BALANZAS SERIE 5148 Y 5149
5148 AND 5149 SERIES SCALES
BALANCES DE LA SÉRIE 5148 ET 5149

SERIE - SERIES - SÉRIE 5148 (KBD021, KBD022, KBD023, KBD024)
SERIE - SERIES - SÉRIE 5149 (KBF016, KBF017, KBF018, KBF019, KBF020, KBF021)

Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

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.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

LANGUAGE INDEX

In order to get the most out of the performance and operation of the scale, please read this instruction manual carefully and use the scale correctly according to the instructions in the manual.

CAUTION

Only properly trained personnel may operate and use this equipment.
Respect safety regulations.
Insert the plug fully into the socket and do not use other plugs.
Do not plug or unplug the power cord with wet hands.
Do not damage, modify, bend, or excessively twist the power cord.
Place the equipment on a stable surface and avoid direct sunlight, temperature fluctuations and air convection.
Do not place any objects on top of the scale.
Check the equipment and its accessories before use to ensure that they are not damaged.
Caution: Preheat the equipment for at least 120 minutes before use.
If the balance is on for a long time, it may not be preheated.
If it is to be used every day, there is no need to disconnect the power supply, just switch off the display.
If the equipment is not used for more than 5 days, disconnect the power supply.
When handling toxics and volatiles, use a suitable fume hood.
Do not disassemble or adjust equipment components. If any part of the equipment is damaged, use only original spare parts.
In case of malfunction of the balance, disconnect the power supply immediately and contact the supplier for advice on maintenance.
The weighing pan and the outer casing should be cleaned gently with a soft cloth and no strong solvents should be used for cleaning.
When cleaning the equipment, switch it off and disconnect the power supply.

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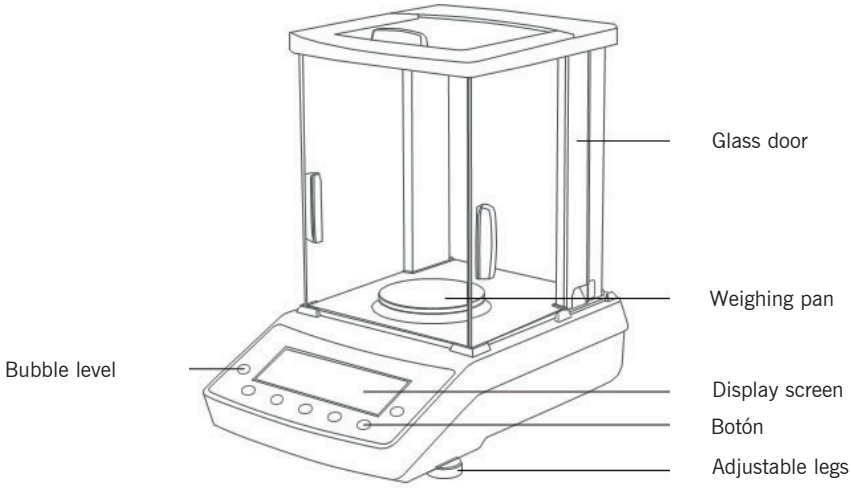
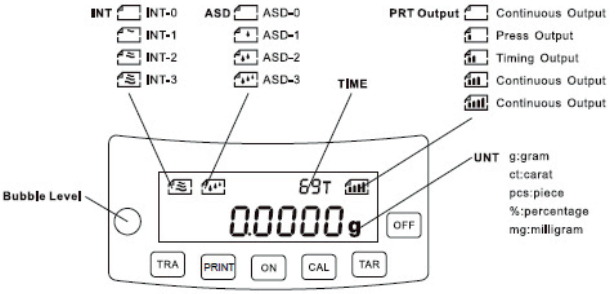
1. SUMMARY

The 5148 and 5149 series electronic analytical balances are equipped with high-precision electro-magnetic sensors, which improves measurement accuracy, speeds up response and reduces errors. In addition, it features tactile response buttons, ensuring accurate and efficient operation. It is ideal for applications in sectors such as industry, agriculture, commerce, education and scientific research.

2. STRUCTURE



3. DISPLAY AND BUTTONS



ON: Switch on
OFF: Switch off
TAR: Tarar
CAL: Calibration

4. FEATURES

- The weighing process is agile. The measuring speed is faster than conventional mechanical scales and can be adjusted as required.
- The mode of operation is easy and simple, with the availability of multi-unit conversion. Users can freely choose various units of common international usage provided by the software.
- The counting function is available.
- RS-232 interface for connecting external devices such as printers and computers.

5. TECHNICAL PARAMETERS

5148 Series. Precision 0.001 g

Code	**KBD021**	**KBD022**	**KBD023**	**KBD024**
Calibration	**EXT**	**INT**	**EXT**	**INT**
Capacity (g)	520		1000	
Calibration weight (g)	200 (F1) (included)	0-520 g	0-520 g (not included)	0-1000 g
Weights required in linear calibration (g)	250, 500		500, 1000	
Readability (g)	0.001			
Repeatability (g)	± 0.002			
Linearity (g)	± 0.002			
Units/Functions	g/ct/oz/mg/pcs/%			
Stabilisation time (s)	≤ 3			
Preheat time (min)	20-30			
Interface	RS232			
Plate size (mm)	Ø 90			
Approx. dimensions (mm)	340x215x330			
Weight (kg)	5.5			
Power supply	100-240 VAC 50/60 Hz			

5149 Series. Precision 0.0001 g

Code	KBF016	KBF017	KBF018	KBF019	KBF020	KBF021
Calibration	EXT	INT	EXT	INT	EXT	INT
Capacity (g)	120		220		320	
Calibration weight (g)	100 (F1)	-	200 (F1)	-	200 (F1)	-
Weights required in linear calibration (g)	50, 100		100, 200		150, 300	
Readability (g)	0.0001					
Repeatability (g)	± 0.0002					
Linearity (g)	± 0.0002					
Units/Functions	g/ct/oz/mg/pcs/%					
Stabilisation time (s)	≤ 3					
Preheat time (min)	20-30					
Interface	RS232					
Plate size (mm)	Ø 90					
Approx. dimensions (mm)	340x215x330					
Weight (kg)	5.5					
Power supply	100-240 VAC 50/60 Hz					

*Included

6. INSTALLATION

6.1. Working environment

- The equipment must be installed on a stable, fixed, clean and dry working surface.
- The work surface should be kept away from doors and windows to reduce the impact of airflow caused by them.
- The work surface should be in an area with less vibration interference.
- The balance should be placed away from direct sunlight and heat sources that can cause temperature changes. It must be kept away from equipment and objects that have magnetism or can generate magnetic fields.
- Do not use the equipment in potentially explosive atmospheres, high humidity or dusty environments. The optimum ambient temperature is 20°C (± 5°C) and the optimum humidity is 50-60% RH.
- When the balance is transferred from a colder to a warmer environment it may affect the accuracy and reliability of the weighing.
- To eliminate the influence of moisture condensation, the balance can be left at room temperature without power supply for 2 hours before use.

6.2. Installation

Place the weighing pan on the central support point of the scale correctly (the white film serves as protection, it can be removed during installation), plug the scale into the power supply (input voltage 220 V) and wait for the equipment to switch on.

7. USE

Before use the scale must be positioned horizontally. Adjust the levelling feet to make the bubble inside the level in the centre, press the 'ON' button to switch on the display.

7.1. Calibration

The 5148 and 5149 series electronic scales are designed and manufactured based on the principle of electronic magnetic force compensation, many factors can affect their accuracy, gravity, prolonged use, temperature changes and humidity. Calibration methods can be used to eliminate these errors.

7.2. Calibration procedure

For models with EXT calibration (e.g. ref.: KBF018):

- Press the 'CAL' button
- 200.0000 g is displayed and flashing
- Place the calibration weight
- Wait a few seconds until it stabilises
- Remove the weight when calibration is complete.

For models with INT calibration:

- Press the 'CAL' button
- Calibration will be performed automatically

To access external calibration for models with internal calibration (part numbers KBD022, KBD024, KBF017, KBF019, KBF021):

- Press and hold 'ON'.
- Select 'Set-C'.
- Press 'PRINT' and set the mode 'CAL-0'.
- Press 'TARE' to save and exit

Linear Calibration
Table of 5148 Series calibration weights

No	Code	Linear calibration
1	KBD021	250, 500g
2	KBD022	
3	KBD023	500, 1000g
4	KBD024	

Table of 5149 Series calibration weights

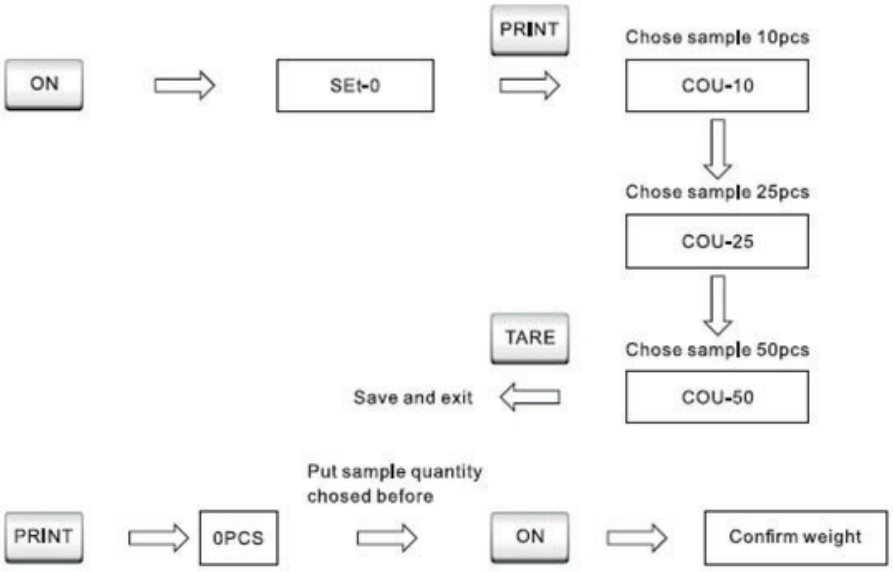
No	Code	Linear calibration
1	KBF016	50, 100g
2	KBF017	
3	KBF018	100, 200g
4	KBF019	
5	KBF020	150, 300g
6	KBF021	

To access linear calibration:
- Press and hold ‘ON’.
- Select ‘Set-C’.
- Press and hold ‘CAL’ for 5 sec.
- You will enter the linear calibration process
- Set the corresponding weight

7.3. Conversion of units

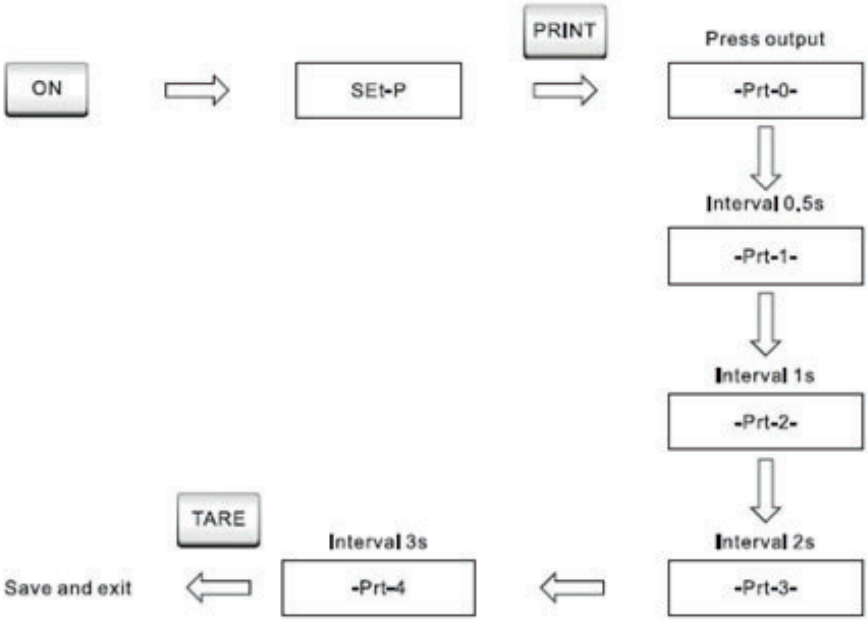
Turn on the balance and press PRT button, convert weighing units in turn, the default unit is g.

7.4. Piece count

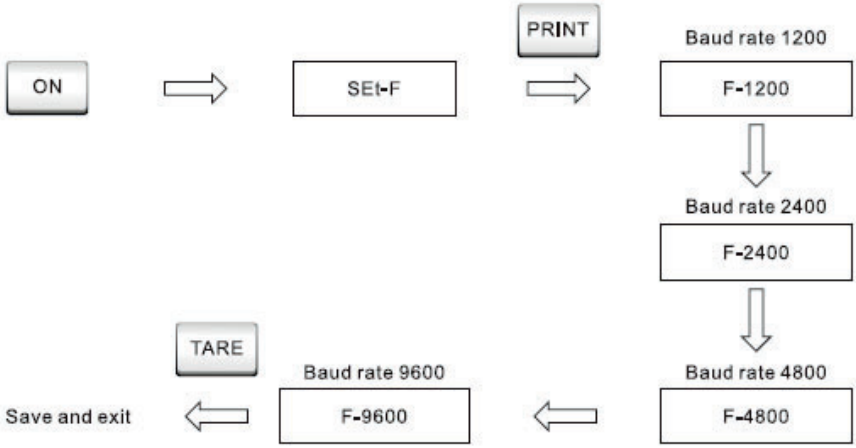


7.5. Percentage weight

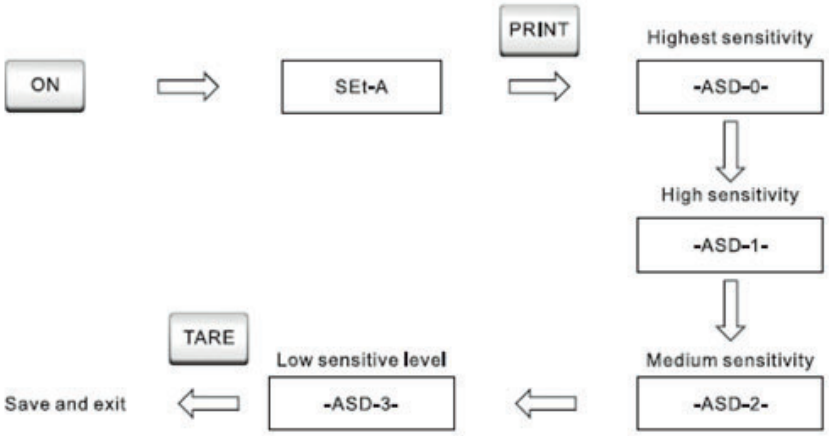
7.6. Print interval settings



7.7. Baud rate setting

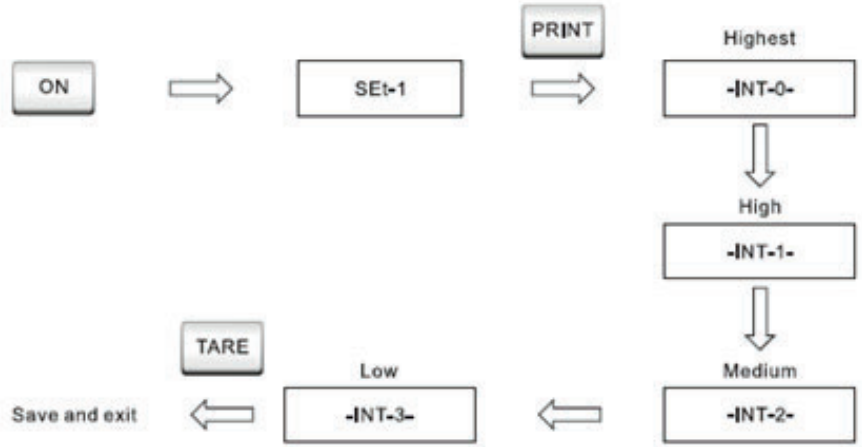


7.8. Sensitivity adjustment



Note: The factory sensitivity setting '-ASD-3-' is suitable for most usage environments. Do not adjust the sensitivity without consulting the supplier.

7.9. Filter level adjustment



Note: The filter level is the internal calculation time of the balance, the factory setting is '-Int-2-'. Do not adjust it without consulting the supplier or receiving professional instructions.

8. INTERFACE PARAMETERS

■ RS-232 interface
■ Connection
- Scale (9-pin) PC/Printer (9-pin)
- RXD (Input) 2 2
- TXD (Output) 3 3
- GND (Ground) 5 5

■ The default baud rate is 9600 bps (see baud rate setting).
■ Data format: 10 bits, 0 as start bit, 1 as stop bit, 8 digits (ASCII code) - No setting of odd and even numbers
■ Data output: The default mode is press output mode. The data output mode can be changed to 0.5, 1, 1, 2 or 3 second output (see interval configuration).

9. TROUBLESHOOTING

Problem	Cause	Solution
The screen is not displayed	No power supply Fuse damaged Transformer damaged	Plug in the AC/DC adaptor Replace the fuse Replace the transformer If the problem persists, please send the Technical Service balance
Unstable display	Poor working conditions Airflow Something between the plate and the surface under the plate Food exceeds the value permissible and is unstable Static electricity	Improve working conditions Close the glass urn Remove the plate and clean the surface thoroughly of the balance Connect the balance to a network that has 110-220VAC Eliminate static electricity
Poor accuracy	Incorrect calibration The weight of the container has not been moron Large temperature variations The balance is not in position horizontal	Perform a proper calibration Make the tare weight Place the scales in an environ-ment appropriate Adjust the levelling of the scale