



# Digital dry bath incubator

## DDI-24

STAINLESS STEEL

Operating instructions



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# 1. Safety

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The following symbols mean:



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



**Caution!** Surface can become hot during use.

## GENERAL SAFETY

- Operation of the unit must be carried out according to the given operating instructions.
- The unit should be saved from shocks and falling.
- After transport or storage in humid conditions dry out the unit (2-3 hrs) before connecting it to the mains.
- Do not make modifications in design of the unit.

## ELECTRICAL SAFETY

- Connect only to a power supply with a voltage corresponding to that on the serial number label.
- Ensure that the mains connector is easily accessible during use.
- Before moving the unit disconnect the mains supply from the mains.
- If liquid is spilt inside the unit, disconnect it from the mains power supply and have it checked by a competent person.

## DURING OPERATION

- Do not check the temperature by touch. Use a calibrated thermometer.
- Do not operate the unit in premises with aggressive or explosive chemical mixtures.
- Do not operate the unit outside the laboratory premises.
- Do not operate the unit which have not been correctly installed or repaired.
- Under the action of high temperature (>70°C) tube caps can open, thus causing sample volume shrinkage or potential health risk when working with infected material. Take all necessary precautions to ensure safe operation.

- Don't heat the tubes over the melting point of the material they are made of (use thermoresisting polypropylene tubes or glass tubes). Remember that thin-walls tubes have a higher thermoconducting factor.
- Do not leave the operating unit unattended.

#### BIOLOGICAL SAFETY

- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or inside the equipment.

# 2. General Information

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Dry bath incubator DDI-24 is designed for maintaining constant temperature of samples in test tubes (15ml) inserted in the aluminum block sockets. Unprecedented high precision and uniformity of temperature over the block. It is widely used for sperm incubation, PCR-analysis, extraction of DNA and RNA from cell cultures.

# 3. Getting started

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## UNPACKING:

Remove packing materials carefully and retain for future shipment or storage of the unit.

## THE UNIT SET INCLUDES:

Dry bath incubator DDI-24..... 1 unit  
Operating Instructions..... 1 unit

## SET UP:

- Place the unit upon even horizontal non-flammable surface away from any flammable materials (not less than 30 cm);
- Plug the mains power cord into the socket and position the unit so that there is ease access to the instrument.

# 4. Operation

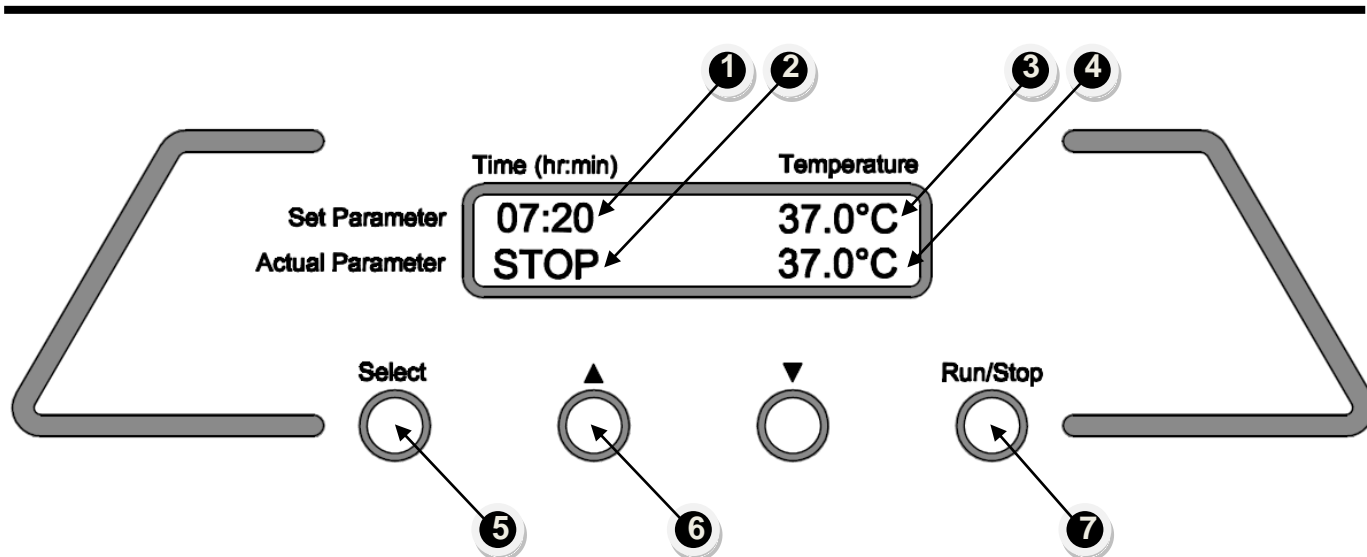


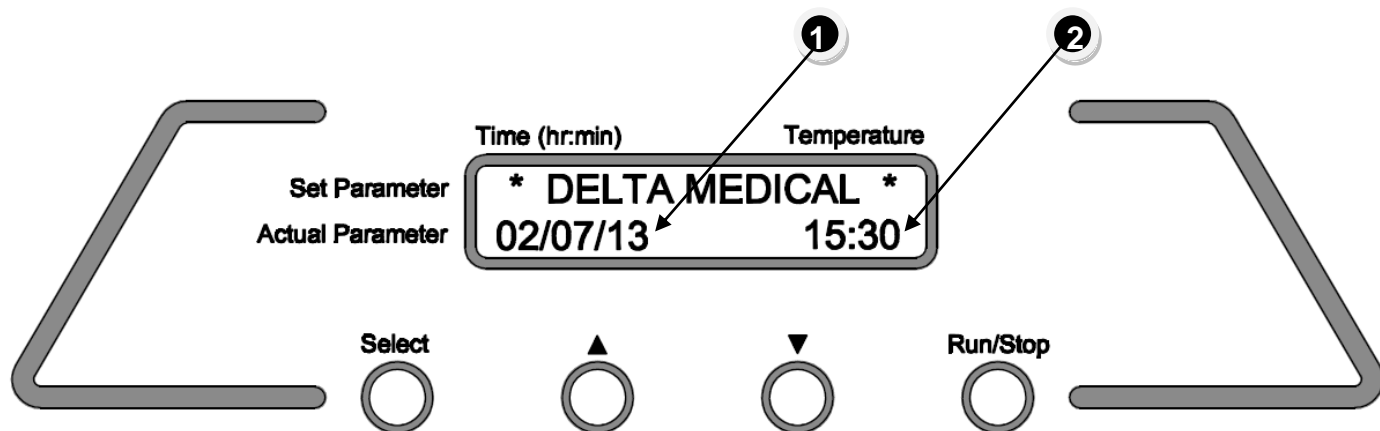
Fig.1 Control panel

- 4.1 Connect unit to the mains.
- 4.2 The unit turns **ON** and the display shows the following readouts:
  - Previously set time and set temperature in the upper line (**Set Parameter**);
  - Timer or indication **STOP** and current temperature in the lower line (**Actual Parameter**).
- 4.3 Press **Select** key (Fig.1/5) to choose the parameter to change (each pressing of **Select** key consecutively activates the parameters; the bar behind active parameter is flashing).
- 4.4 Using “▲” and “▼” keys (Fig.1/6) set the desired temperature. The set temperature is displayed in the upper line of the display (Fig.1/3). If the key is pressed for longer than 2 second the increment becomes bigger. Unit will start heating automatically according to the set temperature. The actual temperature is shown in the lower line of the display (Fig.1/4).
- 4.5 When the necessary temperature is reached (when the set and actual temperature become the same) place test tube into the sockets.
- 4.6 Using “▲” and “▼” keys (Fig.1/6) set the desired time interval. The set time is displayed in the upper line of the display (Fig.1/1). If the key is pressed for longer than 2 second the increment becomes bigger.
- 4.7 Press **Run/Stop** key (Fig.1/7) to start the timer. The elapsed time interval is shown in the lower line of the display (Fig.1/2).
- 4.8 After the set time interval is reached the timer gives a sound signal and the indication **STOP** is shown on the display. The sound signal will stop automatically after 5 second.

**Attention!** When the time has elapsed, heating/temperature maintenance continues.



- 4.9 The heating can be stopped only manually by reducing the temperature with the “▼”T,°C key (Fig.1/⑥).
- 4.10 If necessary, the timer can be stopped before the set time interval is achieved by pressing **Run/Stop** key. Press **Run/Stop** key to restart the timer with the set time interval.
- 4.11 If the working time is set to **00:00**, unit operates non-stop.
- 4.12 If the unit is left unattended for 5 minutes, unit is switched to **Date & Time** mode until any of the key is pressed again, which displays the following readouts:



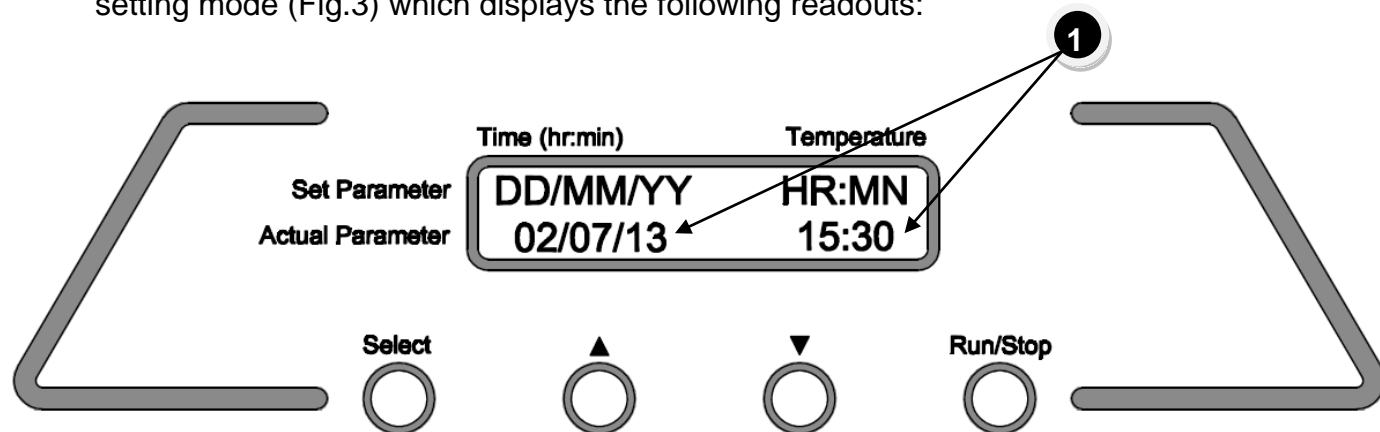
**Fig. 2 Date & Time**

-Date & Time is shown in the lower line of the display (Fig.2/①) and (Fig.2/②) in the format of DD/MM/YY and HR:MIN respectively.

- 4.13 At the end of operation disconnect the mains power cord from the mains.

### SETTING DATE & TIME

- 4.14 Keep pressing **Select** key (Fig.1/⑤) with power **ON**, the unit is switched to **Date & Time** setting mode (Fig.3) which displays the following readouts:



**Fig.3 Date & Time setting mode**

- 4.15 Use “▲” and “▼” keys (Fig.1/⑥) to set the desired date and time which is shown in the lower line of display (Fig.3/①). Press **Select** key (Fig.1/⑤) to choose the parameter to change (each pressing of **Select** key consecutively activates the next parameter in the direction from left to right). Unit is switched to main mode (Fig.1) as **Select** key is pressed after setting minutes.



## SETTING TEMPERATURE UNIT

- 4.16 Keep pressing **Run/Stop** key (Fig.1/⑦) with power **ON**, the unit is switched to **SET TEMP. UNIT** mode (Fig. 4) where degree CENTIGRADE is default temperature unit, which displays the following readouts:

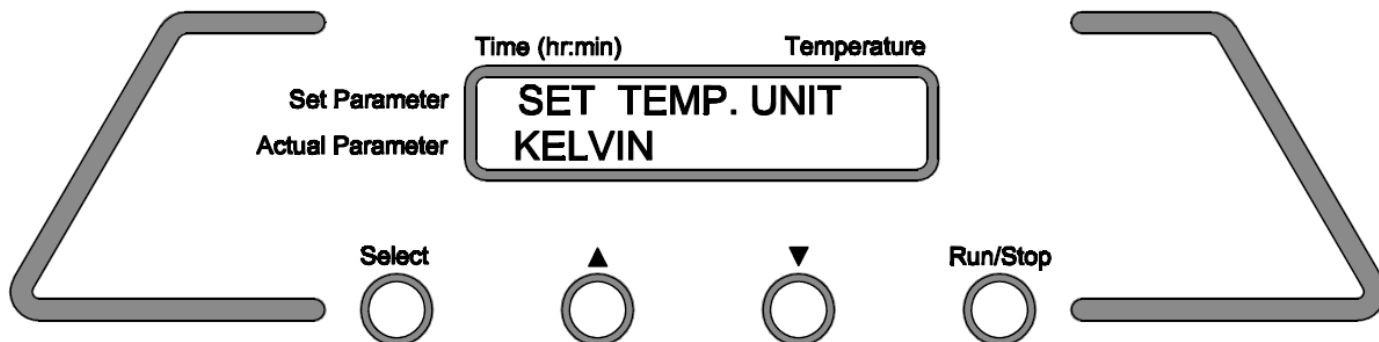


Fig. 4 Set Temperature Units

- 4.17 Use “▲” and “▼” keys (Fig.1/⑧) to set the desired temperature unit which is shown in the lower line viz. **CENTIGRADE, KELVIN & FAHRENHEIT**. Unit is switched to main mode (Fig.1) as **Select** key (Fig.1/⑨) is pressed after setting appropriate temperature unit.

- Unit will display selected temperature unit in main menu (Fig.5) (under **Set parameter & Actual parameter**).

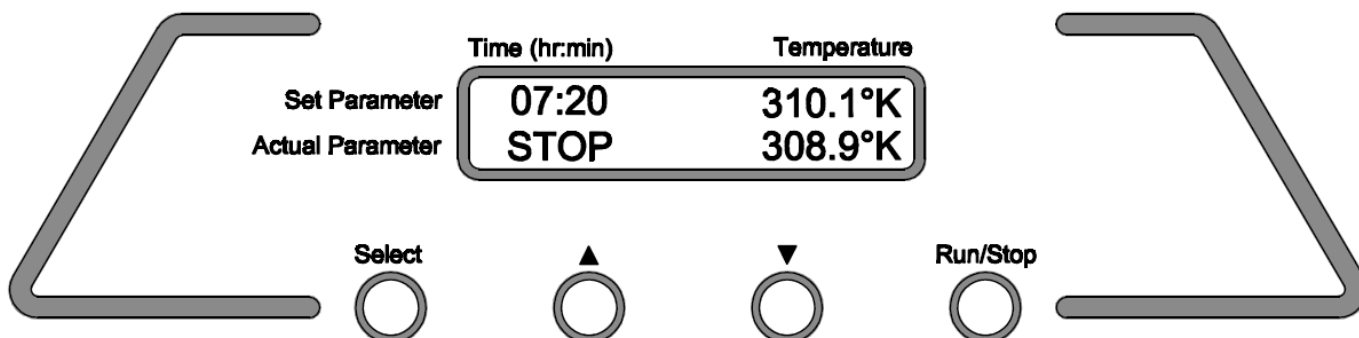


Fig. 5 Main menu

# 5. Specifications

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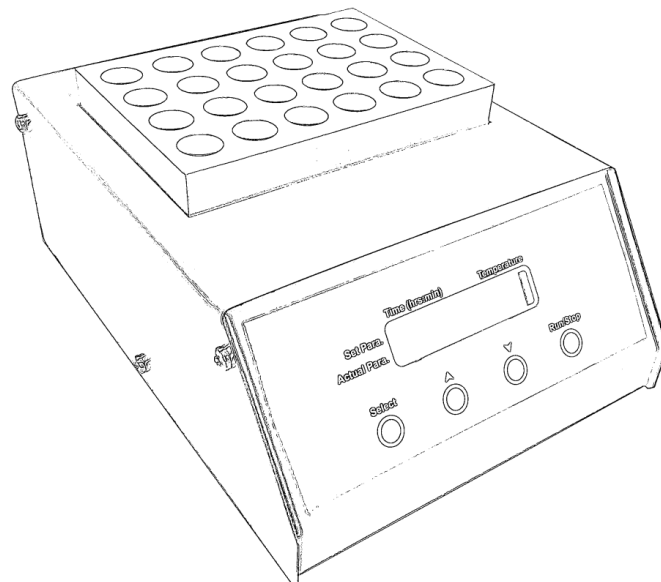
The unit is designed for operation in cold rooms and closed laboratory rooms at ambient temperature from +10°C to +40°C.

## 5.1 Temperature specifications

- Temperature setting range.....+25°C to +60°C
- Temperature control range.....5°C above ambient to +60°C
- Temperature setting resolution.....0.1°C
- Temperature stability.....±0.2°C
- Temperature units.....CENTIGRADE (°C), KELVIN (°K) & FAHRENHEIT (°F)

## 5.2 General specifications

- Digital time setting..... 1 min to 99 hrs 59min or non stop
- Display .....LCD
- Number of sockets .....24 test tube 15ml
- Dimensions.....23Lx 17W x 12H cm
- Power consumption.....<100 Watt
- Operating voltage.....AC 220V 50/60 Hz
- Weight.....4Kg



# 6. Guarantee and Service

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## 6.1 **Guarantee**

When used in laboratory conditions according to this manual, this product is guaranteed for ONE year against faulty materials or workmanship.

## 6.2 **Service & Maintenance**

There are no user-serviceable parts inside the unit. For all maintenance and repairs return to our service department or our distributor.



## **delta medical equipment services**

E-28 krishna leela society,  
Pancham co-op bank lane,  
Harni varashiya ring road,  
Vadodara 390006

Gujarat  
India

M:9998020616 / 9724980758

Email: [deltamedical@rocketmail.com](mailto:deltamedical@rocketmail.com)