



Atmospheric Distillation Tester LB-13APDT

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1. Safety Measures

The following must be observed for the safe operation of the Type **LB-13APDT** Atmospheric Distillation Tester

- 1) Read this manual carefully before the installation and use it.
- 2) Pay attention to the warning signs on the package.
- 3) For your safety, Kindly use sufficiently insulated tools for the electrical connections. Moreover, the relevant security knowledge about electrical installation, construction, and operation must be followed.

2. Introduction

Atmospheric Distillation Tester LB-13APDT operates at maximum temperatures of up to 400°C, ensuring accurate distillation measurements. It features infrared photoelectric liquid level detection for precise liquid tracking. It has a compressor cooling system for stable temperature regulation. Our distillation tester includes a 7-inch display, providing real-time monitoring of temperature and liquid levels.

3. Features

1. Automatic calibration
2. Programmable correction
3. Electrical heating unit
4. User-friendly interface
5. Data storage capability

4. Specifications

Model No	LB-13APDT
Temperature Range	RT to 400°C
Temperature Accuracy	± 0.1°C
Ambient Temperature Range	10 to 40°C
Storage Temperature Range	0 to 50°C
Temperature Sensor	Pt 100 glass probe
Temperature Correction	Automatic calibration & programmable correction
Heating Method	Electrical heating unit (max 1000 W)
Cooling Method	Compressor cooling
Liquid Level Detection	Infrared photoelectric detection
Display	7-inch color touchscreen
Data Storage	100 measurement results
Power Consumption	2000W
Power Supply	AC 220V, 50Hz
Dimension (L × W × H)	550 × 500 × 700 mm
Weight	60 kg

5. Applications

Atmospheric Distillation Tester LB-13APDT is used for determining the boiling range of petroleum products to ensure fuel quality and compliance. It is widely used in oil refineries, petrochemical industries, fuel production plants, and research laboratories.

6. Installation

6.1 Transport and Storage

After unpacking, check if the analyzer is damaged during transportation and if the accessories are complete in the packaging as per the packing list. Kindly refer to the allowable environmental conditions in the technical parameters for storage and transportation.

6.2 Installation and Preparation Before Installation

1) Installation position

The Atmospheric distillation tester is preferably installed in the lab with good ventilation equipment or in the lab neighboring ventilation cabinet or in the ventilation cabinet to discharge the toxic gases produced in the measurement process for the safety and non-toxicity of the operators.

2) Power Installation

Insert the power cable attached to the instrument into the power jack at the back of the instrument. Plug the other end of the cable into the 220V AC power outlet. Turn on the power to start the operation.

After the above-mentioned adjustment, all the preparatory work was completed before using the instrument. Now the formal use of it can be started.

7. Operations

7.1 Boot Display

Display on top of the screen: The name of the instrument.

Display at the bottom of the screen: The name of the company. Wait for 3 seconds to enter the main menu automatically.

7.2 Menu Description

There are 5 items on the main menu:

- 1) Parameter setting
- 2) Instrument setting
- 3) Functional testing.
- 4) Data printing.
- 5) Start-up testing. See **Figure 1**.



Figure-1

The menu is a planar touch menu that enables direct access to the program by a direct touch of an option.

7.2.1 Parameter Setting

The parameter setting includes 8 options. See **Figure 2**.



Figure-2

1) Program No

This instrument can pre-store as many as 16 control programs (1-16).

The programs are used to set different testing procedures.

Use the arrow keys ("up" and "down" arrows) to choose the program number.

2) Sample Name

It is used for the input of the name of the sample or the code of it. (**Note:** Digits, English, and inputs are available.)

3) Initial Boiling Power

It is used for the setting of the heating power 5 minutes before the initial boiling point.

Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for completion of the input.

4) Final Boiling Power

It is used to set the heating power from the recycling amount over 95% to the final boiling point.

Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for the completion of input.

5) Condensing Temperature

It is used to set the constant temperature of the coolant. Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for completion of the input.

6) Recycling Room Temperature

It is used to set the constant temperature around the recycling graduated cylinder. Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for completion of the input.

7) Termination Temperature

To avoid the danger caused by overtemperature, this item is used to set the highest temperature of the steam in testing.

Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for completion of the input.

8) Pressure Correction Values

It is used to set the different requirements of various samples for pressure correction values. Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for the completion of input.

Note: After the completion of the above-mentioned parameter settings, the “Save” button must be pressed. Otherwise, the set data cannot be saved.

7.2.2 Instrument Setting

The instrument set includes 5 options. See **Figure 3**.

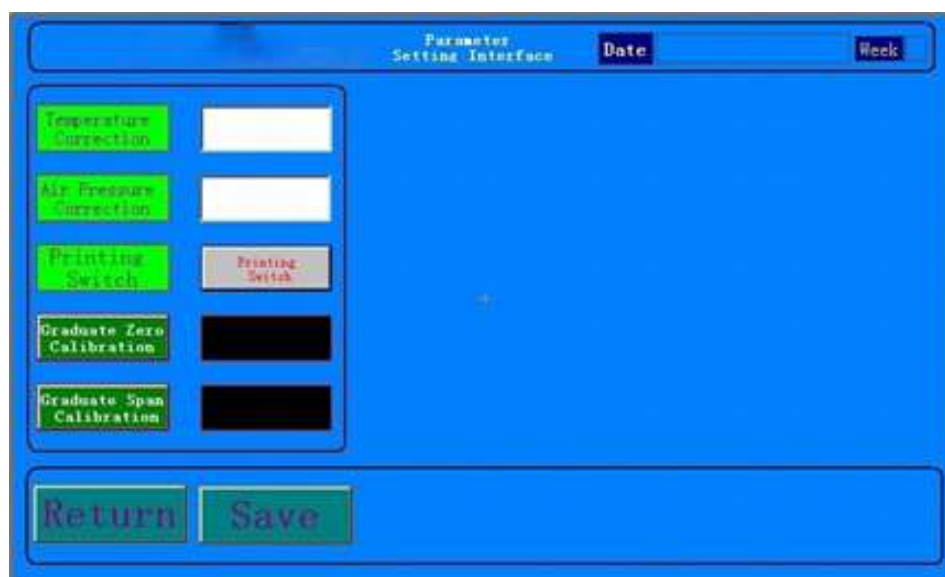


Figure-3

1) Temperature Correction

It is used for the correction of the temperature difference between the measurement temperature and the actual temperature measured with the glass thermometer. Input the negative value if the measured temperature by the instrument is higher than the temperature measured by the glass thermometer. Otherwise, input the positive value. Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for completion of the input.

2) Air Pressure Correction

It is used to correct the pressure difference between the measured atmospheric pressure and the actual pressure measured by a standard barometer. If the measured pressure by the instrument is higher than that by the standard barometer, input the negative value. Otherwise, input a positive value. Touch slightly the white input box next to the input option to pop up the keyboard. Press the numeric data keys before pressing the enter key for the completion of input.

3) Printing Switch

It is used to select automatic data printing or manual data printing by pressing the “Print” button after the testing is over. Touch slightly the option button next to the input option to select the switch mode.

4) Graduate Zero Calibration

It is used to demarcate the reference point of a newly graduated cylinder. Pour precisely 2ml liquid into the cylinder (subject to the graduate volume configured by the instrument). Then place the cylinder correctly on the graduated cylinder bracket of the instrument. Simply press the green button to start this function. After the calibration, press the “Enter” key to save the data as per instrument instruction. Now the graduate zero calibration is completed.

5) Graduate Span Calibration

It is used to demarcate the full scale of a new graduated cylinder. Pour precisely 100ml liquids into the cylinder (subject to the graduate volume configured by the instrument). Then place the cylinder correctly on the graduated cylinder bracket of the instrument. Simply press the green button to start this function. After the calibration, press the “Enter” key to save the data as per instrument instruction. Now the graduate zero calibration is completed.

7.2.3 Functional Testing

This item includes 6 options. See **Figure 4**

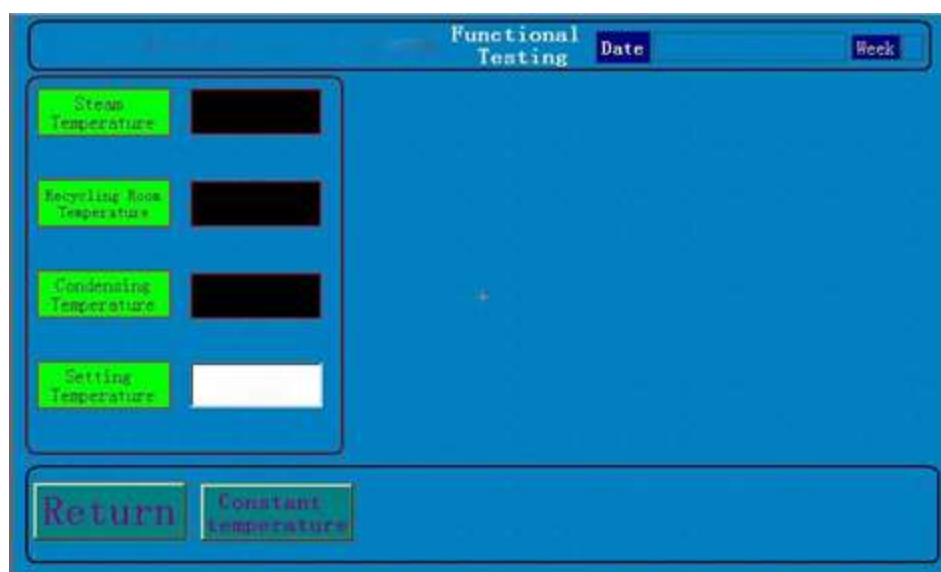


Figure-4

1) Temperature of Steam Sensor

It is used to observe the temperature value of the steam sensor to judge if the steam temperature sensor works normally.

2) Recycling Room Temperature

It is used to observe the sensor temperature of the recycling room so as to judge if the temperature sensor of the recycling room works normally.

3) Condensing Temperature

It is used to observe the condensing sensor temperature value to judge if the condensing temperature sensor works normally.

4) Setting Temperature.

It is used to set the constant condensing temperature.

7.2.4 Data Printing

This item includes 3 options. See **Figure 5**.

Figure-5

1) Inquired by Serial No.

Input the serial number to be printed. Then press the button “Inquired by Serial No.” to inquire about data as per the serial number that is input. Finally, press the “Print” button to print the data.

2) Inquired by Date

Enter the date. Press the button “Inquired by Date” to inquire about the data as per the date input. The number of data or no data can be displayed then. Note: The input data of dates should be in 8 digits including 4 digits for a year, 2 for a month, and 2 for a date, such as January 2, 2011 (20110102).

3) “The Last Record” key and “The Next Record” key

These two keys can be pressed to check the saved data sequentially. Press the button “Print” to print the data.

7.2.5 Start-Up Testing

This item includes two steps in one option. See **Figure 6**.

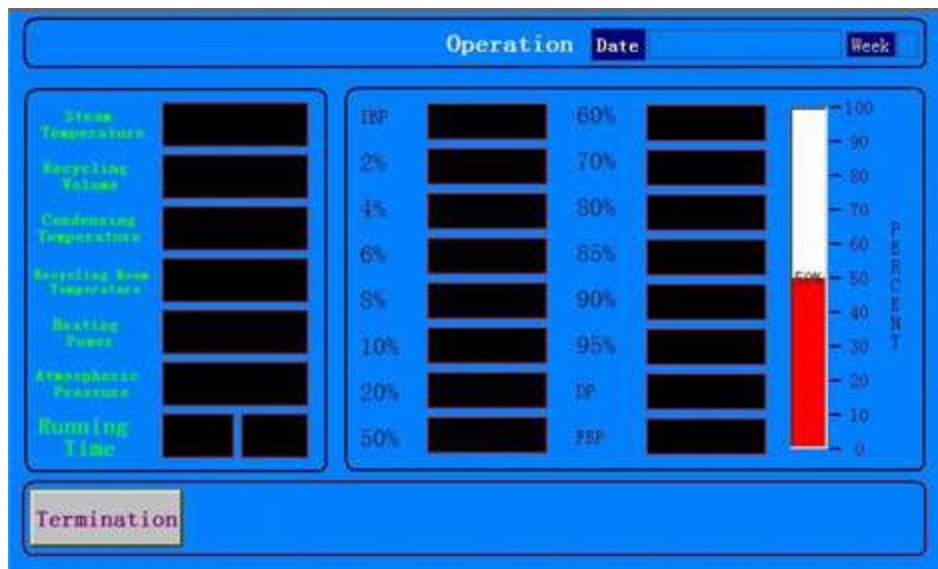
Atmospheric Distillation Tester LB-13APDT



The interface is titled "Starting Process" with "Date" and "Week" input fields. On the left, there is a list of parameters to be configured: Program No, Sample Name, Initial Boiling Power, Final Boiling Power, Condensing Temperature, Recycling Room Temperature, Termination Temperature, and Test Standard. Each parameter has a corresponding input field. To the right of these fields are two large blue arrows, one pointing up and one pointing down. On the right side of the interface, there is a large text area labeled "Instrument Self-test Alarm Message". At the bottom, there are two buttons: "Return" and "Start".

Figure-6

Press the button "Started Testing" to enter the screen as shown in **Figure 6**. Choose the testing procedure to be implemented. Press the **"Start"** button to start the testing. Kindly note that the data can be modified at this moment. Starting Testing Interface.



The interface is titled "Operation" with "Date" and "Week" input fields. On the left, there is a list of parameters to be monitored: Steam Temperature, Recycling Volume, Condensing Temperature, Recycling Room Temperature, Heating Power, Atmospheric Pressure, and Running Time. Each parameter has a corresponding input field. On the right, there is a large vertical bar chart labeled "PERCENT" on the right side. The bar chart has a scale from 0 to 100. The bar is currently filled with red, indicating a value of approximately 50%. Below the bar chart, there is a "Termination" button.

Figure-7

Now press the "Termination" button to stop the test.

7.2.6 Test Ending

	Actual Temperature	Pressure Correction	Time		Actual Temperature	Pressure Correction	Time	
1BP				60%				Total volume
2%				70%				Atmospheric pressure
4%				80%				Date
6%				85%				Time
8%				90%				Serial No
10%				95%				Sample name
20%				DP				
50%				#BP				

Print Exit

Figure- 8

The instrument prints the data automatically or manually as per settings after the testing is over. If the other continuous sample testing is needed, pressing the button of “Exit” shall enable the instrument to return to its initial state.

8. Accessories

Standard Accessories

Accessories	Quantity
Host	1
125ml Flask	2
PT 100 Temperature Sensor	1
100ml Measuring Cylinder	2
Quartz Heating Support Plate (38mm and 50mm)	1
Inducer	2
Clean the Rope	1
Silicone Plug	2
Form	1



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