QL-J Analytical Balance Manual

CONTENT

I、Notes

1、Please preheat the balance for 30 minutes in order to ensure the weighing is more accurate.

2、The normal work of the balance should be well-adapted to the environment, it should be put on the stable horizontal table. Don't put the balance in the unstable desk; do not put it at the place with a lot of dust in the air; do not put it in the vicinity of air-conditioning or blowing in the wind; do not put it in place of direct exposure under the sun; do not put it in place of heat flow; and do not put it in to generate and electric or magnetic field.

3、Please handle the heavy sample lightly while weighing, do not impact the weighing pan. If impacts it seriously, may lead to machenical system of the balance can not reset.

4、Please be careful while weighing liquid, avoid any liquid to inflow the internal balance from the bottom of weighing pan. If a similar situation occurs, should unplug the power supply immediately, clean internal liquid, or wait for the liquid to evaporate, ensure no residual liquid, then continue to use the balance.

5、After using the balance, please close the glass door to prevent dust from entering.

6、Keep the balance clean and dry.

II、QL-J series balance features

✧ LCD liquid crystal display screen, more clear and bright, convenient for customers to read weighing value.

✧ All transparent glass windshield, samples can be seen entirely and clearly.

✧ Standard RS232 communication port——realize the communication with computer, printer or other device.

✧ Multiple weighing units change.

III、Balance Appearance Photo

IV、Technical Parameter

Test conditions: Room temperature 20℃, no air flow and no dust closed environment.

Max capacity	120g	220g	120g	220g
Calibration Mode	External weight calibration		Internal automatic calibration	
Readability	0.1mg			
Repeatability	±0.2mg			
Linearity error	±0.2mg			
Operational temperature range	13~25°C			
Operational moisture range	10%~70% RH			
Response time（Average value）	2.5s			
Pan diameter	90mm			
External dimension	230*310*330mm			
Preheat time	20-30 minutes			
Baud rate options	300 600 1200 2400 4800 9600			

V、Screen Display Information

No.	Display information	Notes
1	g	Reading unit is "gram"
2	Ct	Reading unit is "carat"
3	Lb	Reading unit is "pound"
4	Oz	Reading unit is "ounce"
5	PCS	Count weighing state
6	%	Percentage weighing state
7	O	Data stable identification
8	CAL IN	Enter into calibration
9	CAL DN	Load calibration weight 100g
10	CAL---	Calibrating...
11	CAL-UP	Remove calibration weight
12	CAL-END	Calibration finish
13	E	Overload max.capacity
14	-E	No weighing pan or incorrect weighing pan
15	----------	"SET"key effective hint
16	·	Data processing
17	SAVE---	Save
18	S---END	Save finish

VI、Installation

1、Push open the glass door and remove the stop cover by rotating it counterclockwise.

2、Installation of the scale pan assembly: correctly install the windproof ring, scale pan support and scale pan on the scale pan mounting support.

3、Adjust the level: adjust the two adjustable feet at the front lower part of the balance so that the level bubble on the balance is located in the center of the level.

4. Power on: insert one end of the power adapter into a 110-220V/50Hz AC socket, and insert the other end of the adapter into the power jack at the rear of the balance.

5、Turn on: After the balance is powered on, the screen will display the model of the balance in a flowing manner. After 3 seconds, the balance screen will be black and the shutdown status will be displayed. Press the power key and the balance will display "0.0000g".

VII、Function Settings

1、Back-light switch

In the state of power-on, press SET key twice to open back-light. If the currect state is open, that is to close back-light.

2、Parameter setting:

In the state of power-on, press SET key and then press PRINT key to display Cx-y, x is number 1-8, press TARE key to check circularly; y is the value set by Cx parameter, press PRINT key to change x. After setting, press OFF key, balance will display "SAVE……" , press TARE key and "S-END" displays, wait for about 2 seconds, save finishes and updates data and back to weighing state. The newly set parameters will take effect after restarting the balance.

Please refer to below list as details:

Cx	Cx-y	Description
C1: Calibration Mode	C1-0	Auto-calibration (just for internal calibration balance)
	C1-1	External weight calibration
	C1-2	Manual adjustment
C2: Selection of basic sample data in counting mode	C2-0	Quantity 10 as the base sample quantity
	C2-1	Quantity 20 as the base sample quantity
	C2-2	Quantity 50 as the base sample quantity
	C2-3	Quantity 100 as the base sample quantity
	C2-4	Quantity 1000 as the base sample quantity
C3: Zero tracking	C3-0	No zero tracking
	C3-1	1d
	C3-2	2d
	C3-3	3d

	C3-4	4d
	C3-5	5d
	C3-6	Can not be oeprated by user
C4: Serial port baud rate option	C4-0	1200bps
	C4-1	2400bps
	C4-2	4800bps
	C4-3	9600bps
C5: Data output way option	C5-0	Stable output
	C5-1	Command output
	C5-2	Continuously output
	C5-3	Press PRINT key output
C6: Key sound	C6-0	Yes
	C6-1	No
C7: Adjust time	C7-0	2 hour
	C7-1	3 hour
	C7-2	4 hour
	C7-3	6 hour
	C7-4	8 hour
C8:Anti-interference degree	C8-0	Low
	C8-1	Midium
	C8-2	High
	C8-3	unavailable

➢ Stable output: After the data stabilizes again, a set of currently stable data will be output.
➢ Command output: The P<CR<LF> command transmitted to the balance through the serial port by the [PRINT] on the balance will be regarded as a print control command. After the balance receives a command, a set of current weight data will be output.
➢ Continuous output: The balance sends weight data to the external device every 0.3s.

3、Command Control
Effective commands are as follows:
①O<CR><LF> ON/OFF command: same function with ON/OFF key on the balance (4F 0D 0A);
②T<CR><LF> TARE command: same function with TARE key on the balance (54D 0D 0A);
③C<CR><LF> mode conversion command: same function with CAL key on the balance (43 0D 0A);
④M<CR><LF> mode conversion command: same function with MODE key on the balance (4D 0D 0A);
⑤P<CR><LF> print command: same function with PRINT key on the balance. A group of current weight data will be output to external device as soon as the balance receives this command (50D 0D 0A);

　　<CR><LF> descriptions are as follows:
　　　　<CR>: Return symbol（0D）

<LF>: Enter symbol（0A）

VIII、Usage

1、Ordinary Weighing
（1）After plugging, in order to achive best weighing effect, balance should be preheated at least 30 minutes.
（2）Keep weighing pan clean, press ON/OFF key and "0.0000g" displays.
（3）If other weighing units or weighing modes are needed, press MODE key to adjust the displayed data to other units or weighing mode data.
（4）Open the door of weighing chamber, put sample onto the middle of weighing pan gently, then close the door and wait for reading data after stable.
（5）Open the door of weighing chamber to remove sample for the next weighing; if do not weigh, please close the door to avoid dust into the balance.

2、Container Weighing
（1）Put the container on the weighing pan;
（2）Press TARE key after "O" (stable mark) displays, "0.0000g" is displayed;
（3）Put sample into the container;
（4）Read the value of sample after "O" (stable mark) displays;

3、Count Weighing
（1）Choose sample's quantity according to system parameter list;
（2）Press TARE key and "0.0000g" displays after stable;
（3）Press MODE key to "Count Mode" state;
（4）Put sample in the middle of weighing pand and close the door of weighing chamber;
（5）Press SET key and balance system will take sample according to C2 parameter;
（6）After sampling, balance will display the sample's quantity according to C2 parameter. Remove the sample and wait for balance to stable zero, user can operate count weighing.

Attention: The minimum readable value of sample quantity could not be less than the minimum resolution of balance.

4、Percentage Weighing
（1）Press TARE key and "0.0000g" displays after stable;
（2）Press MODE key to "Percentage Mode" state;
（3）Put sample in the middle of weighing pand and close the door of weighing chamber;
（4）Press SET key and balance system will take this reference as 100.00% basic value;
（5）After simpling successfully, "100%" displays. Remove sample and after balance returns back to stable zero, user can operate percentage weighing.

Attention: The minimum readable value of sample quantity could not be less than the minimum resolution of balance.

IX、Calibration

1、External weight calibration:
(1) Press the TARE key and the balance displays 0.0000g
(2) Press the CAL key and the balance displays "CAL 100". (Press the TARE key to select "CAL 200" for 200g calibration.) Press the CAl key again, and then "CAL IN" and "CAL..." are displayed. After a few seconds, the balance displays "CAL dn"
(3) Place the F1-level 100g weight in the center of the weighing pan and close the weighing chamber door when completed.
(4) The balance displays "CAL---". The balance displays "CAL UP" and removes the weight.
(5) Close the door and wait for "CAL-END" to be displayed. The calibration is completed.
(6) If the displayed weight value deviates from the weight by more than ±1, recalibration is required until the calibration result and the weight deviation are within ±1. The calibration operation is successfully completed.

2、Internal weight calibration (only for internal calibration type balance)

Instructions:
A. The balance will automatically perform a calibration after it is turned on.
B. After the temperature changes by 1.5℃, the balance will automatically perform an internal weight calibration.
C. Every 2 hours, the balance will automatically perform an internal weight calibration.
Note: During the balance calibration process, any operation on the balance is prohibited.

Steps:
A. Make sure the balance is set to internal calibration mode (C1-0);
B. Press the CAL key and the balance will automatically calibrate.

Note: Before calibrating the balance, please adjust the level to keep the balance level.

X、RS232 Communication

1、Serial port working mode: asynchronous communication
   Baud rate: see system parameter table C4 parameter.
   Start bit: 1
   Data bit: 8
   Check bit: None
   Stop bit: 1

2、Weight data transmission method: See system parameter table C5 parameter.

3、Weight data transmission format: FXXXX.XXXXKKK<CR><LF> represents the following meanings:
   F: "+" or "-" sign;
   X: weight data from 0 to 9;
   .: decimal point;
   K: reserved three-digit weighing unit symbol, right-aligned, less than three digits need to be

supplemented with spaces;

  <CR>: carriage return;

  <LF>: line feed;

  If the value of the data is +10.0000g, the data format through the serial port is: +0010.0000g<CR>LF>

4、Method for judging stable and unstable data output:

  When unstable weight data is output, there is no unit indicator in the data string, and the three bits KKK are all spaces; when stable data is output, unit information will be output.

5、External serial port data line connection method:

Electronic Balance		Computer	Electronic Balance		Serial port Printer
9 needles	------	9 holes	9 needles	-------	25 needles
2	------	2	2	-------	2
3	------	3	3	-------	3
5	------	5	5	-------	7

Note: The length of the data cable should not exceed 15 meters.

XI、Precautions for cleaning

➢ Before cleaning, unplug the power cord;

➢ Do not use corrosive cleaning agents, it is recommended to use alcohol or mild solvents;

➢ When cleaning, be careful not to let water or other liquids splash into the balance;

➢ After cleaning, wipe the balance dry with a dry, lint-free soft cloth.

XII、Troubleshooting

Failure phenomenons	Failure reasons	Solutions
Can't power on	•Not cpower supply •AC/DC damaged	•Plug power cord •Change power adapter
Displayed value is unstable	• Poor working environment; • The weighing room door is not closed tightly; • There are foreign objects or scratches between the scale pan and the balance housing; • The power supply is unstable and exceeds the allowable value; • The weighing object itself is unstable (such as absorbing moisture or	• Improve the working environment to avoid vibration and air flow interference; • Close the weighing room door • Remove foreign objects and turn the scale plate to prevent scratches • Connect to 220V AC power stabilizer

	evaporation)	
Displayed value is out of accord with actual weight value	• The balance was not calibrated • It was not zeroed before weighing • It was not leveled	• Calibrate the balance • Press the TARE key to reset • Adjust the leveling feet

XIII、Maintanence

We will guarantee the balance within one year from the date of sale except the following status:

1.The guarantee period is expired;

2.The balance is damaged due to user's own negligance.

3.The balance is damaged due to the exposure to the environment which has radioactive or corrosive material.

XIV、Packing List

No.	Description	Quantity
1	Balance	1
2	Weighing pan	1
3	Weighing pan support	1
4	English user manual	1
5	Standard weight (F1 grade) 100g	1
6	Power cord	1
7	Certificate	1