User manual

CONTENT

Overview

This manual is used for FA-E series multifunctional analytical balance.

FA-E series multifunctional electronic balance is a new generation product newly developed. Using high-precision electromagnetic force balance sensor. It makes the measurement results more accurate, faster response, and fewer failures. FA-E series multifunctional electronic balances have:

>Fast weighing. The speed can be adjusted
>Easy to operate
>Full range tare,clear, accumulate, overload, underload display, fault alarm
  within the full range;
>Counting function
>Optional configuration and function expansion

Model	FA1004(N)	FA1104(N)	FA1204(N)	FA2004(N)	FA2104(N)	FA2204(N)
Max.CAP	100g	110g	120g	200g	210g	220g
Accuracy	Ⓘ					
Readability	0.0001g (0.1mg)					
Repeat ability	±0.0002g					
Liner	±0.0003g					
Stable time	≤3s					
Operation temp	5℃～35℃					
Pan size	Φ80mm					
Dimensions	300X200X295mm					
Power Supply	Adapter					
Cal	External（Internal optional）					
G.W	8.0kg					
N.W	6.0kg					
Package Size	425x320x415mm					
Interface	RS232（USB made custom）					

I.INSTALLATION

1.1 Unboxing

Please carefully open the packing box, gently take out the balance and the contents in the box, and save the packing materials for reuse.

(1) BALANCE   (2) PAN   (3)ADAPTER
(4) MANUAL   (5) WEIGHT
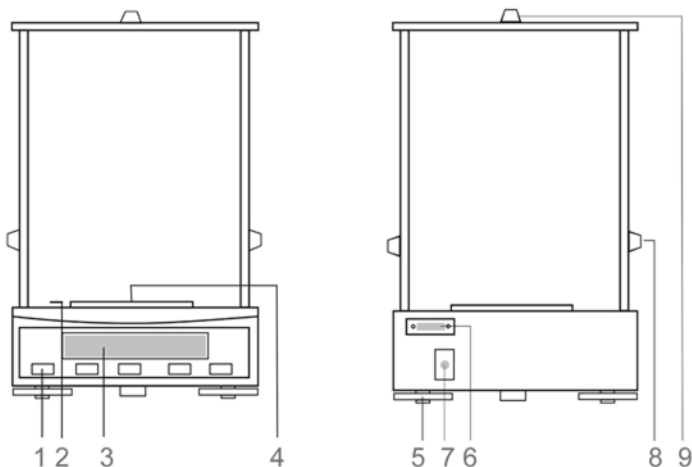
① Keyboard   ②Bubble   ③Data display window   ④Pan   ⑤Adjustable feet
⑥RS232 ⑦Power outlet   ⑧Side sliding door   ⑨Top sliding door

1.2 Choice of working environment

If conditions do not permit, the working environment should be selected according to the following requirements:

(1) The studio should be kept clean and dry;
(2) The balance should be placed on a stable and fixed workbench (it is recommended to be placed on a marble platform);
(3) The workbench should be far away from doors and windows, so as to reduce the influence of airflow caused by opening windows and doors;
(4) The workbench should be set up where there is little vibration interference.
     The surroundings of the room are less affected by vibration, and the ideal position of the workbench should be placed;
(5) The balance should be placed in a place that is easy to cause temperature changes,

such as avoiding direct sunlight and away from heaters;
(6) Please avoid connecting with large machines or devices with interference, and avoid the interference of other devices;
(7) The dry environment is prone to static electricity, so corresponding measures can be taken to avoid the influence of static electricity on weighing.
(8) Keep the balance away from objects and equipment with magnets or capable of generating magnetic fields;
(9) The balance shall not be used in areas with explosive danger;
(10) Do not use the balance for a long time in a high humidity or high dust environment;
(11) When the balance is transferred from a colder environment to another warmer environment, the moisture in the air will be on the balance.

The internal condensation of the weighing system affects the accuracy and reliability of weighing. In order to eliminate the influence of moisture condensation, the balance can be left unplugged at room temperature for 2 hours before use.

1.3 Installation

Put the weighing pan on first, then plug the power adapter plug into the balance, then plug the power supply (input voltage 220V) and wait for it to turn on. Please place the weighing pan correctly, otherwise a prompt will appear that the weighing cannot be performed.

1.4 Buttons and display

The display and keyboard are like icons.
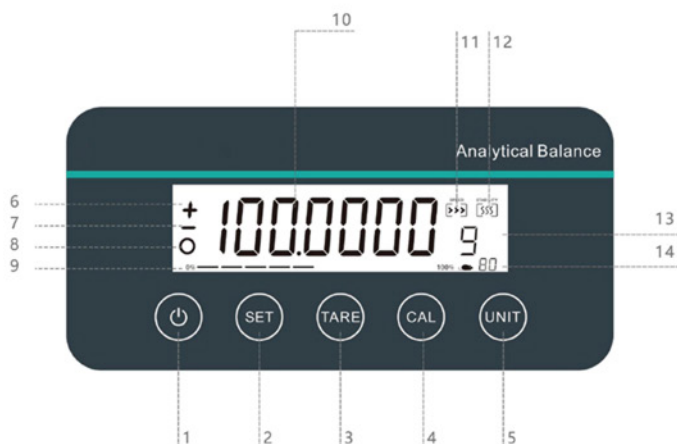
(1)POWER   (2) SET   (3)TARE(→0/T←),CONFRIM   (4)CAL   (5)UNIT
(6)+   (7)-   (8) Stability indicator (9)Range progress bar
(10) Weighing (11)SPEED (12)STABILITY (13)UNIT (14) Animal weighing

II.OPERATION

Before using the balance, the balance should be placed horizontally. Use the adjustment foot screw at the bottom of the balance to adjust the level, so that the bubble in the leveler is adjusted to the center of the circle, and then quickly press the POWER button to turn on the display. To ensure accurate weighing of the balance, please ensure that the balance is fully warmed up (the recommended warm-up time is one hour).

2.1 Calibration

2.1.01 Cal Weight(0IMLF2)

MODEL	CAL.WEIGHT
FA1004E（N）	100g
FA1104E（N）	100g
FA1204E（N）	100g
FA2004E（N）	200g
FA2104E（N）	200g
FA2204E（N）	200g

2.1.02 Cal.step

The balance need calibration when it not accurate, the step as:
• Keep the balance in the stable environment and stable table,Warm up the balance more than 1hours.
• Press"CAL" key, and it will going internal calibration, when it show 200.0000g, the calibration finish.

Note: If you need to calibrate by mass weight, Pls press SET to enter menu,then press

SET until it shows CAL

2.1.03 Cal.time setting

1.Press SET to enter menu,then press SET until it shows"AUTO CAL"；

2.Press TARE to set calibration time，it shows" 10min,20min,30miin,40min,50min,60min, 70min,80min,90min,off",press UNIT to choose what you need,press TARE to confirm which one you need.
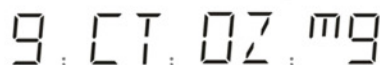
2.1 Calibration

2.2.01 Unit conversion
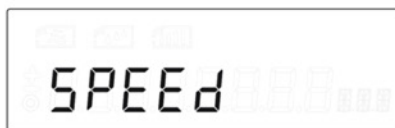
1.Press SET to choose

UN IE

2.Press"O/T"to enter:

UN IE   9

3.Press"UNIT"choose what you need，press"O/T"confirm the unit.

9，CT，OZ，mg

2.2.02 Speed Setting
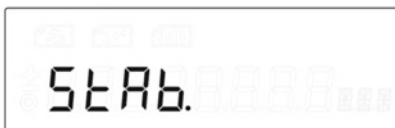
1.Press SET until it shows "SPEED"

SPEEd

2.Press UNIT , [>>>] highest speed, decreasing in order, [ ] lowest speed，press

TARE to confirm.

2.2.03 Sensitivity Setting

1.Press SET until it shows" STAB"，press TARE enter STAB setting

StAb.

2.Press UNIT to choose sensitivity，[ ] Poorest Sensitivity，[SSS] High Sensitivity，

press TARE to confirm.

2.2.04 Counting

There are counting functions in the balance, and you can use this for count the quantity.
And please keep the products have the same weight, and the minimum weight must be ≥0.5mg.

The details operation as blow：

1.Press (SET) to enter menu， then press (SET) unit it shows"COU"；

```
COU
```

2.Press (TARE) to enter,it shows" COU 5pcs"；

```
COU        5PCS
```

3.Press (UNIT) to choose sample quantity， put matched quantity， press (TARE) ,it shows：

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COU    - - -PCS
```

4.When "COU' disappearing， showing digital,then you can operate

```
              5PCS
```

5.After testing,press (SET) to choose"weight， press (TARE) back to weighing.

```
YEIGHE  PCS
```

2.2.05 Factory settings

1.Press (SET) until it shows "DEFUALT"

dEFAULE

2.Press (TARE) to confirm.

2.2.06 Percentage function

1.Press (SET) enter menu，then press (SET) until it shows"PCT"；

PCt

2.Press (TARE) enter percentage function，it shows" PCT 100"；

PCt 100PCT
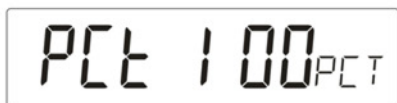
3.Put 100% sample，press (TARE) enter percentage weighing.

2.2.07 Peak hold

The steps are as below:

1.Press (SET) enter menu，then press (SET) until it shows"PEAK"；

PEAH

2.Press (TARE) enter peak hold function，it shows" ON/OFF",press (UNIT) to choose，

press (TARE) to confirm ON/OFF；

ON OFF

3.2.08 Baud rate choosing

The steps are as below:

1.Press (SET) to enter menu,then press (SET) until it shows"BAUD";

```
bAUd
```

2.Press (TARE) to enter baud rate choosing，it shows" 1200",press (UNIT) to choose what you

need,press (TARE) to confirm ON/OFF.

3.2.09 Data tansmission method
The steps are as below

1.Press (SET) to enter menu,then press (SET) until it shows"SEND";

```
SENd
```

2.Press (TARE) to enter function，it shows"CON",press (UNIT) to choose,press (TARE) to confirm

```
SENd
```
:Press button to send weighing data

```
CON
```
:Continuous output of weighing data

```
CON_StA
```
:Continuously output stable data.

III.DATA OUTPUT

1	Model or a decimal point
2	A space or a decimal point
3	A space or *
4	+ or - or a decimal point
5	data
6	Data or a decimal point
7	Data or a decimal point
8	Data or a decimal point
9	Data or a decimal point
10	Data or a decimal point
11	Data or a decimal point
12	Data
13	Unit 1
14	Unit 2
15	Unit 3
16	Enter
17	Wrap

IV.FAULT JUDGMENT

FAULT	REASON	EXCLUDE
No display	Not connected to the power supply; Fuse is broken; Power transformer damage	Plug in the power line; Replace the fuse; Replacement of power transformer; Contact factory
Weighing unstable	1. Bad working environment; 2. The windproof door is not closed properly; 3. There are foreign objects or scratches between the weighing pan and the work surface; 4. The power supply is unstable and exceeds the allowable value; 5. The weighing object is unstable; (Such as absorbing moisture or evaporating) Plastic particles or powders are electrostatically charged 6. Static electricity generated by dry weather	Improve the working environment and avoid the interference of vibration and airflow; Close the windproof door; Take out the foreign body, turn the weighing pan to prevent scratching; External access 9V DC power adapter; Operate with static eliminator or wristband with static electricity
The displayed value does not match the actual weight	The balance is not calibrated; Not cleared before weighing; Did not adjust the level;	Calibrate the balance; Press →0← to clear; Use level feet to adjust the level.
Err.	CAL ERROR	Refer to the manual to re-operate
Err.1	COUNTING ERROR	
Err.2	PUT PAN WRONGLY	
Err.3	OVERLOAD	

V.MAINTENANCE

The FA-EN series multifunctional electronic balance is a precision mechatronics intelligent measuring instrument, so it must be treated as seriously and carefully maintained as other precision instruments.

1. Do not use sharp objects (such as pencils, ball-point pens) to press keys, only use your fingers to press keys;
2. Be careful not to let objects fall from a high place on the weighing pan, so as not to damage the weighing mechanism;
3. Do not expose the balance to high humidity or dusty environment for a long time;
4. After the balance is used up, it is best to cover it with a cover to prevent dust intrusion;
5. When weighing powder and fine particles, please use it with the container to avoid dust and particles falling into the load cell under the weighing pan;
6. Please wear gloves when calibrating with weights, and do not take the weights directly with your hands;
7. Keep the balance clean and dry.

Matters needing attention when cleaning:
Before cleaning, unplug the power supply;
Do not use corrosive cleaning agents (such as solvents). Use a lint-free soft cloth dipped in water and then some neutral detergent (soap) for cleaning.
When cleaning, be careful not to let water drop into the balance;
After cleaning, wipe the balance carefully with a soft, dry, lint-free cloth.

Packing List

> Balance > Weighing pan > weight > Power adapter > Instruction manual

Product Oualification Certificate

Product name: **0.01mg Dual Range Analytical Balance**

Product model: ☐ FA1004   ☐ FA1204   ☐ FA2004   ☐ FA2204

☐ FA1204N   ☐ FA2204N

Production date :

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