEC664

If the equipment is not used in the manner described in this manual the protection provided by the equipment may be impaired.

## Electrical Installation

### THIS EQUIPMENT MUST BE EARTHED

Before connection please ensure that the line supply corresponds to that shown on the rating plate. These models require a supply rated at:

220 - 240V, 50 or 60Hz, ~, single phase.

Most models are supplied with a mains lead fitted with an IEC plug and IEC socket in the rear of the instrument. If this is the case this lead should be connected to the instrument BEFORE connection to the mains supply. Should this lead require replacement a cable of 1mm<sup>2</sup> of harmonised code H05W-F connected to an IEC 320 plug should be used.

Most Stuart equipment is supplied with the mains lead fitted with a moulded plug for connection to the electricity supply. If this is not the case it should be fitted with a plug approved for the country in which it is to be used, noting that the mains lead has cables coloured according to the following code:

Blue                -Neutral  
Brown              -Live  
Green/yellow     -Earth

If required the plug should be fitted with a 10A fuse to protect the cable.

All models are protected by two fuses located in the IEC socket. These conform to IEC127 and are rated as follows:

Model	Power	Fuse
SHT100	400W	3.15AL
SHT100D	400W	3.15AL
SHT200	400W	3.15AL
SHT200D	400W	3.15AL



**CAUTION: Fuse fitted in both live and neutral lines. IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN**

## General Description

**WARNING: Top surface may be hot.**

Containers to be heated are placed into aluminium blocks which sit on a machined aluminium hotplate with integral cast heating element. This lagged heater assembly is housed within a steel case having a durable powder coat finish. The temperature of the Block Heater is controlled by a precision electronic controller with a PT100 platinum resistance sensor. The units accommodate two aluminium blocks which can be selected from a range of patterns as required. Each block has a thermometer pocket for independent temperature measurement.

## Controls (see page 2)

Fig. 1 shows the controls for models SHT100D and SHT200D, the digital set and read versions.

Fig. 2 shows the controls for models SHT100 and SHT200, the analogue versions.

**Mains on/off:** This is a rocker type switch which illuminates when the unit is on.

**Press to set switch (digital models only):** This is a plain coloured, biased rocker switch. Pressing and holding the switch down allows the required temperature to be set.

**Set +/- control:** This is a knurled wheel protruding below the lip on the front panel and is used to set the temperature.

**Display:** This is used to display the temperature of the Block Heater. It is calibrated in °C. For the digital models the display is an L.C.D which can display either the actual or set temperature. For the analogue models the display is a calibrated wheel behind a window which shows the set temperature only.

For SHT100D the range is 20 - 100°C with a resolution of 0.1°C. For SHT200D the range is 20 - 199.9°C with a resolution of 0.1°C

For SHT100 the range is 20 - 100°C with a resolution of approximately 1°C and for SHT200 the range is 20 - 200°C with resolution of approximately 2°C.

**Load indicator:** An amber LED illuminates when supply is to the Block Heater. This light switches on and off at a rate depending on how close the actual temperature is to the set temperature.

## Safety Advice Before Use

- Do not use the Block Heater to heat inflammable liquids
- Do not try to remove the aluminium heating blocks until they have cooled.
- Never lift or carry the instrument until it has been switched off and allowed to cool.
- Do not turn the unit upside down while the aluminium heating blocks are in place.
- Never move or carry the unit when in use or connected to the mains electricity supply.

N.B. If spillages occur on to the hotplate surface, immediately isolate the unit from the electricity supply, allow to cool, and clean. Allow the unit to dry before further use. If the spillage is large the unit should be checked by a competent electrician before use.

## Operation

The equipment should be used away from direct draughts or excessive heat.

Select the required aluminium block arrangement. The blocks are machined and should be in good contact with the hotplate surface. Note there will always be some thermal lag between hotplate and blocks so please allow a few minutes for steady state conditions to be achieved before use. Typical time to achieve set point under average conditions is 8 minutes for 100°C and 18 minutes for 200°C.

Ensure that the mains on/off switch is in the off position and the set +/- control is at minimum (fully anti-clockwise) before connecting to the mains electricity supply.

### SHT100D and SHT200D

Depress and hold down the press to set switch while, at the same time, turning the set control clockwise until the desired set point temperature is indicated on the display. Release the press to set switch. The required set point temperature is now locked into the unit and the display reverts to showing actual Block Heater temperature. The actual temperature will now rise to the set point temperature. Note that the load indicator will be on continuously while the actual temperature is well below the set point and will start flashing as the actual temperature begins to get close to the set point.

### SHT100 and SHT200

Turn the set point knob clockwise to the desired temperature. Allow to reach equilibrium and observe the temperature by means of a suitable thermometer or temperature indicator placed in the thermometer pocket - use a suitable medium, e.g. oil, to give good thermal conductivity. It may be necessary to adjust the dial to obtain the exact required temperature. Note that the load indicator will be on continuously while the actual temperature is well below the set point and will start flashing as the actual temperature begins to get close to the set point.

## Maintenance & Servicing

**WARNING:** Ensure the unit is disconnected from the mains electricity supply before attempting maintenance or servicing.

Periodically clean the instrument using a damp cloth and mild detergent solution. Do not use harsh or abrasive cleaning agents.

**Any repairs or replacement of parts MUST be undertaken by suitably qualified personnel.**

The following spares and accessories are available from your laboratory dealer.

Description	Catalogue Number
Fuse 'F' 3.15AL 250V	ESM3C15(S)
Rubber feet	NSM3C15
Mains lead	W102(S)
Block Extraction Handle	SHT1C3
Block, solid	SHT1/0
Block for 20 x 10mm tubes	SHT1/10
Block for 20 x 12mm tubes	SHT1/12
Block for 12 x 16mm tubes	SHT1/16
Block for 8 x 19mm tubes	SHT1/19
Block for 20 x 1.5ml tubes	SHT1/22
Block for 30 x 0.5ml tubes	SHT1/30


For a comprehensive list of parts required by service engineers conducting internal repairs, please contact the Technical Service Department of Bibby Sterilin Ltd. quoting both the model and serial number.

Only spare parts supplied or specified by Bibby Sterilin Ltd. or its agents should be used. Fitting of non-approved parts may affect the performance and safety features designed into the instrument.

## Warranty

Bibby Sterilin Ltd warrants this instrument to be free from defects in material and workmanship, when used under normal laboratory conditions, for a period of **two (2)** years. In the event of a justified claim Bibby Sterilin will replace any defective component or replace the unit free of charge.

This warranty does NOT apply if damage is caused by fire, accident, misuse, neglect, incorrect adjustment or repair, damage caused by installation, adaptation, modification, fitting of non approved parts or repair by unauthorised personnel.

 This equipment meets the applicable EC harmonised standards for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications. We cannot be sure that other equipment used in its vicinity will meet these standards and so we cannot guarantee that interference will not occur in practice. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advice before use, please contact the Technical Department of Stuart Scientific.

## Correspondence

For sales or spare parts, please contact Bibby Sterilin Ltd, or the point of sale:

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For technical enquiries, servicing or product returns, please contact the Stuart Scientific factory directly, or the point of sale:

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