Installation and Operating Instructions

Cole-Parmer®
WB-200 Series Water Baths

Models 78905-20, 78905-21, 78905-22, 78905-23, 78905-24, 78905-25

ETL CE UK CA

Contents

1. Introduction

Thank you for choosing a Cole-Parmer WB-200 Series Water Bath. It is designed to handle a wide range of laboratory procedures including incubation, inactivation, and agglutination as well as many pharmaceutical, serological, biomedical, and industrial procedures.

2. Warranty

The manufacturer agrees to correct for the original user of the product, either by repair (using new or refurbished parts), or at the manufacturer's election, by replacement (with a new or refurbished product), any defects in material or workmanship which develop during the warranty period. The standard warranty is twenty-four (24) months after delivery of the product. In the event of replacement, the replacement unit will be warranted for the remainder of the original warranty period or ninety (90) days, whichever is longer. For purposes of this limited warranty, "refurbished" means a product or part that has been returned to its original specifications. In the event of a defect, these are your exclusive remedies. If the product should require service, contact the manufacturer's/supplier's office for instructions. When return of the product is necessary, a return authorization number is assigned and the product should be shipped, transportation charges pre-paid, in either its original packaging or packaging affording an equal degree of protection to the indicated service center. To ensure prompt handling, the return authorization number must be placed on the outside of the package. A detailed explanation of the defect should be enclosed with the item. The warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, acts of God, modification by any party other than the manufacturer, or other causes not arising out of defects in material or workmanship.

EXCLUSION OF IMPLIED WARRANTIES. THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION AND PERIOD AS STATED IN THE OPERATOR'S MANUAL INCLUDED WITH EACH PRODUCT. LIMITATION ON DAMAGES. THE MANUFACTURER'S SOLE OBLIGATION UNDER THE WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT AND THE MANUFACTURER SHALL NOT, IN ANY EVENT, BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND RESULTING FROM USE OR POSSESSION OF THIS PRODUCT. Some states do not allow: (A) limitations on how long an implied warranty lasts; or (B) the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights that vary from state to state.

3. Contents of Package

The instrument is delivered complete with the following parts:

- 1 main unit (water bath)
- Power supply cord
- Two fuses
- Instruction manual

4. Safety Instructions

4.1 Dangers

Possible to cause serous loss to properties or injuries to personnel:

- Product must be safely grounded and kept away from electromagnetic interference source.
- Before use, make sure that the power supply has the voltage in compliance with the requirement of the product.
- The product should use a separate electrical socket. Make sure the bath is positioned so that it is easy to disconnect power as needed.
- Turn off the switch before unplugging the product. Do not unplug the product while it is operating.
- Do not operate the product with a damaged or modified power cord. If the cord is replaced, it must be a suitably rated cord.
- Repair must only be carried out by authorized personnel.
- For indoor use only.

4.2 Warnings

To avoid possible loss/damage to property or injuries to personnel:

- Make sure to read and understand thoroughly the product's Operating Instructions before operating the product.
- 304 stainless steel material is not acid resistant. To prevent damage, do not place corrosive materials inside the unit.
- Grasp the plug to unplug the power cord. Do not pull directly on the power cord.
- Product must be disconnected from the mains power supply when any of the following occur:
  - When replacing the fuse.
  - When the product is waiting for overhaul due to faults.
  - When the product goes out of service for a long time.
  - When the product is being moved.

4.3 Cautions

Avoid abnormal operation of the product:

- The product should be placed on a solid horizontal surface.
- Keep at least 30 cm of space around the product.
- The product must be used in the specified conditions.
- Fill bath with distilled water up to one-half (½) to two-thirds (2/3) of full height.
- Do not operate the water bath without fluid as that may burn out the heater.
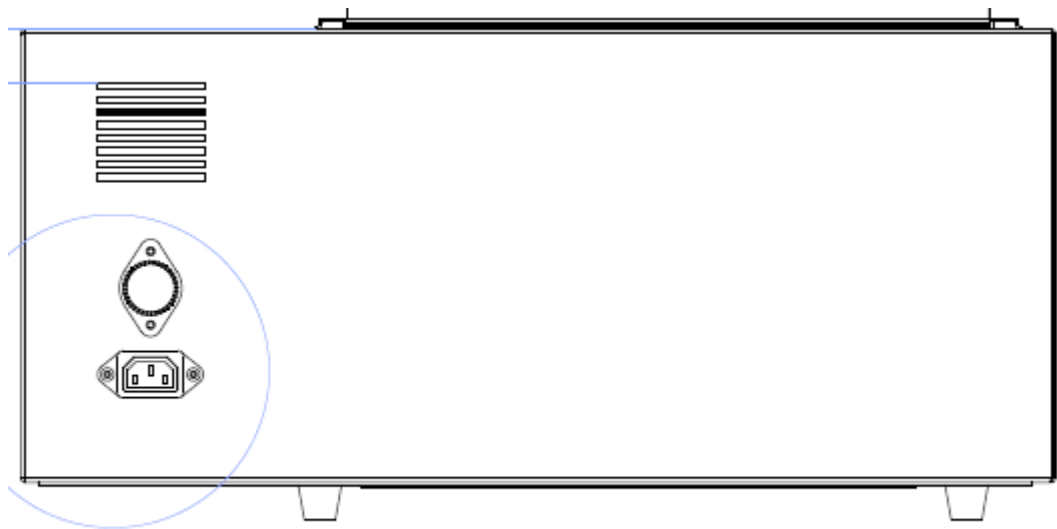
5. Product Information

5.1 Functions

1) LCD
2) Controller buttons
3) Drain / water circulation port

4) Handle
5) Cover handle
6) On/Off switch

5.2 Specifications

Model number	78905-20	78905-21	78905-22	78905-23	78905-24	78905-25
Tank size	6.6 L (0.23 cu ft)		11 L (0.39 cu ft)		27 L (1.0 cu ft)	
Voltage	120 VAC, 60 Hz	220–240 VAC, 50/60 Hz	120 VAC, 60 Hz	220–240 VAC, 50/60 Hz	120 VAC, 60 Hz	220–240 VAC, 50/60 Hz
Input power	600 W		800 W		1000 W	
Temperature range	Ambient +5 to 100°C					
Temperature stability	±0.2°C					
Internal dimensions (W x H x D)	11¹³⁄₁₆" x 6⅛" x 5¹⁵⁄₁₆" (300 x 155 x 150 mm)		11¹³⁄₁₆" x 9⁷⁄₁₆" x 7⅞" (300 x 240 x 200 mm)		19¹¹⁄₁₆" x 11⅝" x 7⅞" (500 x 295 x 200 mm)	
External dimensions (W x H x D)	18¹⁵⁄₁₆" x 8¹¹⁄₁₆" x 13⅜" (480 x 220 x 340 mm)		18¹⁵⁄₁₆" x 11¹³⁄₁₆" x 18¹⁵⁄₁₆" (480 x 300 x 480 mm)		26¹³⁄₁₆" x 14³⁄₁₆" x 15⅜" (680 x 360 x 390 mm)	
Maximum altitude	6561 ft (2000 m)					
Operating conditions	41 to 104°F (5 to 40°C), maximum 85% RH					
Pollution environment	PD2					
Weight	20 lb (9 kg)		29 lb (13 kg)		36 lb (16 kg)	

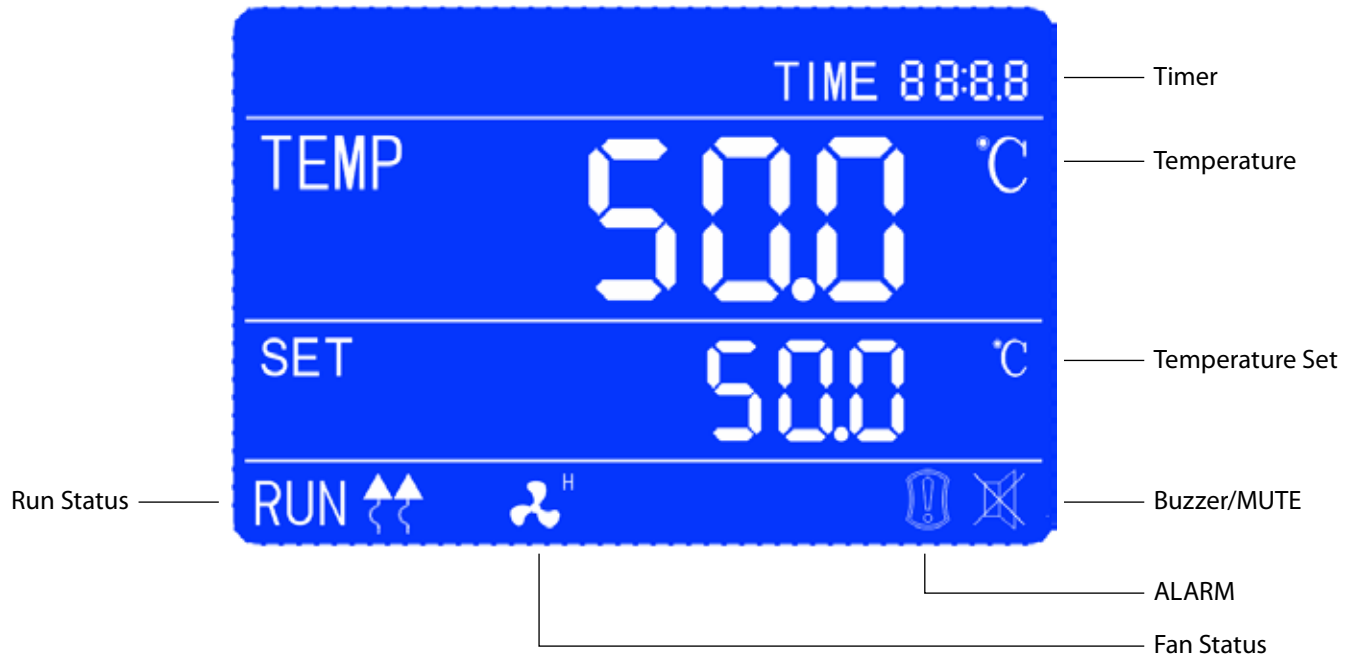## 5.3 Fuse information

Fuse is located on back of unit

Model number	Cable/plug (US) Black – Live White – Neutral Green – Earth	Cable/plug (EU) Brown – Live Blue – Neutral Green/yellow – Earth	Fuse
78905-20	18AWG, 5-15P	—	5A 250V glass / fast blow, 5 x 20 mm
78905-21	—	0.75 mm² / H05VV-F	3A 250V glass / fast blow, 5 x 20 mm
78905-22	18AWG, 5-15P	—	10A 250V glass / fast blow, 5 x 20 mm
78905-23	—	0.75 mm² / H05VV-F	5A 250V glass / fast blow, 5 x 20 mm
78905-24	16AWG, 5-15P	—	15A 250V ceramics, 6 x 32 mm
78905-25	—	1.0 mm² / H05VV-F	10A 250V glass / fast blow, 5 x 20 mm

5.4 Display and Commands

5.4.1 Display

TIME 88:8.8	Timer
TEMP 50.0 °C	Temperature
SET 50.0 °C	Temperature Set
RUN	Run Status
	Buzzer/MUTE
	ALARM
	Fan Status

5.4.2 Commands

1. The ⚙ button permits the working parameters setting.

2. The ⟨ button changes the digit (Program, units, tens, etc.) of the value of the parameter being edited.

3. Hold the ⟨ key together with the ⚙ key for 3 seconds to access the menus with password.

4. The ⌄ and ⌃ adjustment buttons allow users to decrease or increase the value of the operating parameter being edited.

5. The ▷□ button permits user to START/STOP a cycle.

6. The ON/OFF button lets user turn the unit on and off.

6. Operating the Temperature Controller

6.1 Switch on

1. Connect the power cord to a power outlet with a protective ground connection.

2. Turn on the instrument by pressing the ON/OFF Button; the screen will light up. The display shows the initialization sequence before the instrument is ready to use.

Note: Every time you turn on the instrument it beeps intermittently, the icon of visual alarm and the word "end" will appear on the display, indicating that a heating cycle had been done before. Press any button to silence the audible signal and the icon disappears.

6.2 Setting the parameters

6.2.1 Time setting

1. After confirming the temperature, the last value of the set time (timer) will start to flash. Set the desired value (hh:mm) by pressing [▼] or [▲] keys. It's possible to go faster by using the [◄] button.

2. Confirm the set value with another press of [⚙] button.

Note: The value "00:00" indicates the operating mode is "continuous", meaning once you start the operating cycle with the START/STOP button, the system will maintain the set temperature until it is stopped manually.

3. If you set the timer, such as one hour, the instrument will reach the set temperature and maintain it for one hour.

Note: If you do not need to use the timer, set Time = 0.

6.2.2 Temperature setting

1. When the instrument is switched on, press the [⚙] button one time. The set temperature value will start to blink. Set the desired temperature value (in Celsius degrees) by pressing [▼] or [▲] keys. You can move to the next digit to set by pushing the [◄] button.

2. Confirm the set value with another press of the [⚙] button.

6.3 START/STOP operation

1. After setting the operating parameters, press [▷] button for 4 to 5 seconds to start the heating cycle/cooling process with defined time in hh:mm or continue the process for (00:00). The word "END" will be replaced with "RUN" in the left bottom of the display, and the system will display the timer and temperature measured inside the chamber.

2. At any time, you can manually stop the cycle by pressing the [▷] button for 4 to 5 seconds.

3. Once the timer reaches zero or after a manual stop, the instrument beeps intermittently, the alarm icon will alarm and the word "END" will appear on the display. Pressing any button will silence the audible signal and the icon disappears.

NOTE: The audible alarm will not end until it is stopped by the operator, but the heating cycle will be terminated so the samples inside the bath will remain exposed to the internal temperature of the chamber.

6.4 Delay of heating cycle start

It is possible to set a delay (hour and minutes) of heating cycle start.

1. Simultaneously press [⚙] and [◄] for few seconds until the time position shows"LK 0000". Confirm the "0000" (default) password by quickly pressing [⚙] button one time. On the top right part of display, the parameter "dy" (delay) appears close to value 00:00.

2. Set the desired delay value (hh:mm) by pressing [▼] or [▲] keys. You can move to the next digit to set by pushing the [◄] button. Confirm the set value with another press of [⚙] button. The display returns to the standby screen.

3. Press the [▷] button for 4 to 5 seconds to begin the work cycle, but heating will not start immediately. The word "end" and the set delay time alternately blink on the top right part of display, counting the wait time until the start of heating. Once the delayed time is passed, the instrument will begin heating and the regular timer will display.

6.5 Alarm / faults

- The instrument has a built-in overtemperature protection circuit. If the temperature overshoots, the controller will enter an Alarm Mode that disables all heating elements in order to protect the samples.
- When in Alarm Mode, a red alarm indicator will display on the screen. The unit will automatically resume operation when the temperature has dropped back below the overshoot threshold.
- Setting the temperature set point higher will also resume heating function.
- If the alarm is sounding due to an elapsed timer, press any key to mute.

7. Calibration

7.1 Probe calibration

Follow the instructions below to adjust the temperature readout. These steps are only necessary in the event there is a discrepancy between the display and measurements taken with an alternate device. For example, if a glass thermometer placed inside the chamber has a different measurement than the controller.

Note: Laser probe measurements will be inaccurate without compensating for emissivity. Refer to your laser probe's user manual.

1. Simultaneously press ⚙ and ◁ for few seconds until the time position shows "LK 0000".

2. Press ⌃ to set to "LK 0003".

3. Press ⚙ three times, you can see Pb (this is the temperature offset on single point).

4. After setting the Pb value, press the ⚙ button to exit.

7.2 Other parameters function in menu

Here are the passwords and access sequence to various parameters/ functions:

Password	Function/parameter	Description
0000	dy	Delay of heating cycle start
0003	tm	Safety temperature limit for sample protection
	Po	Restart mode after absence of power
	AL	Temperature range for overtemperature alarm
	Pb	Temperature offset on a single point
	PK	Temperature offset on the entire ramp
	PA	Temperature offset of the room temperature probe

While the unit arrives pre-calibrated from the factory, certain adjustments may be necessary for optimal performance. Please note these adjustments will affect the unit's settings! We recommend writing down any factory settings prior to adjustment so they may be reset in the event of undesirable operation.

8. Maintenance and Precautions

8.1 Maintenance

- Always keep the internal and external of the water tank clean. Do not wipe the exterior with a chemical solution, which can cause chemical reaction, to prevent any damage.
- If the instrument will not be used for an extended time, cover it with a plastic thin-film dust shroud and place it in a dry room in order to prevent the temperature controller from being irreversibly damaged by moisture.
- Do not operate the unit in environments of high voltage, heavy current, intense magnetic field or corrosive gases. This is to prevent the instrument from being damaged and prevent personnel from the risks of electrical shock.

8.2 Precautions

- Ensure a grounded outlet is used so the water bath is grounded effectively for safe use.
- Before filling the bath with water, never press down the power switch so as to prevent the electrical heating tube from being burnt.
- If you do not need to use the timer, set Time = 0.
- When any audible and visual alarms are activated, please check whether the set temperature deviates from the normal range or not. If not, immediately stop operating the instrument and contact an authorized Cole-Parmer technician to discuss inspection or repair.
- Unless necessary, never disassemble the side plate of the temperature control unit so as to guarantee safety.

9. Troubleshooting

Problems	Possible cause	Solution
No power after startup (pilot lamp is not on)	Power socket is not energized or plug is in poor contact.	Contact Cole-Parmer for service or replacement.
	Chamber power line broken or plug not inserted properly.	Try inserting again. If still not working, contact Cole-Parmer for service or replacement.
	Power switch is broken or not turned on.	Contact Cole-Parmer for service or replacement.
	Fuse blown.	If the fuse burns out after being replaced and energized, contact Cole-Parmer to return for repair or replacement.
Displayed error on the screen	Sensor is out of order or wiring is broken (knocked off).	Replace the sensor.
No temperature rise	Check if timer is set up or the set time has elapsed.	Refer to the operation of timing function.
	The controller does not work (without output).	Contact Cole-Parmer for service or replacement.
	Set temperature is lower than internal temperature.	Remove the lid until the internal temperature becomes the same as or lower than the set temperature.
Temperature control is inaccurate (static difference is large)	Difference between room temperature and set temperature is less than 10 degrees Celsius.	Minimum temperature under control: ambient +10°C (18°F)

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Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct.
If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

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