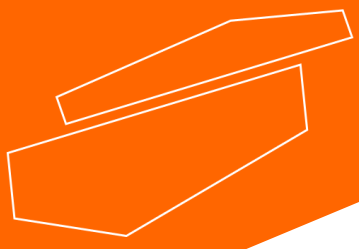
LBX CODB150 Digital Dry Bath

Please read the User Manual carefully before use, and follow all operating and safety instructions!



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User Manual

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LBX CODB150 series Digital dry bath

Preface

Users should read this Manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

Service

If help is needed, you can always contact the Service Department of manufacturer for technical support:

www.labbox.com / e-mail: info@labbox.com

Please provide the customer care representative with the following information:
• Serial number
• Description of problem
• Your contact information

Warranty

This instrument is warranted to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.
For claim under the warranty please contact your supplier.

1. Security Instructions

	Connect the equipment to a source of power provided with ground to guarantee the safety of the instrument and the experiment; connect the power when the equipment requires it.
	The use of this equipment in flammable and explosive, toxic or highly corrosive experiments is prohibited.
	The equipment must be used by previously qualified personnel who know the equipment and its operation by means of the user manual.
	Do not place the device in areas close to sources of heat.
	During operation, hazardous materials such as flammable liquids or pathological materials must be kept away.
	If the device is switched on without supervision, it can cause overheating of some parts of the work area in contact with it. Pay attention to the residual heat after turning off the equipment.
	When the equipment is in operation, do not touch the heating surface to avoid burns.
	Read the instruction manual before using the equipment.

During the use of the equipment, using personal safety protection will avoid risks of possible damage such as:
- Splash burns and evaporation of liquids.
- Poisoning by emission of toxic or combustible gases.

• Place the equipment on a flat, stable, clean, non-slip and fireproof surface. Do not use the equipment in explosive atmospheres, with hazardous materials or underwater.

• Beware of the dangers caused by:
- Flammable materials or media with a low boiling temperature.
- Oxidizing materials
- Insecure containers

• Use closed containers in case of processing of pathogenic material.

• Check equipment and accessories before each use. Do not use components in poor condition. Safe operation of the device is guaranteed only with the accessories described in the "Packing list" chapter. The accessories must be firmly attached to the equipment and cannot be detached. Always disconnect power before installing accessories.

• The equipment can only be disconnected from the socket by pulling on the base of the plug, not the cable.
• The voltage indicated on the equipment must correspond to the voltage of the electrical network.
• Make sure that the main power cable is not in contact with the heating surface. Do not cover the equipment.
• Keep the equipment away from high magnetic fields.

2. Rules of use

This equipment is specially designed to dry-heat metal blocks for educational, industrial or research purposes. This device is not suitable for domestic use or in environments that could be dangerous for the user or the equipment.

3. Inspection

3.1. Reception

Carefully unpack the instrument and check that the equipment and / or accessories have arrived without apparent damage. If necessary, contact the supplier who supplied the equipment to request technical assistance.

	**Note:** If the equipment is damaged, it should not be connected to the electrical network

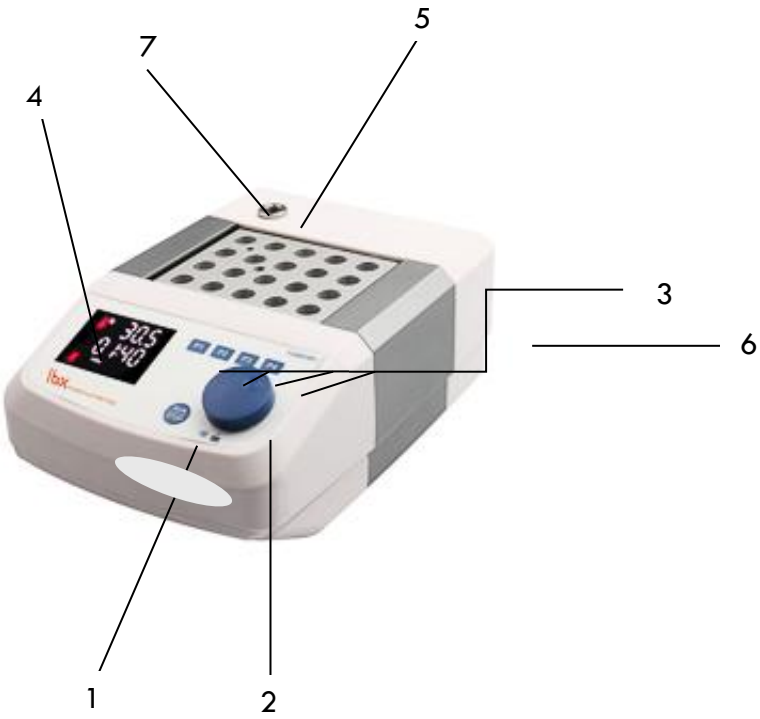
3.2 Packing list

The package includes the following items:

CODB150

Content	Qty
Main unit	1
Power cable	1
External temperature probe	1
Control clamping with screw	1

4. Control elements



1. **"Run/Stop"**
2. **Command adjust parameters**
3. **Program memory**
4. **LED screen**
5. **Thread for support**
6. **USB connector**
7. **ON button**

5. Operation

To be able to operate the device it will be necessary to connect it to an electrical outlet and ensure that it is deposited on a stable surface with a minimum distance of 30 cm on each side.

5.1. Temperature Setting

The temperature setting can only be workable when the machine is powered on but not in working.
Press the blue knob; the temperature value on the LED display will flash, and then set the temperature by horizontal rotation of the knob.

NOTE: Celsius and Fahrenheit

You can change the temperature scale by pressing buttons P1 and P2 simultaneously.

5.2. Time Setting

The time setting can only be workable when the machine is powered on but not in working. Press the blue knob twice; the time value on the LED display will flash, and then set the time by horizontal rotation of the knob.

5.3. Memorize programs

The system can save 4 different settings of temperature and time. To save them, press (P1, P2, P3 y P4) once both parameters have been selected. You will be able to switch through the memorized programs by turning the blue knob.

6. Operation modes

6.1 Incubation Mode

This function will allow us to program the incubation time during which the device will maintain the same temperature.
The device will be programmed with a time and a temperature by pressing and turning the blue button. Once the Run / Stop button is pressed, the unit will go into "heating" mode until it reaches the chosen temperature. Once the desired degrees have been reached, the equipment will be put into "holding" mode and will maintain the temperature during the time established by the user.

6.2 Reservation Mode

This function will allow us to set the time for the device to start heating. To activate and deactivate it, press the P1 and P3 buttons at the same time. When the reservation mode is active, a clock will appear to the left of the timer.
The device will be programmed with a time, after which, the heating process will start (heating mode followed by the "holding" mode) that will stop when the user presses the "Run / Stop" button.

7. Faults

If the unit cannot work properly, it might be due to the below fault list. The faults will appear on the screen after beeping for warning.

Item	Fault description	Fault code
1	External sensor short-circuit	E1
2	Internal sensor open circuit	E2
3	Internal sensor short-circuit	E3
4	External sensor isn't in the block	E4

In case of faults n° 1,2 or 3, contact your supplier. In case of fault 4, please check that the probe is placed inside the block to take the measurements.

8. Temperature Calibration

Each device is calibrated before shipment. If there is a temperature difference of over 0.5°C between the actual temperature and the displayed temperature for any reason, please follow the steps below to recalibrate the device.

1. Press buttons P1 and P4 simultaneously and the system will enter calibration mode. Without a PT1000 sensor connected, it will be in manual internal probe calibration mode (CA01). With a PT1000 sensor connected, it could be calibrated either in automatic (CA02) or manual (CA03) modes. CA02 is automatic calibration mode using the PT1000 sensor and CA03 is manual calibration mode using an external temperature probe.
2. When a PT1000 sensor is connected, press the blue "TEMP/TIME" knob to toggle between CA02 (automatic) and CA03 (manual) calibration modes.
3. P1, P2, P3, and P4 represent calibration points at 30°C, 50°C, 70°C, and 90°C respectively. In automatic calibration mode, the calibration sequence begins at P1/30°C by default.
   Important: Before calibrating at P1, confirm the room temperature is below 30°C. Additionally, the block temperature must be lower than the P1 calibration point temperature of 30°C. If the block temperature exceeds 30°C, allow time for the block to cool below 30°C before beginning calibration.
4. Add a high boiling point sample (above 120°C, such as glycerin) into the block hole, and place a thermometer into the same hole. Ensure the thermometer is in the central hole of the block or the hole closest to the center.
   Caution:
   • Thermometer must be inserted into the medium properly. Failure can result in block overheating.
   • If the sensor is immersed in the sample always note the characteristics of the sample, like evaporation rate, viscosity etc.
5. Press the "RUN/STOP" key, and the system will enter "HEATING" mode.

6. After the system enters “HOLDING” mode, wait 30 minutes to ensure the temperature has stabilized. Then read the temperature on the independent thermometer. Press the blue “TEMP/TIME” knob to make the displayed temperature value flash. Enter the new temperature reading from the independent thermometer to recalibrate.
7. Press the “RUN/STOP” key to stop heating and save the calibration value.
8. To calibrate additional points manually using an external probe, repeat steps 2-7 for each calibration point. In automatic calibration mode, steps 5 and 6 are not required, as the calibration data will be saved automatically after completing the full calibration sequence.
9. Reboot the device after calibration.
10. The calibration process for the internal and external probes is similar. With a PT1000 sensor connected, calibration is performed using the external probe. Without a PT1000 sensor connected, calibration uses the internal probe.

9. Maintenance and cleaning

• Proper maintenance allows the equipment to function properly and extend its useful life.
• Do not spray cleaning products directly on the instrument.
• Turn off the main power during cleaning.
• Do not use the following cleaning agents:

Colorants	Isopropyl alcohol
Building materials	Water containing surfactants / isopropyl alcohol
Cosmetics products	Water containing surfactants / isopropyl alcohol
Food products	Water containing surfactants
Fuels	Water containing surfactants

• Before using another cleaning or decontamination method, the user should check with the manufacturer that this method does not damage the instrument.
• Wear suitable protective gloves while cleaning the equipment.
• The equipment must be cleaned and disinfected before being sent for repair. Always use the original packaging.
• Use the equipment in a dry and clean place with a stable ambient temperature.

10. Storage and Transportation

• Keep the equipment in a dry and clean place, with good ventilation and free of corrosive gases and flammable or corrosive atmospheres.
• Prevent the equipment from getting wet and suffering blows that could affect the equipment during transport.

11. Technical data

Specifications	CODB-TC1	CODB-TC2
Voltage [VAC]	220-240	220-240
Frequency (Hz)	50/60	50/60
Power output/input[W]	165	250
N° of blocks	1	2
Dimension of the housing block [mm]	96 x 76	96 x 156
Temperature range [°C]	T_{Amb} +5° - 150°C	T_{Amb} +5° - 150°C
Temperature display	LED	
Temperature stability < 60 °C [°C]	±0.2 °C	±0.5 °C
Temperature stability of the blocks > 60 °C [°C]	±0.2 °C	1
Temperature uniformity [°C]	±0.2 °C	±0.5 °C
Heating time with external probe [°C/min]	5	4.5
Time range	1 – 99h 59min	1 – 99h 59min
Timer	Si	Si
Dimensions [W x D x H mm]	152 x 86 x 190	152 x 86 x 300
Weight [Kg]	1.5 (without heating block)	2.5 (without heating block))
Allowed temperature	5-40 °C	5-40 °C
Allowed humidity	80%	80%
Protection needed (according with DIN EN 60529)	IP 21	IP 21
External probe connector	DIN 12 878	DIN 12 878
External sensor variation	<=± (0,15 + 0,002xITI)	<=± (0,15 + 0,002xITI)

Nota importante para los aparatos electrónicos vendidos en España

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:

Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

Remarque importante pour les appareils électroniques vendus en France

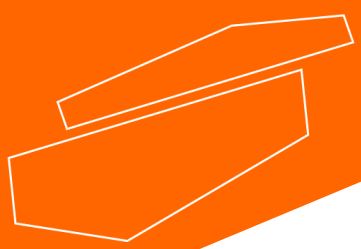
Informations sur la protection du milieu environnemental et élimination des déchets électroniques :

Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.
En réponse à la règlementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.ecosystem.eco).
L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

Nota importante per le apparecchiature elettroniche vendute in Italia

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:

Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.
In conformità con la Direttiva 2012/19 / UE, gli utenti dell'Unione Europea di apparecchiature elettriche ed elettroniche hanno la possibilità di restituire i propri RAEE per lo smaltimento al distributore o al produttore di apparecchiature dopo averne acquistato uno nuovo. La rimozione illegale di apparecchiature elettriche ed elettroniche è punibile con una sanzione amministrativa.



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