

# Peltier cooler/heater PCH-1 / PCH-2

*Operating instructions*





# Contents

---

<b>1</b>	<b>Safety.....</b>	<b>4</b>
<b>2</b>	<b>General Information.....</b>	<b>5</b>
<b>3</b>	<b>Getting started.....</b>	<b>6</b>
<b>4</b>	<b>Operation of PCH-1/2.....</b>	<b>7</b>
<b>5</b>	<b>Specifications.....</b>	<b>9</b>
<b>6</b>	<b>Guarantee and service.....</b>	<b>10</b>

# 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.

-  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 spilt 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 spilt on or inside the equipment.
-  Use only standard and good quality tubes. Remember that thin-walls tubes have a higher thermoconducting factor;
-  Don't heat the tubes over the melting point of the material they are made of. Use thermoresisting polypropylene tubes.
-  Don't fill tubes more than 3-5 mm over the level they are immersed in the thermoblock;
-  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.
-  The unit has an air intake for cooling and ventilation. Do not block or impede the ventilation grille.
-  Clean the unit only with a damp cloth, do not use chemical cleaning agents.

# 2. General Information

---

## 2.1 Introduction

Peltier cooler/heater PCH-1/2 is designed for maintaining the set temperature, in the temperature range from  $-10^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$  on the aluminum block with special sockets for tubes. The device can also be used for maintaining stable temperature in the room where the temperature is fluctuating, e.g.  $+20 \pm 0.1^{\circ}\text{C}$  at room temperature (RT) changing from  $+18^{\circ}\text{C}$  to  $+22^{\circ}\text{C}$ .

PCH-1/2 has obvious advantages when, for example working with micro quantities of reagents used in the Eppendorf tubes.

The device can be used in:

- molecular and cell biology for sample cooling,
- biochemistry for enzyme processes analysis.

## 2.2 Construction of the Device

Cooling-heating thermostat consists of:

- ① Control panel.
- ② Thermostat attached to the device block.

On the control panel of the unit are:

Control keys and LCD display. (see Fig 1)

On the rear panel of the unit are:

Plug-in cable.  
Power switch.

# 3. Getting started

---

## 3.1 Unpacking

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

## 3.2 The PCH-1 set includes:

Peltier heater/cooler PCH-1.....	1 piece
12 x 1.5ml + 20 x 0.5ml capacity block.....	1 piece
Fuse.....	1 piece
Operating Manual; CE Certificate.....	1 copy

## 3.3 The PCH-2 set includes:

Peltier heater/cooler PCH-2.....	1 piece
20 x 1.5ml capacity block.....	1 piece
Fuse.....	1 piece
Operating Manual; CE Certificate.....	1 copy

## 4. Operation of PCH-1

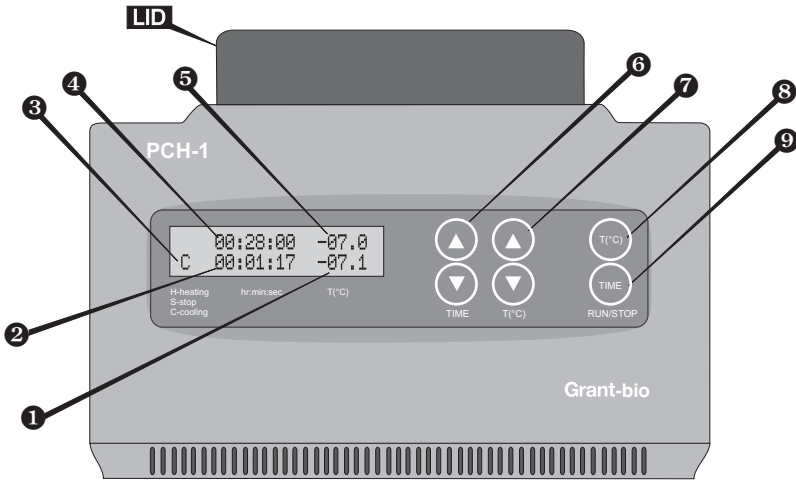


Fig 1 Control panel

- 4.1 Connect PCH-1/2 to the mains power supply.
- 4.2 Switch **ON** the power switch located on the rear panel of the PCH-1.
- 4.3 The backlit display on the PCH-1 shows the following:
  - ④⑤ Previously set time and temperature.
  - ①② Operation mode indicator, current time and temperature.
- 4.4 Temperature setting, use the **T(°C)** up/down keys (⑦) to set the necessary temperature, (When the key is pressed down for 1 second or more, the temperature display changes quickly). Temperature increment is 0.1 °C.  
*Note that it is possible to change the set temperature in the real time, i.e. it is not necessary to stop heating/cooling process to make these changes.*

- 4.5 To start heating/cooling to the set temperature press **T(°C)** on the RUN/STOP key (8) once.
- 4.6 The PCH-1/2 starts heating/cooling and the corresponding operation mode is indicated on the display (H - heating, C - cooling) (9). Current temperature is displayed in the second line of the display (1).
- 4.7 To stop the heating/cooling process press **T(°C) RUN/STOP** key once again. It may take a few moments before the process stops and the operation mode indicator shows S - stopped.
- 4.8 When the necessary temperature is reached, open the PCH-1/2 block lid, place tubes into the sockets and close the lid. Use standard tubes, since the block sockets are made precisely in compliance with their size and shape.
- 4.9 Timer setting, the PCH-1/2 is equipped with an independent timer for convenient control over the samples heating/cooling time.
- 4.10 Use the **TIME** up/down keys (6) to set the necessary time, shown in the first line of the display (4). (When the key is pressed down for 1 second or more, the time display changes quickly). Time increment is 1 minute.  
*Note that it is possible to change the set time in the real time, i.e. it is not necessary to stop the timer to make these changes.*
- 4.11 Press **TIME RUN/STOP** key (9) once, to start the timer. When the set time is reached the timer will stop and an alarm will sound.  
**ATTENTION!**  
*After the elapsed time, if the heating/cooling process doesn't stop press the **RUN/STOP** button (8).*
- 4.12 If necessary, the timer can be stopped before the set time is reached by pressing **TIME RUN/STOP** key.
- 4.13 When **TIME RUN/STOP** key is pressed again, the timer starts counting up the time from zero.
- 4.15 Once the heating/cooling process has finished, turn **OFF** the PCH-1/2 with power switch located on the rear panel.

# 5. Specifications

- 
- **Temperature regulation range**.....- 10°C to + 100°C  
range of possible temperature from +30°C below  
Room Temperature to + 100°C
  - **Setting resolution**.....±0.1°C
  - **Working room temperature range**.....+15°C to +27°C
  - **Independent timer with sound signal**.....0 to 96 hours
  - **Time setting unit**.....minutes
  - **Current time display unit**.....seconds
  - **Display**.....16x2 LCD
  - **Capacity**
    - PCH-1.....0,5 ml tubes x 20 psc + 1,5 ml tubes x 12 psc
    - PCH-2.....1.5ml tubes x 20 psc
  - **Thermoblock cover**.....transparent
  - **Nominal voltage**.....220, 230V 50Hz
  - **Maximum power consumption**.....100W
  - **Dimensions**.....220x200x170 mm
  - **Weight**.....4.1 kg

# 6. Guarantee and Service

---

## 6.1 **Guarantee**

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

## 6.2 **Service**

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

# Declaration of Conformity

Manufacturer:-	GRANT INSTRUMENTS (CAMBRIDGE) LTD, Shepreth, Cambridgeshire SG86GB
Equipment name/type number:-	PCH-1 / PCH-2
Description of Equipment:-	Cooling/heating dry blocks
Directives:-	EMC Directive 89/336/EEC LVD Directive 73/23/EEC

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

Applied Standards:-	
Harmonized Standards:-	<u>EN 61326:</u> Electrical equipment for measurement, Control and laboratory use - EMC requirements  <u>Part 1:</u> General requirements  <u>EN 61010:</u> Safety requirements for electrical equipment for measurement, control and laboratory use. <u>Part 1:</u> General requirements

# Grant-bio

**Grant Instruments  
(Cambridge) Ltd**  
Shepreth,  
Cambridgeshire  
SG8 6GB

Tel: +44 (0)1763 260811  
[www.grant.co.uk](http://www.grant.co.uk)  
[sales@grant.co.uk](mailto:sales@grant.co.uk)  
Fax: +44 (0)1763 262410