1. Overview

Manufactured and well-designed by G&G Measurement plant, adopting industrial-class high precision sensors, measurement circuit, a G&G dedicated single-chip computer system, and high-quality electronic balance has been wildly used in a variety of purposes of weighing measurement, detection tests, to improve product quality, cost-effectiveness and efficiency have played an important role. Electronic balance has the following characteristics:

(1) High precision, hypersensitivity and fast reaction speed

(2) Advanced model line, sophisticated selection and production, high quality, strong anti-interference capability, long life, long-term using stability, adapting to the adverse environment and long hours continuous work

(3) With double power supply AC/DC

(4) With auto calibration

(5) The use of large high-definition LCD display, showing a clear, intuitive readings, as well as backlight function

(6) Unit conversion feature, change between the “kg” and “lb” at well.

(7) Balance is targeting output data interface and can be connected directly to the printer and computer to collect and analyze the data. Computers can even remote control the balances though interface.

(8) Balance design has counting function and easy for user to count a lot of objects

(9) High-capacity rechargeable battery, can be filled with a more than 60 hours continuous use.

(10) Boot display battery voltage, when the battery voltage low automatically shut down to protect the rechargeable battery

(11) Precision class: TC-K Series electronic balance in line with JB5374-91 "electronic balance” standards and JJG1036-2008 certification requirements of the balance point of order three balance.

2. Model specifications and technical parameters

Model	TC60K	TC100K	TC150K	TC200K	TC200KB	TC300K
Max weights	60kg	100kg	150kg	200kg	200kg	300kg
Resolution	1g	1g	5g	10g	1g	10g
Calibration value	10d	10d	10d	10d	10d	10d
Tare range	60kg	100kg	150kg	200kg	200kg	300kg
Calibration weights	50kg	100kg	100kg	200kg	200kg	200kg
Weighing plate	520mm×420mm					
Power supply	AC 220V 50Hz/60Hz DC DC6V/4AH/20HR Rechargeable battery					
Use temperature	0-40°C					
Use humidity	≤ 80% R.H					

Model	TC60KA	TC100KA	TC150KA	TC300KA	TC600K
Max weights	60kg	100kg	150kg	300kg	600kg
Resolution	5g	10g	20g	50g	100g
Calibration value	10d	10d	10d	10d	10d
Tare range	60kg	100kg	150kg	300kg	600kg
Calibration weights	50kg	100kg	100kg	200kg	500kg
Weighing plate	500mm×400mm				
Power supply	AC 220V 50Hz/60Hz DC DC6V/4AH/20HR Rechargeable battery				
Use temperature	0-40°C				
Use humidity	≤ 80% R.H				

3. Preparatory work and attentions

(1) The scale should be placed on the flat and solid surface. Adjust the four legs and let them support the scale.

(2) The scale should avoid great temperature changing, intense air flowing and ground vibration. And keep the scale away from heat and humidity

(3) Use separate power outlet and avoid dynamic power.

(4) Without any item when switching on the power.

(5) 15min. preheating is needed.

(6) When the indicator of battery lights, which means battery is near empty ,if don't charge in time ,the sustainable use of time less than eight hours, the system will automatically turn off backlight function, prolonged use will continue to automatically shut down to prevent excessive rechargeable battery discharge and damage to property; when the low battery, the charging time of battery should be more than 10 hours;

(7) Because of long-term not using, the scale must be placed in dry-ventilated place and recharge every three months. Charging is necessary before or during re-using.

(8) The scale is absolutely prohibited from water. Washing scale with water is also strictly forbidden.

(9) Carefully weight. Any impact or overload is interdicted. Otherwise the scale will be permanent damaged

(10) Day-to-day use should be light using light release, it should be cleaned with the neutral cleaning agent infiltrating the sub cloth. Prohibit the use of solubility or chemical treatment of the solvent to clean.

(11) Warning: before using electronic balance, please carefully read the prospectus before, according to operating correctly. Easily lead to improper use of performance degradation or damage to the scales.

4. Operational Method

（1）ON/OFF "⏻"： Turn on the power ,pressing the "⏻ until the displaying windows displays from "F----0"to "F----9" and after stabilizing for a certain time, "0·0" appears，then begin to use. Turn off with the same button.

（2）Tare button "TARE"： In case of empty scale platform, the displaying deviates from zero, pressing "TARE" key, then the displaying will return to zero. For

removal of containers tare weight, put the container on the pan first, then press the button “TARE”, the display return to zero. Then put the object to the container, at the same time displayed on the net figure for the object, remove object and container, the display showed negative value, is still "TARE" key to make display back to "0."

（3）Weight unit change“ ”： when weighing ，press the button“ ”， The units can be changed between “kg” and “lb” . Press “Units” to change the units during weighting.

（4）Background light “ ”：to use the balance in dark place, press the button to active the background light from the display

（5） Print “PRINT”: to the weighing data with extern printer.

（6） Calibration function： If the scale has not been used for a long time or just bought, the scale should be calibrated. in order to avoid misuse and misuse calibration settings, the balance use two-button calibration methods, calibration need to press the "TARE" first, then click the "" key to enter the calibration state the displaying window displays “CXXX” and the balance will automatic calibrate (XXX should be the weight of standard weights, e.g . when display showing “C-100—”expressed the need to place a standard weight 100kg) .At the same time, only place calibrating weights on the scale platform, after stabilizing, the scale displays the weight of the calibrating weights and unit “kg”, till now the calibration is completed and the scale can be normally used. Balance can also be half-scale calibration： calibration need to press the "TARE" first, then click the "" key to enter the calibration state the displaying window displays “CXXX” and the balance will automatic calibrate, the press the“ ”to change the Full-scale to half-scale calibration 。We recommend that users only need to use full-scale calibration. At the same time when the user is equipped with full-scale and half-scale calibration, after full-scale calibration, put the half-scale weight , the indication will have deviation, then may produce the half-scale calibration. If press “CAL”, but display “C----F”, which indicates the Zero point is not stable. Then re-press “TARE” to make “zero” point stable; and re-press the “CAL” to carry out calibration.

（7） Counting function “COUNT”

7．1 Choosing samples. To precisely count the articles, firstly the quantity of samples for counting should be chosen in according with the weights of the articles. The quantity of samples can be chosen from “1-10-20-50-100”. For a small quantity of articles, the larger quantity of samples, the more precise.

7．2 Place the samples on the pan, the balance will show the total weights of samples. Then press “Count”, balance will show “1”, and unit will show “pcs”, which indicate that balance is now counting. And all the samples are one unit. Then press “”, the displaying will show between 1-10-20-50-100. The quantity of articles must be the same with the quantity of samples, and place the similar articles. The total amount of objects is showed. Press the “Count” again back to the normal situation.

（8）Data Output

Balance is targeting data output interface RS232C and can be directly connected to the printer. 6 feet and 8 feet of RS232C can connect to an external print button or to computer. The following soft wares are needed, when connects to computer:

(1) Transmission format: serial asynchronous

(2) Serial communication protocol: Baud rat: 600, data units: 8 units, starting unit: 1 unit, ending unit: 1unit

(3)Data format: ±symbol starting spaces data unit ending enter

1unit 2unit 3-9unit 10-12unit 13 unit

(4)Calibration: no calibration

(5)Output pins content (9-core socket): 2 pins: RXD 3 pins: TXD 5pins: GND

(6) Computer can control balance though RS232. The orders to balance are:

1BH+70H: sending data

1BH+71H: calibration (like “CAL”)

1BH+73H: Units change

1BH+74H: Tare

Attachment: setting and meanings

Turn on the scale by pressing “ ” to enter the calibration state and press “”can change the parameters; pressing “TARE” can change the values of parameters.

1. C1----sensitivity setting 0 1 2 3 4, the larger number is, the less sensible but the better stable .Default setting is 3 or 2.

2. C2----filtering strength setting 0 1 2 3, the larger number is ,the low reaction speed, but the better stable, Default setting is 2 or 1

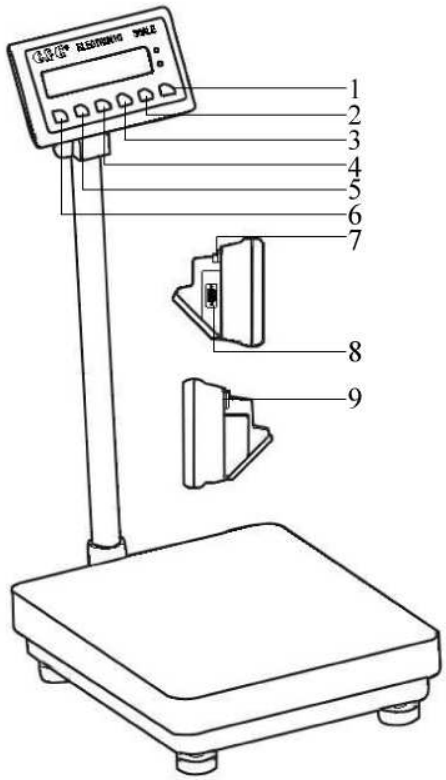
3. C3----Baud rate setting 2(600) 3(1200) 4(2400) 5(4800) 6(9600)， Default setting is 2

4. C4----communication setting. “TARE” changes the lower unit. ”kg/lb” changes the higher units. This is first data during communication. Default setting is 27

5. Re-pressing after setting. Then the balance is auto calibrated to 0

6. Press “TARE” and do not loose till “F----3”，all the parameters can be reset to default settings. Re-calibration before using

5. Installation



1 TARE key
2 Background light key
3 COUNT key
4 Kg/lb key for unit change
5 PRINT key
6 ON/OFF key
7 Special signal interface
8 RS232 interface
9 power supply

6. Trouble shooting

Problems	Possible causes	Measure to take
Display shows nothing	1.The ON/OFF switch is defect 2.internal circuit is defect	1.The ON/OFF switch must be changed 2 Return to the factory to repair
The message F--3	Key short-circuit	Replace the key
The message F--5	1. Sensor is defect 2.A/D switch problem	1. Replace the sensor 2. Return to the factory to repair
The message F--L	1. Error by Sensor 2.Error by calibration	1. Adjust the internal zero adjustment of short-circuit chip 2. Press the “TARE”, reading the backup data and then re-calibrate the balance
The message F--H	1.Object weight beyond capacity 2.Error by calibration 3. Sensor zero is high	1.Remove the object 2.Press the “TARE”, reading the backup data and then re-calibrate the balance 3. Adjust the internal zero adjustment of short-circuit chip, Exceed the adjust range, replace the sensor.
The message C—L by calibration	Sensor zero is low	Adjust the internal zero adjustment of short-circuit chip
The message C--F by calibration	Unstable zero or zero not correctly set	Press the “TARE” key with empty pan, the balance shows 0,then calibrate
The message C--H by calibration	1.Object weight beyond capacity 2. Sensor zero is high	1. Remove the object from the pan, press the “TARE” and show “0”， then calibrate 2. Adjust the internal zero adjustment of short-circuit chip, Exceed the adjust range, replace the sensor.
The message F--2	1. A/D-switch is defect 2. Error by sensor	Return to the factory to repair
Don’t do the 232 communication	1.Parameter configuration error 2.Cable connection problem or cable is defect 3.Internal 232 chip is defect	1. Check the C3 and C4 configuration 2.check the cable 3.replace the 232 chip

7. Parking list

Object name	quantity	remark
Manual	1copy	
Warranty card、certification	1copy	
Balance pan	1piece	
Power cord	1piece	

8. Warranty issues
8.1 CHANG SHU G&G MEASUREMENT PLANT produces the G&G balance, The product implements the three bags by our factory.
8.2 Products for sale since the date of one year, under the correct installation and use conditions, the non-human failure is the scope of warranty, please send the balance together with the original product packing to factory for free repair. Our factory responsible for the receipt of the date of repaired and sent within one week, or be replaced.
8.3 Beyond the Warranty time, the repair fee charged
Another: the use of company must provide the detailed address, zip code the recipient and the telephone, so that our factory could sent the balance in time after repairing.

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