ANYLOAD®

ES-HA Series
Precision Balance
Product Manual (V1611)

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1.   Introduction

Thank you for choosing the ES-HA Series Precision Balance Scale. The ES-HA series precision balances do weighing and measuring with high precision load cell, microcomputer and big liquid crystal display screen. It has the advantage of simple operation, speedy weighing, accuracy, stability, and so on. It is widely used in factories, mines, institutions, agricultures, traffic, building, water conservancy, medicine, food, and so on. It's more applicable in business for weighing precious products.

This manual provides the user's guide in using the product, safety, operation and technical information. You can also secure a copy of this manual at our website at www.anyload.com.

2.   Safety Recommendations

When using this weighing equipment the following recommendations shall be observed for safety:

> The weighing machine may only be used with the power adapter supplied exclusively for use with the weighing machine.

> Before inserting the power adapter, the user must ensure that the operating voltage stated on the power adapter agrees with the mains voltage.

> If not, please contact Customer Service at the address above.

> If the power adapter or its cable is damaged, the weighing machine must immediately be disconnected from the electricity supply (pull out the power adapter).

> The weighing machine may only be operated from mains electricity supply with a power adapter which is in perfect condition.

> If there should be any reason to believe that it is no longer possible to operate the weighing machine without danger, the weighing machine is to be immediately unplugged from the electricity supply (pull out power adapter) and secured against inadvertent operation.

> The weighing machine must not be operated in an area subject to explosion risks.

Care must be taken when weighing liquids to ensure that no liquid is spilt into the inside of the weighing machine or into connections on the rear of the equipment or the power adapter. If liquid is spilt on the weighing machine, it must immediately be unplugged from the mains electricity supply (pull out power adapter). The weighing machine may only be operated again after it has first been re-checked by a service technician.

These instructions must be read by each operator of the equipment and must be available at the workplace at all times.

3.   Construction and installation

(7) (6) (5)   (4)   (3)   (2)   (1)
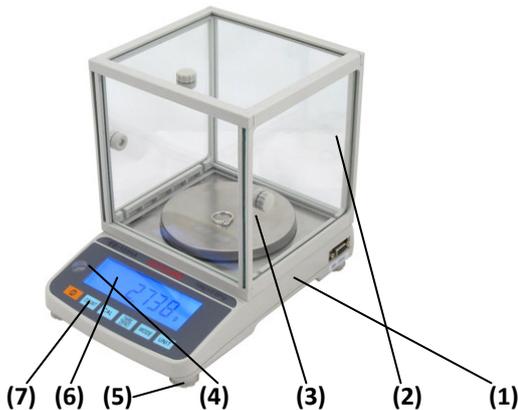
(1)Body   (2)Wind Cover   (3)Weighing Platform

(4)Level   (5)Adjust Foot   (6)Display Window

(7)Push Button

4.   Packing List

(1) Electronic balance 1 pc.
(2) AC adapter 1 pc.
(3) Operation Instruction 1 copy
(4) Balance (Its division is 0.01g or higher) with one weight and a wind cover.

5. Operation

5.1 Turn on

Put the round plug of AC adapter into the square hole at the back of the balance, then put AC adapter into an alternating outlet with two holes. Or install **6** alkaline batteries **AA SIZE** in the battery holder at the bottom of the balance (pay attention to the Plus(+) and minus(-) ends).

With no load on the platform, press $\boxed{\textcircled{\,\phi\,}}$. All the segments of the display will be shown, then the software version is displayed. When "**0**" is displayed, weighing can be done.

5.2 Turn off

To turn off the balance, press $\boxed{\textcircled{\,\phi\,}}$. while the balance is at work.

5.3 Weighing method

Press $\boxed{\text{TARE}}$ to set the display to zero. Put the object to be weighted on the platform. Wait until the unit "g" appears and the reading is stable, then the weight can be read

5.4 Balance calibration

When precision weighing is done, calibrate the balance as follows:
First take away the object from the platform, then press $\boxed{\text{TARE}}$ to set the display to zero.
Press $\boxed{\text{CAL}}$ displaying "**SCALE**" or "**LINE**". "**SCALE**" means calibrating the balance sensitivity; "**LINE**" means calibrating the balance linear.
Press $\boxed{\text{TARE}}$ to make sure (If press $\boxed{\text{MODE}}$; the two kinds of calibration can be interchangeable.)

5.4.1 Sensitivity calibration

When calibrating the balance sensitivity, two different weight values can be used. According to the shown calibrating weight value, press $\boxed{\text{MODE}}$, , the two calibrating weight values can be interchangeable, press $\boxed{\text{TARE}}$ to make sure. After that, the balance will display "**0**". In a few seconds, the balance will display the calibrating weight value. At this time, put the corresponding calibrating weight on the center of the platform according to the shown weight value.

In a few seconds, the display will stop, and meanwhile the calibrating weight value will be shown, indicating that calibration is over. Normal weighing can be done

5.4.2 Linear calibration

Being in the state of "**LINE**", press $\boxed{\textbf{TARE}}$, the balance will display "**0**". In a few seconds, the balance will display **1/2** weight value of full capacity; according to the shown weight value, put the corresponding calibrating weight on the center of the platform.

In a few seconds, the balance will display the full capacity weight value, according to the shown weight value, put the corresponding calibrating weight on the center of the platform. In a few seconds, the display will stop, and meanwhile the calibrating weight value will be shown, indicating that calibration is over. Normal weighing can be done

NOTE: The balance linear has been calibrated in the factory, unless the users need to change the load cell or have the right weight.

Mode	ES-103HA	ES-203HA	ES-300HA	ES-500HA	ES-600HA	ES-1000HA	ES-1200HA
Cal. Weight	50g/100g	100/200g	100/300g	200/500g	200/600g	500/1000g	500/1200g

5.5 Counting Function

The balance will count parts based on the weight of a reference sample: **5, 10, 20, 30, 40,** or **50** parts. To get more accurate counting result, the weight of the parts should be equal, meaning the less the error of the single part is , the better.

(1) Press $\boxed{\textbf{COUNT}}$, the balance will display "**pc CON**".
(2) Place a container on the platform, then press $\boxed{\textbf{TARE}}$ the balance displays "**pc ADD 5**" which is the preset reference quantity. "**5**" shows the quantity of the reference sample.
(3) To change the reference quantity, press $\boxed{\textbf{MODE}}$ repeatedly until the desired quantity is displayed. Press $\boxed{\textbf{TARE}}$ to make sure the quantity of the reference sample.

NOTE: If you want to restart parts counting, repeat the operation steps above. If "**PC Err"** is displayed, it means the sample is too light to provide accurate results within the error range set by the balance.

(4) Add parts to the container as desired and read the quantity on the display. At this time, only "**pc**" counting signal is displayed ("**g**" is not displayed.).
(5) Press UNIT to switch between parts counting and weight

5.6 Unit Selection

This balance has the function to select these units: **g, oz, ozt, dwt, lb, ct**.
Press UNIT to switch.

5.7 Percentage Setting Function

Put the object on the platform, when the reading is stable, press and hold TARE until the symbol **%** is displaying, then release it, indicating that setting is over.

5.8 Backlight Function

Press MODE to turn the backlight on or off.

5.9 RS232C Communication
5.9.1 Baud rate = 9600
9.9.2 Data form output by ES series electronic balances
+ (-) XXX. XX UNIT< CR>

All the segments above belong to **ASCII**. Of these, the unit can be set by ES-HA series electronic balances.

5.9.3 Wiring method

```
Computer                          Balance
1 Empty                           1
2 RXD                             2   RXD
3 TXD                             3   TXD
4                                 4
5 Ground                          5 Ground
6                                 6
7                                 7
8                                 8
9 Empty                           9
```
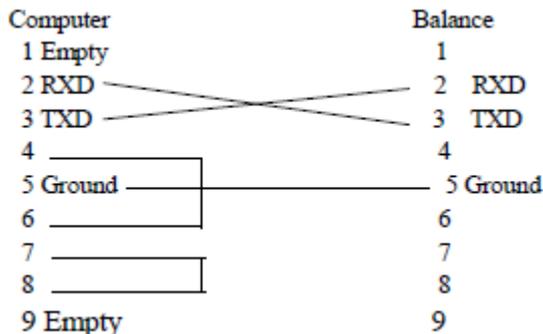
5.9.4 Demonstrating communication software

(1)The super end under WIN9X/NT/2000/XP
(2)The debugging assistant on gjwtech.com
(3)Self-arranging communication software

5.9.5 Order Input

Order Button	Function	ASCII
O	Off	4FH
M	Count	4DH
C	Cal	43H
T	Tare	54H
F	Mode	46H
U	Unit	55H
P	Percent	50H

6.   Care and Maintenance

To keep the balance operating properly, the housing and platform should be kept clean and free from foreign material. If necessary, a cloth dampened with a mild detergent may be used. Keep calibration masses in a safe dry place. Unplug the AC Adapter when not in use. For long term storage, remove the batteries.

7.   Error Codes

The following list describes the various errors which may appear on the display and the suggested remedy:

Err 0 With the platform on, this signal indicates the platform is too light. Make it heavier properly. If this error still occurs, the sensor or the circuit board may be destroyed. The balance must be sent to the manufacturer to be serviced.

Err 1 The sample being weighed exceeds the capacity of the balance. If the error occurs when the sample is within the balance capacity, maybe the balance is not correctly calibrated.

8.   Troubleshooting

SYMPTOM	PROBABLE CAUSE	REMEDY
No Display	Power Adapter not connected. Batteries are dead.	Connect power Adapter. Replace batteries
Low Battery Indicator	Batteries are weak	Replace batteries
Incorrect Weight Reading	Balance was not set to zero. Balance has not been correctly calibrated.	With no load on the platform, press "**TARE**". Then weighing can be done. Recalibrate the balance.
Calibration Procedure does not work	Incorrect weights being used	Use correct weights

9.   Guaranty

This product is guaranteed from the date of manufacture on for one year. The guaranty includes check, maintenance and parts replacing for free charge. The following circumstances are excluded from the guaranty:

Because of incorrect use, it is eroded by radioactive or corrosive materials so that the different materials permeate the scale.

The sensor is damaged because of man-made factors or the scale is damaged by non-manufacturers during its checking or repairing

10.   Specifications

MODEL	ES-103HA	ES-203HA	ES-300HA	ES-500HA	ES-600HA	ES-1000HA	ES-1200HA
Weighing capacity and readability (g)	100×0.001	200×0.001	300×0.01	500×0.01	600×0.01	1000×0.01	1200×0.01
Standard deviation (e)	1	1	1	1	1	1	1
Linearity (e)	1	1	1	1	1	1	1
Corner deviation (e)	1	1	1	1	1	1	1
Taring range	0-100g	0-200g	0-300g	0-500g	0-600g	0-1000g	0-1200g
Overload capacity	Maximum capacity+9e						
Time of stabilizing (s)	3						
Applicable temperature rang	10-35 C						
Power source	AC adapter(supplied with balance); or 6 AA Batteries (not included)						
Pan size (mm)	φ120						
Housing dimension (mm)	251 (L) ×172 (W) × 58 (H)						
Net weight	1.05kg						