



# SOLID

# Instruction Manual

**USS-DBS series**

**Digital Analytical Balance Scale**



*Thank you for choosing our electronic balance scale.*

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JOYFAY

**USS-DBS15 series precision balances adopt high precision strain gauge load cell and micro processor which implements high speed stabilization and high reliability.**

### **Specifications:**

Model No.	USS-DBS15-1	USS-DBS15-2	USS-DBS15-3
Capacity	20 mg - 100 g	20 mg - 200 g	20 mg - 300g
Tare Range (g)	100	200	300
Readability (g)	0.001	0.001	0.001
Repeatability (g)	+/-0.002	+/-0.002	+/-0.002
Non-Linearity (g)	+/-0.002	+/-0.002	+/-0.002
Corner Error (g)	+/-0.002	+/-0.002	+/-0.002
Accuracy Class	 (Chinese Standard)		
Max. Permissive Error(MPE)	$0 \leq m \leq 50\text{g}, \pm 5\text{ mg}$ $50\text{ g} < m \leq 200\text{ g}, \pm 10\text{mg}$ $m > 200\text{ g}, \pm 15\text{ mg}$		
Pan Size (mm)	Ø 90mm		
Operating Temperature	5 ~ 35 °C		
Moisture	50 - 85%		
Dimensions (L x W x H)	295 x 192 x 280 mm		
Power Supply	AC 110V/220V		

### **Features:**

- High Precision load cell;
- Aluminum Alloy die cast base;
- Stainless Steel Pan;
- Super Bright LCD display with back-light;
- Glass windshield included;
- Height-adjustable feet;
- RS232 Interface supplied as standard;
- Full Capacity subtraction;
- Below Balance hanger supplied as standard;
- Stabilization time 1-1.5 seconds typically;
- Overload Protection;
- Selectable measure units, g, ct,oz, lb, ozt.
- Checking Weighing, Piece counting function;

## Function Keys:

**ON/OFF:** to turn on /off the balance;

**COU:** for counting

**TARE:** to tare

**UNIT:** for unit conversion (g/ct/oz/lb/ozt)

**CAL:** for calibration

**MENU:** for print

## Assembling

- Remove the package;
- Put the pan on the top of the loader;
- Put the balance on a steady flat surface away from vibration, direct sunshine, air blow or strong magnetic disturbance.

## Turn On the Balance

Connect the balance to power supply, keep the switch in ON(-) position.

Press key ON/OFF to turn on the balance, the balance will display following figures in turns:

8.8.8.8.8.8.

Maximum capacity

-----

Finally, the balance will stay in standby state of showing 0.000g in the screen.

**Notice:** the lasting time of ----- will be decided by the stability of the load cell, thus, the balance must not be located in an unstable surface or in the wind blow. When the indicator **O** flashes on the screen, it means the environment is not good for the following operations.

## Calibration

- The purpose for this operation is to calibrate the balance so as to achieve the best performance in case there is obvious tolerance error in weighing or the balance is located in different gravity due to different latitude.
- It is suggested to warm up the balance over half an hour before calibration.
- Remove all loads from the pan, press key TARE to clear the readings to 0.000g.
- Press and hold key CAL for 3 seconds, release the key CAL when “---CAL---” is shown on the screen, a figure of standard weight will flash on the screen, put a standard weight on the pan accordingly, standby state “-----” will be shown on the screen for a few seconds before the standard weight figure is shown on the screen, remove the weight, “-----” standby state will remain for a few seconds before the balance enter stable

weighing mode, showing 0.000g.

- It is recommended to make the operations twice to achieve the best calibration result.
- **Linearity Calibration**, Press and hold key **CAL** for 3 seconds, release the key **CAL** when “---CAL---” is shown on the screen, after a short presence of “- - - -”, a standard weight figure will flash on the screen, press and hold key **COU** to enter linearity calibration mode, follow the instructions to proceed linearity calibration.

## Weighing

When the balance is warmed up and calibrated, 0.000g is shown on the screen, indicating weighing mode, put the object on the pan, when stable, the weight of the object is shown on the screen.

Note, symbol **O** is stable indicator, when it stops flashing, the balance is stable.

## Taring

When a loader is put over the pan, its weight is shown on the screen. Press key **TARE**, 0.000g will be shown on the screen, indicating the weight of the loader is deducted. Put the object into the loader, when stable, the figure shown on the screen is the weight of the object.

## Piece Counting

Remove all loads from the pan, press key **TARE** to clear the readings on the screen, press key **COU** to enter counting mode, “- -COU- -” “- - - -” and figure 10(default sampling quantity) will be shown in turns on the screen. Keep pressing key **COU** to select sampling quantity from 10,25,50,100 up to 500, release key **COU** when the desired quantity flashes on the screen. Put a sample on the pan accordingly, press key **COU** again to save setting, the counting mode setting is finished, in counting mode, weighing unit will change from g to PCS.

**Notice:** In counting mode, the weight of the sampling objects should be even, the weight of the individual sample should not be less than the division of the balance.

**Return to Weighing Mode:** Press key **COU** to return to Weighing mode.

## Weighing Unit Conversion

Press key **UNIT** to select desired weighing unit from g, ct, oz,lb,ozt

The default weighing unit of the balance is g.

## Data Output

Press key "MENU" to transfer data to computer, printer or custom display

## Overload

The weight of the objective cannot exceed the rated maximum capacity of the balance, when exceeding, "-----" will be shown on the screen, remove the objective immediately from the pan so as to prevent damages to the balance.

## Interface

### RS232 Connection

Balance (9 pins)		Printer/ PC (9 pins)
RXD(Input)	2-----	3
TXD (Output)	3-----	2
GND (Ground)	5-----	5

## Baud Rate

Default Baud rate, 2400BPS, options 1200, 2400, 4800, 9600, 19200, 115200

Baud rate setting,

Press and hold key **MENU** to show C3-02, indicating baud rate 2400 BPS, keep When C3-01 shows, indicating 1200BPS

When C3-03 shows, indicating 4800BPS

When C3-04 shows, indicating 9600BPS

When C3-05 shows, indicating 19200BPS

When C3-06 shows, indicating 115200BPS

Release key **MENU** when the desired baud rate shows, press key **CAL** thrice to confirm set.

Data format, 10 bits, 0 as start bit, 1 as stop bit, 8 digits (ASCII code)

Rity bit, No.


## Output Data Format

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Type	Space	Space or *	+ /-	data	data	data	data or dot	data or dot	data	data	data	unit	unit	End	Return

## Tips

- Warming up is necessary before any operation is made to the balance.
- In TARE mode, the value of the taring object cannot exceed the rated maximum capacity of the balance
- Calibration is necessary to ensure a reliable weighing.
- Switch off the balance when it is not used.
- It is suggested to turn the round pan clockwise before take it off the balance.

## Maintenance ----- Trouble shooting and solutions

Phenomenon	Possible Reason	Solution
Upper Line - - - -	Over Load	Re-calibrate the Balance
Under Line _ _ _ _	Overload or load cell broken	Re-calibrate the Balance
Err-1	Too frequently turn on and off the balance	Turn off the balance, resume it after 3 seconds
Err-2	The balance is not stabilised	Wait for a few seconds for stabilization
	Low Battery	Charge or Replace Battery



### Contact

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