

HUMAN

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HumaCube

| User Manual



Cat No. 17050/1

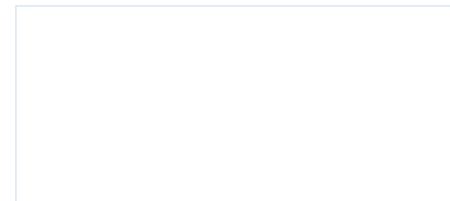
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Service und Support



5.4 Cleaning

The exterior of the instrument may be cleaned with a soft cloth using plain water and nonabrasive cleaner. 70% isopropanol may be used as a disinfectant.

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5 OPERATION INSTRUCTION

5.1 Turn on

Connect the incubator to the power supply. Turn on the instrument using the power switch on the back ("1"=on, "0"=off).

5.2 Temperature settings

After turning on the instrument it displays the actual temperature of the metal block in the display window. The default setup temperature is 37°C, which is selected automatically when the instrument is turned on. The red indicator light informs you of the temperature which is selected.

Press the temperature setup button "SET", the indicator light will switch to the next temperature. Press the button until you have selected the desired temperature. When you have selected the setup temperature, the temperature of the metal block will change gradually to attain the setup temperature. The setup temperature must be 2°C above ambient temperature; otherwise the temperature cannot be reached. The indicator light shows the temperature you have selected and the display window shows the actual temperature of the metal block. After the temperature in the display window has reached the setup temperature, you can put the tubes with specimen into the metal block to start incubation.

5.3 Turn off the instrument

When you have finished working, take out the tubes and turn off the instrument using the power switch on the back, then disconnect the power supply.

Operating relative humidity (non-condensing)	85% (at 30°C)
Storage temperature	- 20 to 50°C
Storage relative humidity (non-condensing)	93% (at 30°C)

* ... after reaching the selected temperature

4.1 Surveillance of performance

Use a calibrated thermometer to verify the temperature of liquid (1ml water) inside a sample tube. Accuracy and uniformity should be controlled on a regular base, at least once a year.

1 SAFETY INSTRUCTIONS

1.1 Introduction

This manual is considered as a part of the instrument; it has to be at the operator's hand as well as at the maintenance operator's availability. For accurate installation, use and maintenance, please read the following instructions carefully. In order to avoid instrument damage or personal injury, carefully read the "GENERAL SAFETY WARNINGS", describing the suitable operating procedures. In case of breakdowns or any troubles with the instrument, apply to the local Technical Service. Perform an exhaustive disinfections of the instrument before any kind of maintenance or service.

! Read the operating instructions carefully before use. Ensure that only trained staff uses the instrument.

1.2 User Warranty

HUMAN warrants that instruments sold by one of its authorised representatives shall be free of any defect in material or workmanship, provided that this warranty shall apply only to defects which become apparent within one year from the date of delivery of the new instrument to the purchaser.

The HUMAN representative shall replace or repair any defective item at no charge, except for transportation expenses to the point of repair. This warranty excludes the HUMAN representative from liability to replace any item considered as expendable in the course of normal usage.

The HUMAN representative shall be relieved of any liability under this warranty if the product is not used in accordance with the manufacturer's instructions, altered in any way not specified by HUMAN, not regularly maintained, used with equipment not approved by HUMAN or used for purposes for

which it was not designed. HUMAN shall be relieved of any obligation under this warranty, unless a completed installation / warranty registration form is received by HUMAN within 15 days of installation of this product. This warranty does not apply to damages incurred in shipment of goods. Any damage so incurred shall be reported to the freight carrier for settlement or claim.

1.3 Intended Use of the Instrument

The instrument is intended for laboratory application by professional users. It has to be used for the expected purposes and in perfect technical conditions, by qualified personnel, in working conditions and maintenance operations as described in this manual, according to the GENERAL SAFETY WARNINGS. This manual contains instructions for professional qualified operators.

1.4 General Safety Warnings

Use only chemicals and accessories specified and supplied by HUMAN and/or mentioned in this manual. Place the product so that it has proper ventilation (at least 15 cm in each direction).

The instrument should be installed on a stationary flat working surface, free from vibrations.

Do not operate in area with excessive dust.

Work at room temperature and humidity, according to the specifications listed in this manual. Do not operate this instrument with covers and panels removed.

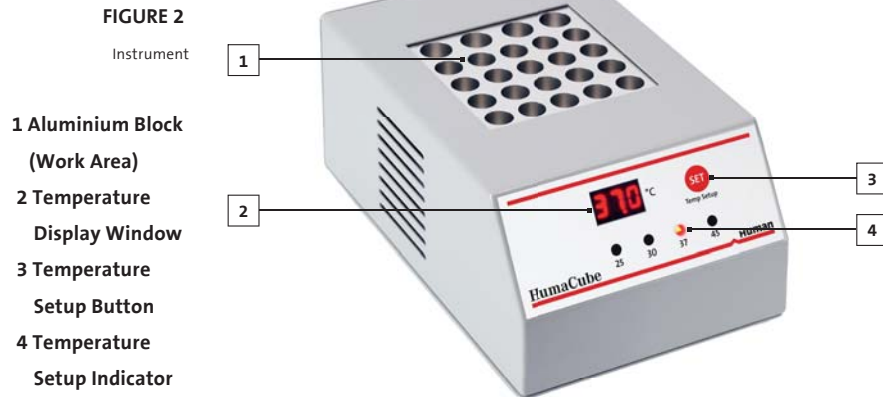
Do not insert any tools or appliances into openings of the instrument, that are not designated for this purpose.

4 SPECIFICATIONS

Table 2

Item	Specification
Total number of tube positions	24
Number of small tube positions	20
Number of big tube positions	4
Geometry of holes	
Small tube positions	Ø 13mm, depth 33mm
Big tube positions	Ø 15mm, depth 33mm
Temperature range	25°C, 30°C, 37°C, and 45°C
Temperature accuracy * (difference liquid to display)	±0.5°C
Temperature uniformity * (difference between holes)	±0.3°C
Heat up speed	Aluminum block: 25°C to 37°C within 8 minutes. (Ambient temperature 25°C)
Power consumption	120W max.
Dimensions (WxDxH)	Instrument without any components: 14x22x10.5 cm Space required for routine use: 24x32x30 cm Packaging: 21x28x22 cm
Weight	Net: 2.4 kg Gross: 3.3 kg
Power supply	Cat. No. 17050: 220 VAC +/-10% and 50/60 Hz Cat. No. 17070: 110 VAC +/-10% and 50/60 Hz
Display	Digital LED with one decimal
Heat-up mode	Electrical resistance heater
Operating temperature	Ambient temperature is <ul style="list-style-type: none"> • minimum 0°C • maximum 2°C below temperature selected

parameter. Place all of the tubes for one parameter in the same kind of hole.



Only use the power cord specified for this product, with the grounding conductor of the power cord connected to earth ground.

Use only the fuse type and rating specified by the manufacturer for this instrument, use of fuses with improper ratings may pose electrical and fire hazards.

To avoid fire or shock hazard, observe all ratings and markings on the instrument.

Do not power the instrument in potentially explosive environment or at risk of fire.

Prior to cleaning and/or maintaining the instrument, switch off the instrument and remove the power cord.

For cleaning use only materials specified in this manual, otherwise parts may become damaged. It is recommended always to wear protective apparel and eye protection while using this instrument. Respective warning symbols appearing in this manual should be carefully considered.

Safety plug and socket must be used to connect the instrument to AC power. The socket must be well connected to the ground. Without protective earth (ground) it is dangerous to work with the instrument.

Beware of liquid spilling onto the work area and inside the openings of the instrument. Liquid can cause short circuits. Turn off and disconnect the instrument, then wipe of the liquid when spilling occurs. Only switch the instrument back on if you are certain that all liquid is removed or evaporated from the outside and the inside of the instrument.

Switch off the power when you have finished your work, keep the instrument dry and clean.

1.5 Disposal Management Concept

The currently valid local regulations governing disposal must be observed. It is in the responsibility of the user to arrange proper disposal of the individual components.

All parts which may comprise potentially infectious materials have to be disinfected by suitable validated procedures (autoclaving, chemical treatment) prior to disposal. Applicable local regulations for disposal have to be carefully observed.

The instruments and electronic accessories (without batteries, power packs etc.) must be disposed off according to the regulations for the disposal of electronic components.

Batteries, power packs and similar power source have to be dismantled from electric/electronic parts and disposed off in accordance with applicable local regulations.

1.6 Instrument Disinfection

Instruments for laboratory use may involve the handling of human samples and controls which should be considered at least potentially infectious.

Therefore every part and accessory of the respective instrument which may have come into contact with such samples must equally be considered as potentially infectious.

Before doing any servicing on the instrument it is very important to thoroughly disinfect all possibly contaminated parts. Before the instrument is removed from the laboratory for disposal, change of location or servicing, it must be decontaminated. Decontamination should be performed by authorised well trained personnel only, observing all necessary safety precautions. Instruments to be returned have to be accompanied by a decontamination certificate completed

3 GENERAL DESCRIPTION

Up to 24 sample tubes can be placed inside the HumaCube and then be heated to the specified temperature. 4 different temperatures can be selected. A power switch on the back turns the instrument on and off. The instrument uses electrical resistance to heat. The actual temperature is displayed by a digital LED and controlled by a temperature sensor inside the metal block. The metal block is made of high-quality aluminum alloy and its surface is corrosion proof. The digital LED display brings you convenience in operation.

3.1 Geometry of tubes

The HumaCube is a direct heating model which is compatible with two different kinds of tubes in common use. There are 20 small (13mm diameter) and 4 big (15mm diameter) positions. Tubes that are placed in these positions must be smaller than the diameter of the holes.

3.2 Heat-up of the tubes

The temperature control runs under a high-precision arithmetic circuit, which brings a high temperature accuracy of $\pm 0.5^{\circ}\text{C}$. It has good temperature uniformity and it takes a very short time to get the temperature stable.

The temperature indicated on the display is the temperature of the metal block. Due to thermal inertia of the aluminum block and the liquid, and due to thermal conductivity, the temperature of the liquid will take some time to reach the temperature displayed. Tubes with a diameter that is much smaller than the hole will take more time to heat up. Only use one kind of tubes for samples, calibration, and controls of one

by the responsible laboratory manager. If a decontamination certificate is not supplied, the returning laboratory will be responsible for charges resulting from non-acceptance of the instrument by the servicing centre, or from authority's interventions. Always disconnect the instrument from power while performing disinfection.

1.7 Biohazard warning

The use of the instrument for diagnostic applications involves the handling of human samples and controls which should be considered at least potentially infectious. Therefore every part and accessory of the respective instrument which may have come into contact with such samples must equally be considered as potentially infectious. For safety reasons, we have labeled the instruments with the „BIOHAZARD“ warning label below. Always wear gloves.



FIGURE 1
Biohazard Symbol

2 UNPACKING

2.1 Receiving Inspection

Unpack the equipment carefully and check for any damages which may have arisen during transport.

2.2 Packing list

The HumaCube includes the following items:

Quantity	Description	Comment
1	User Manual	[REF]: 17050/1
1	HumaCube instrument	[REF]: 17050 (220V) or [REF]: 17070 (110V)
1	Power cord	-
2	Spare fuses T3.15AL250V	-

Table 1

There are two different versions of instruments available. Cat. No. 17050 is designed for use with 220V AC and Cat. No. 17070 is designed for use with 110V AC. Make sure to connect the instruments to the correct power.