

CNCEST BSM-120.4

CNCEST Lab Digital Electronic Analytical Balance Scale BSM-120.4

Instruction Manual

Model: BSM-120.4

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1. INTRODUCTION

This manual provides detailed instructions for the proper installation, operation, and maintenance of your CNCEST Lab Digital Electronic Analytical Balance Scale, Model BSM-120.4. This precision instrument is designed for accurate weighing in laboratory and scientific applications, offering multiple unit conversions, percentage weighing, and counting functions. Its robust design includes superior overload protection and a four-stage shockproof super polar monomer sensor for enhanced reliability and accuracy.



Figure 1.1: Front view of the CNCEST Lab Digital Electronic Analytical Balance Scale.

2. SAFETY INFORMATION

Please read all safety instructions carefully before operating the balance. Failure to follow these instructions may result in injury or damage to the instrument.

- **Power Supply:** Use only the specified AC 110V power adapter. Ensure the power outlet is properly grounded.
- **Placement:** Place the balance on a stable, level, and vibration-free surface. Avoid direct sunlight, drafts, and areas with significant temperature fluctuations.
- **Environment:** Operate the balance within the specified working temperature range of $\pm 15^{\circ}\text{C}$ to $\pm 35^{\circ}\text{C}$. Avoid environments with high humidity or corrosive gases.
- **Handling:** Handle the balance with care. Do not drop or subject it to sudden impacts.
- **Cleaning:** Disconnect power before cleaning. Use a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Overload:** Do not exceed the maximum capacity of 120g. The balance has overload protection, but continuous overloading can cause damage.
- **Maintenance:** Do not attempt to disassemble or repair the balance yourself. Refer all servicing to qualified personnel.

3. PACKAGE CONTENTS

Verify that all items listed below are present and undamaged upon unpacking:

- 1 x Analytical Balance Unit
- 1 x Weighing Pan (Ø90mm)
- 1 x Pan Support
- 1 x Shield Ring
- 1 x AC Adapter (110V)
- 1 x Operation Instruction Manual



Figure 3.1: Various views of the analytical balance, illustrating its components.

4. SPECIFICATIONS

The following table outlines the key technical specifications of the BSM-120.4 Analytical Balance:

Parameter	Value
Model	BSM-120.4
Power Supply	AC 110V
Capacity	120g
Readability	0.1mg
Repeatability	±0.1mg
Linearity	±0.2mg
Pan Size	Ø90mm
Output Interface	RS232, USB
Scale Units	g, Ct, Oz, Lb
Accuracy Level	I
Working Temperature	±15°C ~ ±35°C
Stabilization Time	<3s
Power Consumption	<1W
Room Temperature Change Effect	0.9mg/10°C
Product Dimensions (L×W×H)	200 × 280 × 300 mm (7.9 × 11 × 11.8 in)
Net Weight	Approx. 4kg (8.82 lbs)

5. SETUP

Proper setup is crucial for accurate measurements.

5.1 Unpacking and Placement

- Carefully remove the balance and all accessories from the packaging. Retain the packaging for future transport or storage.
- Choose a stable, level, and vibration-free location for the balance. Avoid areas near air conditioning vents, windows, or equipment that generates heat or vibration.
- Ensure the ambient temperature is within the specified working range (±15°C to ±35°C) and stable.

5.2 Assembly

- Place the pan support onto the weighing platform.
- Carefully place the weighing pan (Ø90mm) onto the pan support.
- Position the shield ring around the pan, ensuring it sits correctly.
- Ensure the glass draft shield is properly assembled and closed to protect the weighing area from air currents and dust.

ELECTRONIC ANALYTICAL BALANCE SCALE



Figure 5.1: Assembled analytical balance with the weighing pan and draft shield.

5.3 Power Connection and Initial Warm-up

1. Connect the AC adapter to the power input port on the rear of the balance.
2. Plug the AC adapter into a grounded 110V power outlet.
3. Allow the balance to warm up for at least 30 minutes before initial use or calibration. This allows the internal components to stabilize and ensures optimal accuracy.



Figure 5.2: Rear view showing connectivity ports and a close-up of the weighing pan.

6. OPERATING INSTRUCTIONS

Familiarize yourself with the control panel and display before operation.



ELECTRONIC ANALYTICAL BALANCE SCALE



Figure 6.1: Control panel and digital display.

6.1 Power On/Off

- **Power On:** Press the **ON/OFF** button (usually marked with a power symbol ⏻). The display will light up and perform a self-test.
- **Power Off:** Press and hold the **ON/OFF** button until the display turns off.

6.2 External Calibration (CAL)

Calibration is essential for maintaining accuracy. Perform calibration regularly, especially after moving the balance or significant temperature changes.

1. Ensure the weighing pan is empty and the draft shield is closed.
2. Press and hold the **CAL** button until 'CAL' appears on the display.
3. The display will then show the required calibration weight (e.g., '100.0000g' or 'CAL 100').
4. Carefully place the specified calibration weight (not included) onto the center of the weighing pan.
5. The balance will automatically calibrate. Once complete, the display will show 'PASS' or return to '0.0000 g'.
6. Remove the calibration weight.

6.3 Tare Function (TARE)

The Tare function sets the current weight on the pan to zero, allowing you to weigh additional items without including the container's weight.

- Place the empty container (e.g., beaker, flask) on the weighing pan.
- Press the **TARE** button. The display will reset to '0.0000 g'.
- Add the substance to be weighed into the container. The display will show only the net weight of the substance.

6.4 Weighing Procedure

1. Ensure the balance is level and calibrated.
2. Press the **TARE** button to zero the display if necessary.
3. Carefully place the item to be weighed onto the center of the weighing pan.
4. Close the draft shield.
5. Wait for the reading to stabilize (indicated by a stability symbol on the display, if available, or when the reading stops fluctuating).
6. Read the weight displayed.

6.5 Unit Conversions

The balance supports multiple weighing units: grams (g), carats (Ct), ounces (Oz), and pounds (Lb).

- With an item on the pan, press the **UNIT** or **MODE** button (refer to specific button labels on your model) to cycle through the available units.
- The display will show the weight in the selected unit.

6.6 Percentage Weighing

This function allows you to determine the weight of a sample as a percentage of a reference weight.

1. Place the reference sample on the pan.
2. Press the **PERCENTAGE** button (or similar, consult your specific model's button layout). The display will show '100.00%'.
3. Remove the reference sample.
4. Place subsequent samples on the pan. The display will show their weight as a percentage of the original reference sample.

6.7 Counting Function

The counting function allows you to count a large number of identical items based on a sample weight.

1. Press the **COUNT** button (or similar). The display may prompt for a sample size (e.g., 'SAMPLE 10').
2. Place the specified number of sample items (e.g., 10 pieces) on the pan.
3. Confirm the sample size (e.g., by pressing **ENTER** or the **COUNT** button again). The balance will calculate the average weight per piece.
4. Remove the sample items.
5. Place the bulk quantity of items on the pan. The display will show the total count of items.

6.8 Data Output (RS232/USB)

The balance is equipped with standard RS232 and high-speed USB interfaces for data communication with external devices (e.g., computers, printers).

- Connect the appropriate cable (RS232 or USB) from the balance to your external device.
- Refer to the software or driver instructions for your specific external device to configure data acquisition settings.
- Data can typically be transmitted continuously or on demand (e.g., by pressing a **PRINT** or **SEND** button on the balance, if available).

7. MAINTENANCE

Regular maintenance ensures the longevity and accuracy of your analytical balance.

7.1 Cleaning

- Always disconnect the power adapter before cleaning.
- Use a soft, lint-free cloth dampened with mild soap and water to clean the exterior of the balance and the glass draft shield.
- For the weighing pan, remove it and clean it separately with appropriate cleaning agents if necessary. Ensure it is completely dry before re-installing.
- Do not use abrasive cleaners, strong solvents, or immerse the balance in water.
- Avoid getting liquids into the internal components or display.

7.2 Storage

- When not in use, keep the dust cover (plastic or glass draft shield) closed to protect the weighing mechanism from dust and debris.
- Store the balance in a clean, dry, and temperature-stable environment.
- If storing for an extended period, disconnect the power adapter.



Figure 7.1: Analytical balance in a typical laboratory setting.

8. TROUBLESHOOTING

This section addresses common issues you might encounter. If the problem persists, contact customer support.

Problem	Possible Cause	Solution
Balance does not power on.	No power supply; faulty adapter; power button not pressed correctly.	Check power connection and outlet. Ensure adapter is functional. Press power button firmly.
Unstable readings / Fluctuating display.	Drafts; vibrations; unstable surface; temperature fluctuations; electromagnetic interference.	Close draft shield. Place on stable, vibration-free surface. Avoid air currents. Allow warm-up time. Relocate away from interference sources.
Inaccurate readings.	Needs calibration; pan not centered; overload; dirty pan/platform.	Perform external calibration. Ensure pan is correctly seated. Do not exceed capacity. Clean pan and platform.
Display shows 'Err' or error code.	Overload; internal malfunction.	Remove excess weight. Power cycle the balance. If error persists, contact support.
Cannot tare or zero.	Weight on pan exceeds tare range; internal error.	Ensure pan is empty or within tare range. Power cycle the balance.

9. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact your retailer or the manufacturer, CNCEST, directly. Keep your purchase receipt and model number (BSM-120.4) readily available when contacting support.

Visit the CNCEST Store for more information: [CNCEST Official Store](#)

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

