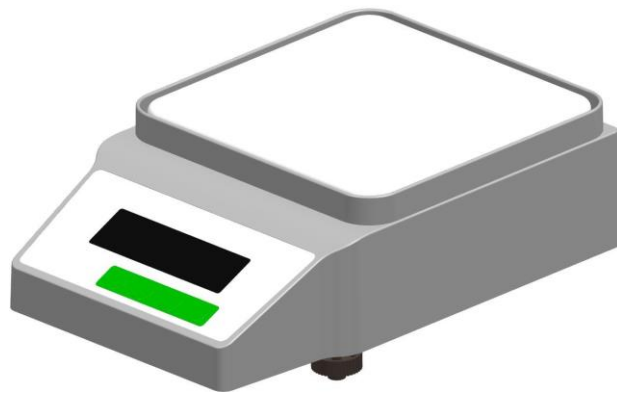


PRECISION BALANCE

MK SERIES



This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment, it is advisable to read carefully this manual and follow the processes of use.

Thank you for choosing PRECIZIO. We sincerely wish that you enjoy your MK series electronic balance. We highly recommend looking after this equipment according to what is stated in this manual.

We develop our products according to the CE marking regulations as well as emphasizing the ergonomics and security for its user.

The correct using of the equipment and its good quality will permit you to enjoy this equipment for years.

The improper use of the equipment can cause accidents and electric discharges, circuit breakers, fires, damages, etc. Please read the point of maintenance, where we expose the security notes.

TO GET THE BEST RESULTS AND A HIGHER DURATION OF THE EQUIPMENT, IT IS ADVISABLE TO READ THOROUGHLY THIS MANUAL BEFORE OPERATING WITH THE EQUIPMENT.

Please bear in mind the following:

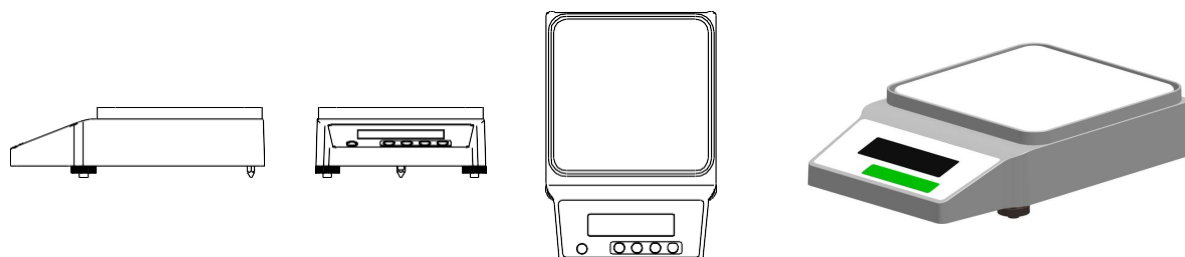
1. This manual is inseparable from the balance, si it should be available for all the users of the equipment.
2. You should carefully handle the balance avoiding sudden movements, knocks, free fall of heavy/sharp objects on it. Avoid spilling liquids inside the equipment.
3. Never dismantle the different pieces of the balance to repair it yourself, since it could produce a defective use of the whole equipment and a loss of the product warranty, as well as injuries on people than handle the balance.
4. To prevent fire or electric discharges avoid dry or dusty environments. In case it may happen unplug the equipment immediately.
5. If you have any doubt about setting up, instalation or functioning do not hesitate in contacting your wholesaler.
6. This equipment is protected under the Warranties and consumer goods regulation(10/2003)
7. Overhaul is not covered by the equipment warranty.
8. Operations made by non-qualified staff will automatically produce a loss of the warranty.
9. Accessories(including their loss), are not covered by the product's warranty. The warranty neither covers piece's deterioration due to the course of time.
10. Please make sure you keep the invoice, either for having the right to claim or asking for warranty coverage. In case you have to send the equipment to our Technical Assistance Department you should enclose the original invoice or a copy as guarantee.
11. Manufacturer reserves the right to modify or improve the manual or equipment.

INDEX OF CONTENTS

1. SPECIFICATIONS.....	2
2. INSTRUCTION.....	3
3. OPERATION OF THE BALANCE	4
4. FAILURES AND SOLUTIONS.....	9
5. MAINTENANCE & CLEANING	11

1. SPECIFICATION



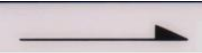

The appearance and the structure







PRECIZIO MK series precision balance work on high precision strain gauge load cell which implements high speed stabilization and high reliability.

Model No. (MK)	1000	2000	3000	4000	5000	8000	10K	
Max. Capacity (g)	1000	2000	3000	4000	5000	8000	10kg	
Tare Range (g)	0-1000	0-2000	0-3000	0-4000	0-5000	0-8000	0-10kg	
Readability(g)	1g							
Pan Size (mm)	170*170mm							
Dimensions (LxWxH)	280×188×80mm							
Power supply	AC 110-120V/220-240V							
Model No. (MK)	10001	20001	30001	40001	50001	80001	10K1	
Max. Capacity (g)	1000	2000	3000	4000	5000	8000	10kg	
Tare Range (g)	0-1000	0-2000	0-3000	0-4000	0-5000	0-8000	0-10kg	
Readability(g)	0.1g							
Pan Size (mm)	170*170mm							
Dimensions (LxWxH)	280×188×80mm							
Power supply	AC 110-120V/220-240V							
Model No. (MK)	202	302	502	602	1202	2202	3202	5202
Max. Capacity (g)	200	300	500	600	1200	2200	3200	5200
Tare Range (g)	0-200	0-300	0-500	0-600	0-1000	0-2000	0-3000	0-5000
Readability(g)	0.01							
Pan Size (mm)	170*170mm							
Dimensions (LxWxH)	280×188×80mm							
Power supply	AC 110-120V/220-240V							

2. INSTRUCTIONS

Symbol Instruction			
g	Weighing mode by “g” unit	Zero	The balance is on Zero mode
lb	Weighing mode by “lb” unit	Tare	The balance is on tare mode
oz	Weighing mode by “oz” unit		When the bubble is on the middle, the balance is on horizontality.
ct	Weighing mode by “ct” unit		The balance is on the negative value.
	Load capacity progress bar, indicating the progress of the current load in the range. All lights indicate full load.		It is stable when the light is on. It is unstable when the light flickers.

Keys Instruction	
	<ul style="list-style-type: none"> *Short Press to tare. *Long Press for 3s to enter calibration mode.
	<ul style="list-style-type: none"> * To convert the different units. * It is an upward key when it is under the setting up mode.
	<ul style="list-style-type: none"> * To enter counting mode and confirm the samples quantity. * It is an downward key when it is under the setting up mode
	<ul style="list-style-type: none"> * To connect with the output device or printers. * Press it to print the data easily.(for RS232 models only.)

3. OPERATION OF THE BALANCE

Choosing the Installation Site

The measuring performance of the balance is greatly influenced by the environment where it is installed.

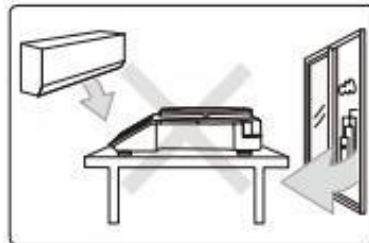
Observe the following points to ensure safe and accurate weighing.

Precautions on Use



Avoid locations where the balance will be exposed to any of the following.

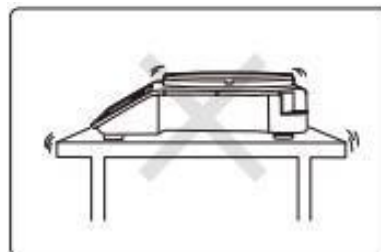
✖ Air flow from an air conditioner, ventilator, door or window



✖ Extreme temperature changes



✖ Vibration from surroundings or nearby equipment



☒ Direct sunlight



☒ Dust, electromagnetic waves or a magnetic field



Instructions

Install the balance on a strong and stable flat table or floor.

Placing the balance in an unstable site could lead to injury or trouble with the balance. When selecting the installation site, take into account the combined weight of the balance and the item to be weighed.

Unpacking and Inspection

Check that all of the items indicated below are included in the package, and that nothing has been damaged.

- [1] Main Body
- [2] Pan
- [3] Introduction Manual
- [4] Cable
- [5] Weight for option.

Turning the Power On

- 1 Insert the plug of the Power Cord of the balance.(And please pay attention of the voltage 110V or 220V).
- 2 Connect the Power Cord to the power outlet.
- 3 Press "ON".

The display will automatically go through the changes indicated below.



- * If it can not enter above display, please contact with your distributor or your transportation agent so that they can make the claims in the correct time limit.
- * If the above display is unstable or the weighing value is unstable, pls refer to the [FAILURES AND SOLUTIONS].

Warming Up

Before performing calibration on the balance or measuring its accuracy, you must ensure that it is in a stable state.

When stabilizing the balance, it is important that its temperature is stable.

Putting the balance in weighing mode and leave it with the power on at least 15 minutes in advance of calibration.

This is called "warming up".

Performing Calibration

Always perform calibration for a balance after moving it. M1 or higher class weights are required for external calibration balances.

Before performing calibration, warm up the balance in advance.

Also, carry out the adjustment at a location where there are few people moving around and there is no air flow or vibration.

Short press "Tare/Cal" key to make the balance shows [0.00] , then long press "Tare/Cal" for more than 3s until the display shows [CAL], release the key and it will

shows the calibrate value, like [1000.00], then put the corresponding weight on the pan softly.(This balance is intelligent calibration, it supports any integer point calibration. If there is no corresponding value weight, it can be replaced by any integer value weight within the range of no less than 1 / 10 of the maximum range. The balance will automatically identify and calibrate the current value weight). Wait for approx 3s until the display shows [1000.00g] . Please remove the weight and it will be back to [0.00g] . The calibration finished.

* **Linearity Calibration Method**

Short press “**Tare/Cal**” key to make the balance [0.00g], then long press “**Tare/Cal**” for more than 3s to until the display shows [CAL] , release the “**Tare/Cal**” key, then long press “**COU**” key until it shows [CAL 1] . Press “**UNIT**” or “**COU**” key to adjust and select the linearity segments of the balance to be calibrated (for example, for a balance with a range of 2kg, when [CAL 4] is selected, it means that it is divided into four segments for calibration, with a difference of 500g in each segment, which is [2000g → 1500g → 1000g → 500g] in turn. Then press “**Tare/Cal**” key to enter the linearity calibration, the balance will display an integer value. If the display [2000.00] flashes, put 2kg standard weight softly on the plate, wait for approx 3 seconds when the balance displays "2000.00g", remove the weight from the plate, it will display another integer value, put the weight on the plate according to the prompt value, and operate in turn until the balance automatically returns to zero after removing the weight.

Convert Units

Balance as a measuring instrument, in order to meet the weighing requirements and standards of various regions and industries, the balance has a multi-units for option. The default unit is "g". Short press “**Unit**” key to choose the different unit.

Zero

When the weight of the weighed object is not more than 2% of the total range, press “**Tare/CAL**” key and the balance will return to zero. At this time, the [zero] indicator on the display will light up, and the balance can still be weighed in full range.

Tare

When the weight of the weighed object is greater than 2% of the total range, press “**Tare/CAL**”, and the balance will return to zero. At this time, the [tare] indicator on the display will light up, and the balance can not be weighed in full range. You should check the balance on the loading progress bar and weigh in the remaining range.

Counting

Counting mode is piece counting.

Short press **"Tare/CAL"** to zero the balance as [0.00](if extra device is needed to be placed, zero the balance after placing the extra device), and prepare the samples quantity as 10pcs, or 20pcs, or 50pcs, or 100pcs.

Take the sample quantity 10pcs as an example: put 10pcs sample on the plate, short press **"COU"**, the balance will display: ([10] → [20] → [50] → [100] → [10] as cycle), then press **"COU"** to confirm the sample quantity, the balance will display [SMP], wait about 3s, the balance will display "10", and enter the piece counting mode.

4. Failures and Solutions

Failures		Solutions
No display	<ul style="list-style-type: none">● no power supply● damaged AC/DC adaptor● fuse broken	<ul style="list-style-type: none">plug in power cord● change fuse● replace adaptor● Broken again after changing, be repaired in the maintenance dept.
Unstable weighing value	<ul style="list-style-type: none">● bad work environment● something unnecessary touched the pan or the bottom of the pan.● unstable power supply, beyond allowable value● unstable weighed object (as it absorbed moisture or moisture evaporated)● there are strong magnetic and radiation equipment around the balance.	<ul style="list-style-type: none">● improve the work environment, keep away from vibration and airflow disturbance● Take out the foreign matter. Turn the pan avoiding the touch.● Connect an external AC power regulator
It shows "--oL--"	<ul style="list-style-type: none">● It overloads.● Loadcell problem	<ul style="list-style-type: none">● Take off the objects.● Contact with the distributor
Weighing value error	<ul style="list-style-type: none">● compare with the calibrate weight value	<ul style="list-style-type: none">● Make the calibration.
No answer	<ul style="list-style-type: none">● Loadcell problem● PCB problem	<ul style="list-style-type: none">● Contact with the distributor
Power symbol flickers*	<ul style="list-style-type: none">● Low battery voltage	<ul style="list-style-type: none">● Recharge it, if still now work, pls contact with the distributor.

Baudrate setting

Press “ON/OFF” key, before entering the weight mode, Double press “TARE” key, then press “UNIT/COU” key to enter the setting mode. It will show “01-diu”. Then press “TARE” to until it shows “08-BUD”, press “CAL” to enter the Baudrate setting mode, press “TARE” to choose the required baudrate, then press “CAL” to confirm the setting.

Data output setting

Press “ON/OFF” key, before entering the weight mode, Double press “TARE” key, then press “UNIT/COU” key to enter the setting mode. It will show “01-diu”. Then press “TARE” to until it shows “09-odE”. Press “CAL” to enter the data output setting mode, And press “TARE” to choose below mode.

- 0: no output.
- 1: press key to output. (press “CAL” as print)
- 2: timing output.
- 3: continuous output.

Press CAL key to confirm the setting. And turn off the balance to enter new mode.

RS232 interface

1. Balance (DB9 pin)

Connection

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

2. Balance (USB)

USB male ports USB male ports

When the balance USB connect with PC, pls download the PL2303 driver software.

- The baudrate by default is 9600 bps (see *Baudrate setting*)
- Data format: 10 bits, 0 as start bit, 1 as stop bit, 8 digits (ASCII code)
- No odd and even numbers adjusting
- Data output: by default is continuous mode. The data output mode can be changed into press output, timing output and continuous output (see *Data output setting*)
- Output data format

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Space	Space	Space or *	±	data	data	data	data or dot	data or dot	data	data	data	Unit1	Unit2	end	return

5. MAINTENANCE AND CLEANING

To get the best results and a higher duration of the balance it is essential to follow the processes of use.

Note: All the processes of use mentioned below will not have any value unless you keep a continued and careful maintenance.

- Please follow the processes of use of this manual.
- This manual should be available for all users of this equipment.
- Prevent the balance from sudden movements and knocks, as well as from direct sunlight or air flows. The balance is a precision instrument, you must handle it carefully.
- The balance is supplied with an adapter. It has to be plugged to an earth connection and the socket should be handy and ready to unplug the equipment in case of emergency.
- Never unplug the adapter by pulling the wire, do it from the base.
- Never use the balance in a wedged location as for example a shelf.
- Never use sharp objects as pens, etc... to press the buttons of the control panel; only use your fingers.
- Never place on the pan an object heavier than the maximum capacity of the balance, the sensor could be damaged.
- Neither submerge the balance nor spill liquids on it.
- When you are not using the balance for a long period of time, lock the rechargeable battery.
- If any liquid comes into contact with the electric parts of the balance please do immediately disconnect it from the net and send it to the technical service, as soon as possible, for its checking and adjustment.
- Always use original components and supplies. Other devices can be similar but they can damage the equipment.

Cleaning

- Never use scourers or substances that can grate for cleaning metallic parts such as stainless steel, aluminium, coatings, etc. as they damage the balance and produce an early ageing of the equipment.
- Use a fluff-free cloth dampened with soaped water that does not contain abrasives.

ATTENTION!! IF EQUIPMENTS ARE NOT PROPERLY CLEAN AND DISINFECTED THEY WOULD NOT BE ALLOWED TO REPAIR BY OUR TECHNICAL SERVICE.



Instructions on environmental protection

The electronic balances MK series can operate with rechargeable batteries. Batteries contain heavy metals (zinc, lithium, mercury, etc.) that could contaminate water, soils, etc.

At the end of its life cycle, please, do not dispose of this equipment by throwing it in the usual garbage; hand it over a collection point for the recycling of electrical and electronic appliances. It does not contain dangerous or toxic products for humans but a non adequate disposal would damage the environment.

The materials are recyclable as mentioned in its marking. By recycling material or by other forms of re-utilization of old appliances, you are making an important contribution to protect our environment.

Please inquire at the community administration for the authorized disposal location.