

Grant-bio

**Block heater
BTD/BTDL**

Operating instructions



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1. Safety

The following symbols mean:


















Caution: Read these operating instructions fully before use and pay particular attention to sections containing this symbol



Caution: Surfaces can become hot during use.

Always observe the following safety precautions

-  Use only as specified by the operating instructions, or the intrinsic protection may be impaired.
-  After transport or storage in humid conditions, dry out the unit before connecting it to the supply voltage. During drying out the intrinsic protection may be impaired.
-  Connect only to a power supply with a voltage corresponding to that on the serial number label.
-  Ensure that the mains switch and isolating device (power supply connector) are easily accessible during use.
-  Connect only to a power supply which provides a safety earth (ground) terminal.
-  Before moving, disconnect at the power supply socket.
-  If liquid is spilled inside the unit, disconnect it from the power supply and have it checked by a competent person.
-  It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilled on or inside the equipment.
-  Before using any cleaning or decontamination method except those recommended by the manufacturer, user should check with the manufacturer that the proposed method will not damage the equipment.
-  Clean the unit only with a damp cloth, do not use chemical cleaning agents.
-  Do not check the temperature by touch, use a thermometer.
-  Under the action of high temperature (> 85°C) tube caps can open, thus causing sample volume shrinkage or potential health risk when working with infected material. To prevent such cases it is recommended to use tubes with cap lock of Safe-Lock® type.

-  To reduce the risk of eye injury during high temperature operation, use safety goggles or spectacles.
-  Do not touch surfaces which become hot during high temperature operation.
-  Allow the unit to cool down before moving it.

2. General Information

The BTD is a digitally controlled dry block heater, with a unique circular block which can accommodate three sizes of microtubes.

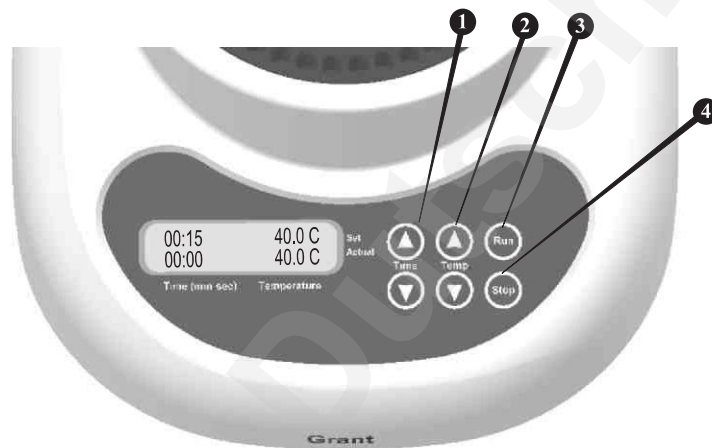
The BTD with its small footprint and powerful heater, for fast heat-up is ideally suited for many life science applications.



3. Getting started

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- 3.1 Unpacking**
Remove packing materials carefully, and retain for future shipment or storage of the unit.
- 3.2 The BTD pack includes:**
- » Block heater.....1 piece
 - » Mains cable.....1 piece
 - » Operating instructions (inc. CE certificate).....1 piece
- 3.3 Assembly**
Plug the mains cable into the socket on the rear, and position the BTD so that there is easy access to the power switch and connector.

4. Operation of BTDL



You can accurately set the temperature and time required for your specific task by utilising controls **1** and **2**.

In the following example we will assume that you wish to heat the microtubes to a temperature of 40°C for a time of 15 minutes.

4.1 Switch on the BTDL.

4.2 Use the ▲ and ▼ buttons (**1**) to set the temperature to 40°C.

00:00	40.0 C
00:00	25.0 C

4.3 The BTDL will now start to heat up to the set temperature of 40°C. Once the temperature has been reached, allow time for the temperature to stabilise.

00:00	40.0 C
00:00	31.5 C

4.4 Place the required microtubes into the block.

4.5 Using the ▲ and ▼ buttons (**2**), set the timer to 15 minutes, each press of the button will increase the time by 1 minute.

00:15	40.0 C
00:00	40.0 C



Continuous pressure on any of the ▲ and ▼ buttons will speed the display increments.



Under the action of high temperature (> 85°C) tube caps can open, thus causing sample volume shrinkage or potential health risk when working with infected material. To prevent such cases it is recommended to use tubes with cap lock of Safe-Lock® type.

- 4.6 Select **Run** (⏻), the timer will begin, and the microtubes will be kept at 40°C for 15 minutes.

00:15	40.0 C
00:01	40.0 C



The temperature is maintained independently of the timer and **heating continues** after the set time has elapsed. If required the temperature can be **decreased manually**.

- 4.7 Once the 15 minutes has elapsed, an audible warning will sound. The warning sound will continue until the **Stop** (⏻) button is pressed.



The timer process can be terminated at anytime by pressing the **Stop** (⏻) button.

- 4.8 At the end of work turn OFF the BTM with power switch at the rear panel.

5. Fault diagnosis

SYMPTOM	POSSIBLE CAUSE	ACTION REQUIRED
NO DISPLAY	Unit not switched on. Unit not connected to power supply. Power supply failure. Fuse blown in unit or plug (UK units only).	Switch on. Connect to power supply. Check that other electrical appliances on the same circuit are working. Check and replace (see 6.2).
TEMPERATURE DOES NOT RISE WHEN EXPECTED	Set temperature is lower than block temperature. Set temperature is too close to ambient. Thermal fuse has operated. Temperature control circuit fault.	Check set temperature. Raise set temperature. Have BTM thermal fuse replaced by a competent person. Have unit checked by competent person.
TEMPERATURE CONTINUES TO RISE WHEN NOT EXPECTED	Set temperature is higher than the block temperature. Temperature control circuit fault.	Check setting. Have unit checked by competent person.

6. Maintenance

Where applicable all Grant laboratory products are designed to comply with IEC61010-1 and can be flash tested. Some are fitted with radio frequency interference suppressers. Therefore it is recommended that only a D.C. test be performed. No other routine service is required.

6.1 Cleaning

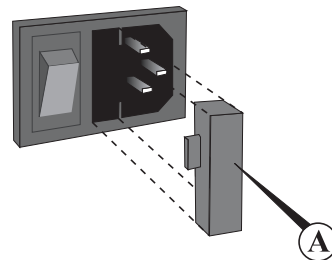
The cases can be cleaned with a damp cloth after disconnection. Do not use solvents. Before using any decontamination or cleaning method except that recommended, check with our Service Department, or in other countries with our distributor, that the proposed method will not damage the equipment.

6.2 Replacement of fuses

Disconnect from the power supply socket. Remove the IEC power plug from the rear of the unit. Pull out the fuse drawer by applying leverage in recess (A). Remove the fuse from the holder. Check and replace with the correct fuse if necessary.

The fuse should be ceramic quick acting,

rated:
BTD.....F2AH
BTDL.....F3.15AH



7. Specifications

The product is designed for operation indoors in a laboratory at altitudes up to 2000m and will meet the performance figures quoted within the ambient temperature range 10°C to 35°C, with maximum relative humidity of 80% and is safe for use in an ambient temperature up to 40°C.

Installation category II (transient voltages). Pollution degree 2 in accordance with IEC 60664. For operation at altitudes of up to 2000 metres.

Setting rangefrom +25°C to +100°C

Temperature rangefrom ambient +5°C to +100°C

Temperature stability

in range from ambient +5°C to 85°C.....0.1°C
in range from 85°C to 100°C..... 0.2°C

Temperature uniformity

in range from ambient +5°C to 85°C±0.1°C
at 85°C±0.25°C
at 100°C±0.5°C

Supply voltage range220-240V 50/60Hz
110-120V 50/60Hz

Heater power.....200W (220-240V)
200W (110-120V)

Over temperature protection.....internal thermal fuse

To improve the design manufacturer reserves the right to make changes in specification without prior notice.

8. Guarantee and Service

8.1 **Guarantee**

When used in laboratory conditions and according to these working instructions, this product is guaranteed for TWO YEARS against faulty materials or workmanship.

8.2 **Service**

For service, return for repair to our Service Department in the UK or, in other countries, to our distributor.

Declaration of Conformity

Manufacturer:	BIOSAN LTD. Ratsupites 7, build.2, Riga, LV-1067, Latvia
Equipment name/type number:	BTD
Description of Equipment:	Digital Block Heater
Directives:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC



Applied Standards	EN 61326: Electrical equipment for measurement, control and laboratory use - EMC requirements Part 1: General requirements
Harmonized Standards:	EN 61010: Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements Part 2-010: Particular requirements for laboratory equipment for the Heating of materials

I declare that this apparatus conforms to the requirements of the above Directive(s)


.....
Svetlana Bankovska
Executive Director
Biosan Ltd.

Dated 31.01.2011

Other **Grant-bio** products


	PHMP • PMS-1000 • PHMT POS-300 SHAKERS and THERMO SHAKERS	
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	PV1 • PCV-2400 • PCV-3000 VORTEXER and CENTRIFUGE/VORTEXER	
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	PTR-30 • PTR-60 360° MULTI-FUNCTION ROTATOR	
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	PMR-30 PLATFORM ROCKER	
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	PS-3D • PS-M3D 3D ROTATOR	
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	PCH-1 COOLER/HEATER	
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	BTD BLOCK HEATER	
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Grant-bio

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Block heater/BTD/18209/7