

U.S. Solid USS-DBS48

U.S. Solid USS-DBS48 0.1mg Analytical Balance User Manual

Comprehensive instructions for the U.S. Solid USS-DBS48 Analytical Balance.

1. INTRODUCTION

This manual provides detailed instructions for the safe and efficient operation of your U.S. Solid USS-DBS48 Analytical Balance. Please read this manual thoroughly before using the device to ensure proper functionality and to prevent damage.

The U.S. Solid USS-DBS48 is a high-precision analytical balance designed for accurate measurements in laboratory and industrial settings. It features a 0.1 mg readability, automatic internal calibration, multiple weighing units, RS232 data transmission, and additional functions like piece counting and percentage weighing.

2. SAFETY PRECAUTIONS

- Always operate the balance on a stable, level, and vibration-free surface.
- Avoid placing the balance near strong electromagnetic fields, heat sources, or air currents.
- Ensure the power supply matches the specifications of the balance.
- Do not overload the weighing pan beyond the maximum capacity of 120g.
- Keep the draft shield closed during weighing to minimize environmental interference.
- Clean the balance regularly with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- If the balance is moved, allow it to acclimate to the new environment and recalibrate before use.

3. PRODUCT OVERVIEW

3.1 Features

- **Hassle-Free Internal Calibration:** Equipped with a state-of-the-art internal calibration system for automatic self-

calibration, ensuring accuracy without manual weights.

- **Multi-Mode Weighing Units:** Offers versatile weighing units including grams (g), milligrams (mg), carats (ct), and ounces (oz).
- **Efficient Data Transmission with RS-232:** Integrated RS232 interface for seamless data output to other digital platforms or devices.
- **Advanced Additional Functions:** Includes counting and percentage weighing functions, with adjustable speed and stability settings.
- **Robust Yet Lightweight Material:** Precision-cast aluminum shell provides durability and portability.

3.2 Components



Figure 1: Front view of the U.S. Solid USS-DBS48 Analytical Balance, showing the display, control panel, and glass draft shield.



Figure 2: Close-up of the control panel with buttons for Power, Set, Tare, Cal, and Unit.



Figure 3: Rear view of the balance, highlighting the RS232 interface and power connection.

4. SETUP

1. **Unpacking:** Carefully remove the balance from its packaging. Retain all packaging materials for future transport or storage.
2. **Placement:** Place the balance on a firm, level, and stable surface, away from direct sunlight, drafts, and vibrations.
3. **Leveling:** Adjust the leveling feet at the bottom of the balance until the bubble in the spirit level (usually located near the display) is centered.



Figure 4: Adjusting the leveling feet to center the bubble for proper balance setup.

4. **Assembly:** Place the weighing pan onto the pan support. Ensure the draft shield is properly assembled and closed.
5. **Power Connection:** Connect the power adapter to the balance and plug it into a suitable power outlet.
6. **Warm-up:** Allow the balance to warm up for at least 30 minutes after power-on or power loss for optimal accuracy.

5. OPERATION

5.1 Basic Weighing

1. Press the **ON** button to turn on the balance.
2. Ensure the display shows "0.0000g" before weighing. If not, press the **TARE** button to zero the balance.
3. Open the glass door, carefully place the sample on the center of the weighing pan, then close the glass door.
4. Wait for the reading to stabilize. The stable reading will be displayed.

Your browser does not support the video tag.

Video 1: Demonstrates basic weighing, tare function, and other settings of the U.S. Solid Analytical Balance. This video also covers display speed, stability, calibration, counting, and percentage weighing.

5.2 Unit Conversion

To change the weighing unit (g, mg, ct, oz), press the **UNIT** button repeatedly until the desired unit is displayed.

5.3 Piece Counting Function

1. Zero the balance.
2. Press the **ON** button several times continuously until "COU" is displayed.
3. Press **O/T** to enter and use **ON** to select the desired quantity (e.g., 5, 10, 20, 50, 100, 200 pieces).
4. Place the corresponding quantity of samples on the pan and press **O/T** to confirm. The balance will now be in counting mode.
5. Place the sample to be counted on the pan and read the value.
6. Press **ON** and **O/T** to return to the weighing page.

5.4 Percentage Weighing Function

1. Zero the balance.
2. Press the **ON** button several times continuously until "PCT" is displayed.
3. Press **O/T** to enter.
4. Place the reference sample on the pan after "PCT 100PCT" is displayed and confirm by pressing **O/T**.
5. Put the sample to be weighed on the pan after "100.00 PCT" is displayed and read the percentage value.

6. CALIBRATION

Regular calibration ensures the accuracy of your analytical balance. The USS-DBS48 supports both internal and external calibration.

6.1 Internal Calibration

1. Ensure the balance is stable and zeroed.
2. Press the **CAL** button. The display will show "CAL-INT".
3. The balance will automatically perform internal calibration. Wait until the process is complete and the balance returns to weighing mode.

6.2 Automatic Internal Calibration Setting

You can set the balance to perform automatic internal calibration at regular intervals.

1. Zero the balance.
2. Press the **ON** button several times continuously until "AUTOCAL" is displayed.
3. Press **O/T** to enter and use **ON** to select the desired time mode for automatic internal calibration (e.g., OFF, 10min, 30min, 60min, 90min).
4. Then press **O/T** to confirm.

6.3 External Calibration

External calibration requires a known calibration weight (e.g., 200g for the 120g model).

1. Zero the balance.
2. Press the **ON** button several times continuously until "E-CAL" is displayed.
3. Press **O/T**. The display will show "CAL-200" (or the appropriate weight for your model).
4. Carefully place the specified calibration weight on the center of the weighing pan.
5. Wait for the balance to stabilize and display "200.0000g" (or the corresponding weight). The external calibration is complete.
6. Remove the calibration weight.

7. DATA EXPORT (RS232)

The balance can export data via its RS232 interface to a computer using the U.S. Solid RS232 Data Logger software.

1. **Connect the Balance:** Connect the balance to your computer using a U.S. Solid USB to Female DB9 Serial Adapter.
2. **Install Software:** Download and install the U.S. Solid RS232 Data Export software (available from the

manufacturer's website or provided link).

- 3. **Set Baud Rate:** On the balance, set the baud rate to 4800. (Press **ON** repeatedly until "bAUd" is displayed, then use **O/T** to select 4800, and **ON** to confirm).
- 4. **Configure Software:** Open the U.S. Solid RS232 Data Logger software. Adjust the software's baud rate to match the balance (4800) and configure other parameters like the COM Port.
- 5. **Select Output Mode:**
 - **Single-Point Output:** To output data each time the **SET** button is pressed, ensure the balance is set to single-point mode. (Press **ON** repeatedly until "Pr-INT" is displayed, then use **O/T** to select "OnE", and **ON** to confirm).
 - **Continuous Output:** To output data continuously, switch the balance to continuous output mode. (Press **ON** repeatedly until "Pr-INT" is displayed, then use **O/T** to select "CO-r", and **ON** to confirm).
- 6. **Start Data Logging:** Click "Connect" in the software. Data will appear in the display panel.
- 7. **Save Data:** Once all required data is collected, click "Disconnect". Select the desired save method (e.g., Overwrite, Append) and file format (e.g., CSV, TXT) at the bottom of the software. Choose a file path and click "Save Data" to complete the export.

Your browser does not support the video tag.

Video 2: Tutorial on how to export data from the U.S. Solid Analytical Balance using the RS232 Data Logger software.

8. MAINTENANCE

- **Cleaning:** Regularly clean the weighing pan and draft shield with a soft, lint-free cloth. For stubborn dirt, use a mild detergent solution and wipe dry immediately. Do not allow liquids to enter the balance housing.
- **Storage:** When not in use for extended periods, disconnect the power, clean the balance, and store it in a dry, dust-free environment.
- **Inspection:** Periodically check the power cord and connections for any signs of damage.
- **Environmental Control:** Maintain a consistent temperature and humidity in the operating environment to ensure long-term accuracy.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
Balance does not turn on.	No power supply or faulty power cord.	Check power connection and outlet. Ensure power cord is not damaged.
Inaccurate readings.	Unstable surface, drafts, temperature changes, or needs calibration.	Ensure stable environment. Close draft shield. Perform internal or external calibration.
Display shows "OVERLOAD".	Weighing pan overloaded.	Remove excess weight. Do not exceed maximum capacity (120g).
RS232 data export not working.	Incorrect baud rate, wrong COM port, or faulty cable/adapter.	Verify baud rate settings on both balance and software. Check COM port selection. Ensure cable and adapter are functioning correctly.

10. SPECIFICATIONS

- **Model:** USS-DBS48
- **Brand:** U.S. Solid
- **Weight Capacity:** 120 Grams
- **Readout Accuracy:** 0.1 mg (0.0001g)
- **Display Type:** LCD
- **Weighing Units:** g, mg, ct, oz
- **Calibration:** Automatic Internal Calibration, External Calibration
- **Interface:** RS232
- **Material:** Precision-cast Aluminum (shell)
- **Functions:** Piece Counting, Percentage Weighing, Adjustable Speed & Stability
- **UPC:** 888107094067

11. WARRANTY AND SUPPORT

For warranty information, technical support, or service inquiries, please contact U.S. Solid customer service or visit their official website. Keep your purchase receipt as proof of purchase for warranty claims.

U.S. Solid Customer Service: [Visit the U.S. Solid Store on Amazon](#)

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