

HA

EN
PRECISION SCALE

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GIROPES

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1. INTRODUCTION

To ensure correct operation of the scale, please read the user manual carefully before using the scale. The HA Series PRECISION SCALE incorporate the most advanced technology through its electromagnetic weighing block, mechanical engineering and software. All this offers the following characteristics:

- Easy to use and read the results on its large LCD display with white backlight.
- Fast response speed, 10 times faster than mechanical scales.
- Tare function throughout the scales capacity range.
- Multiple weighing modes:
 1. Normal weighing.
 2. Piececounting.
 3. Percentages.
- Weighing units: grams or pounds.
- RS-232 data output to connect the scale to a computer or printer.
- Dysfunction alarm.
- Very easy to calibrate.
- Display separated from the body of the scale.

2. INSTALLATION

CAUTION: Handle the scale with care at all times. Remove the scale from its packaging carefully and check that the following components are present:

List of the components:

- 1 Body of the balance.
- 1 Plate.
- 1 Plate support.
- 1 Power adapter.
- 1 User manual.
- 1 Class F1 calibration weight (only in HA120E and HA220E models).
- 1 Display.

We recommend you to keep the original packaging of the scale in case the scale has to be sent for repair or if it has to be transported from one place to another.

3. SPECIFICATIONS

	MODEL	HA120E	HA220E	HA120I	HA220I
Capacity		120g	220g	120g	210g
resolution				0,1 mg	
repeatability				0,1 mg	
linearity				0,2 mg	
four corners				0,2 mg	
stabilization time				About 5 seconds	
sensitivity				2 ppm	
calibration			External		Internal
working temperature				20 - 25 °C	
dimensions of the plate				90 mm	
dimensions of the scale				320 x 300 x 470 mm	
power supply				AC 110V-230V 50Hz-60Hz	

4. GENERAL REQUIREMENTS

As a precision instrument, the scale requires an environment free from excessive drafts, corrosion, vibrations, extreme temperature and humidity. All the mentioned factors can affect the weighing results.

- keep the balance in a clean and dry environment.
- The best working temperature is over 20°C with 50% humidity relative.
- Use a stable electrical outlet.
- Do not install the balance:

In contact with direct sunlight.

Near open windows or doors that cause drafts or sudden changes in temperature.

Near stoves or air conditioners.

Near equipment that vibrates, rotates, or moves.

Near magnetic fields or equipment that generates magnetic fields.

On an unstable table.

In areas where there is a danger of explosion.

5. INSTALLATION OF THE SCALE



Before using the scale, connect it to the mains and let the equipment warm up for a period of two hours. This procedure must be repeated each time the balance is unplugged from the power supply. If this procedure is not respected, the scale may show weighing errors, as the magnetic block is cold.

- Place the scale on a stable and level surface.
- Level the scale by adjusting the adjustable feet, check that the bubble in the level is in the center of the circle.
- Install the parts of the scale in the following order: protection tray, ring, pan support and finally the pan.
- Connect the power supply to the power outlet.

6. USE OF THE SCALE






Note: To avoid the desposits of dust, keep the scale with the cabinet doors closed, whenever it is not used. Connect the scale and allow it to preheat for a minimum of 30 minutes before using it.

BASIC OPERATIONS

1. Connect the power supply to the mains, the scale will automatically carry out the initialization process, the display will show "on off".
2. Press , the display will show 0.0000g.
3. Place the container on the weighing pan.
4. Press .
5. Place the product to be weighed into the container and close the doors of the display case.
6. Read the weighing result once the weight is stable.
7. Repeat this procedure for the other weights.

FUNCTION PIECECOUNTING





To perform the piececounting function, first we will make a sample with a known number of pieces (the larger the sample, the better the result will be) in this way we will obtain the average weight of each piece. Once the sampling has been carried out and the average unit weight of each piece has been obtained, we will proceed to count the rest of the pieces.

1. Establish the number of pieces to carry out the initial sample, see section **10. CONFIGURATION OF THE PARAMETERS** and **11. INDEX OF THE PARAMETERS**, specifically in section "C2: Predetermine the number of pieces as the initial sample in counting-piece mode". For example, if the sampling quantity is 50 units, the parameter to be selected will be C2-2, in order to perform the piececounting function.
2. Press , the display will show 0.0000g.
3. Press  until the PCS message is displayed.
4. Place the sample on the pan and press . The unit shown on the display will be PCS.
5. Add the rest of the pieces to be counted, once the symbol  appears on the display, the scale will have counted and the total number of pieces will be shown on the display.
6. Press  to change to another weighing mode. The PCS symbol indicates the piece counting mode.

Note: The sample value should not be less than the resolution value.

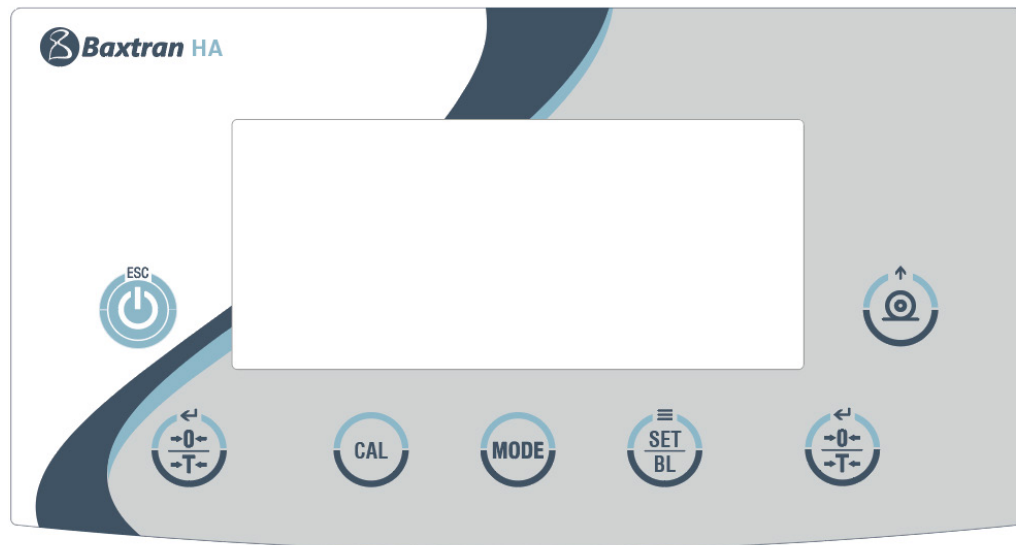
FUNCTION PERCENTAGES


This function allows you to calculate the percentage of an object over 100% of a reference weight.

- Make sure that the weighing pan is empty.
- Press  to reset the weight to zero.
- Place the object to be used as a reference sample on the center of the weighing pan and close the cabinet doors.
- Press  until % will be shown on the display.
- Once stable press  and 100% will be shown on the display.
- Remove the object from the weighing pan.
- Place the object to be compared with the reference sample and close the cabinet doors.
- The display will show the deviation value between the reference weight and the current weight.
- Press  to change to another weighing mode. The % symbol indicates percentage mode.

Note: The sample value should not be less than the resolution value.

7. DISPLAY & KEYBOARD



g	Grams
ct	Carats
lb	Pounds
oz	Ounces
pcs	Piececounting mode
%	Percentages mode
●	Stability indicator
CAL in	Calibration status
<i>CAL dn</i>	Place the calibration weights
<i>CAL...</i>	Calibrate
<i>CAL up</i>	Remove the calibration weights
<i>CAL -no</i>	Calibration failed
<i>CAL end</i>	Calibration finished
----- 	Validation key
.	Data reading
<i>SAVE</i>	Save data
<i>S-----END</i>	End of data storage

8. CALIBRATION

Precision balances are designed on the principle of magnetic force balance. Among the various factors that can affect the accuracy of the scale, gravity is the most obvious.

Gravity varies from one place to another, which means that the weight value of the same object varies from one place to another. This error can be eliminated by calibrating the balance, this means that every time the balance is transported from one place to another, a calibration weight (for example 100g) must be placed and the balance told that the weight on the plate has a 100g value.

There are two ways to perform the calibration depending on the scale model:

AUTO-CALIBRATION (FOR MODELS FV-120C Y FV-220C)

Connect the scale and **preheat for at least 30 minutes**.

Turn on the scale.

The scale will calibrate automatically after several minutes, a stable temperature must be maintained, with changes not exceeding 2°C during a period of two hours.

NOTE: If the display shows CAL-no:




Check that there are no objects on the weighing pan.


Check that no element causes any friction or instability in the equipment, preventing good calibration.

MANUAL-CALIBRATION (FOR MODELS FV-120 Y FV-220)







In this mode, the calibration parameter should be set as: C1-01.


For example, if the capacity of the scale is 200g:

- Connect the balance and **preheat for at least 30 minutes before calibrating**.
- Turn on the scale.
- Press , the display will show **CAL** followed by the calibration weight, for example **CAL 100**, means 100g.
- Press  to start. The display will calibrate the 100g and show **CAL dn**.
- The message **CAL...** will be displayed for about 3 seconds, then the message **CAL dn** will appear.
- Place a 100g calibration weight (must be Class F1) on the weighing pan, close the cabinet doors.
- Press  the scale will calibrate showing **CAL...**
- Once the calibration is finished, the display will show the message **CAL up**, remove the calibration weight and close the cabinet doors. The display will show **CAL...**, then **CAL end** and return to normal weighing mode.
- If it shows **CAL no** it is because you are not using a correct calibration weight.









Note: At any time you can press to  abort.

9. CONFIGURATION OF THE PARAMETERS

1. Turn on the scale and make sure the weighing pan is empty.
2. Press  and after that .
3. Press  to select the desired parameter (C1 to C8) and the key  to select the desired option from 00 to 06, depending on the menu.
4. Press  until C9 is displayed, press  to memorize the value, the display will show **SAVE---**

5. Press  , the display will show **S---END**, the setting is complete.

For example, to configure parameter C2-02, the procedure would be as follows:

- Turn on the scale.
- Once the display shows 0.0000g, press  and then  , the display will show C1-y
- Press  the display will show C2-00.
- Press  until parameter C2-02 is displayed.
- Press  the display will show C3-00.
- Press  the display will show **SAVE ---**, press  to save the data or press  to exit without saving.
- After the operation, the message **S---END** will be displayed.
- The adjustment has been made and the scale will return to normal weighing mode.

10. INDEX OF THE PARAMETERS

FUNCIÓN	PARÁMETRO	CONTENIDO
C1 Calibration	C1 -00	Automatic calibration, internal weight.
	C1 -01	Manual calibration, external weight
C2 Preset the number of pieces as initial sample in piececounting mode	C2 -00	10
	C2 -01	20
	C2 -02	50
	C2 -03	100
	C2 -04	1000
C3 Zero tracking	C3 -00	deactivated
	C3 -01	1d
	C3 -02	2d
	C3 -03	3d
	C3 -04	4d
	C3 -05	5d
	C3 -06	Parameter not used
C4 Baud rate	C4 -00	2400
	C4 -01	1200
	C4 -02	4800
	C4 -03	9600
C5 Data transmission modes	C5 -00	Stable zero
	C5 -01	Stable
	C5 -02	By command
	C5 -03	Continuous
	C5 -04	Parameter not used

C6 Sound when pressing a key	C6 -00	No
	C6 -01	Yes
C7 Anti-interference	C7 -00	Down
	C7 -01	Medium
	C7 -02	High
C8 Display energy visualization	C8 -01	Yes
	C8 -02	No
C9	Parameter not used	

11. RS-232 OUTPUT

With RS-232 data output, the balance can be connected to a printer or computer or other peripheral device.

TRANSMISSION FORMAT

TRANSMISSION FORMAT: ASYNCHRONOUS TRANSMISSION

Transmission speed: 1200, 2400, 4800, 9600

Start bit: 1

Stop bit: 1

Data bit: 8

Parity: none

Code: ASCII

OUTPUT DATA FORMAT:

ST, +100.0000iig <CR> <LF> <LF> or

US, +100.0000iig <CR> <LF> <LF>

▪ ST=STABLE (53H, 54H)

▪ US=UNSTABLE (55H, 53H)

▪ i=SPACE (20H)

▪ <CR> = CARRIAGE RETURN (0DH)

▪ <LF> = LINE FEED (0AH)

DATA OUTPUT MODES

AUTOMATIC DATA OUTPUT

Automatic data output

A. Stable zero output mode

1. Activate parameter C5-00.
2. In this mode, make sure that the weighing pan is empty before each weighing.
3. When the display indicates 0.0000 g, place the object on the center of the weighing pan.
4. As soon as the weight is stable (the stability indicator appears on the display) the scale will transmit the data.

B. Stable output mode

1. Activate parameter C5-01.
 2. When the weight is stable (the stability indicator appears on the display), the scale will transmit the data.
- In this mode objects can be weighed after performing a Tare, with a Tare or Accumulation.

C. Continuous output mode

1. Activate parameter C5-03
2. Once the balance is connected to a printer or computer, the scale will transmit the data

COMMAND OUTPUT MODE

Activate parameter C5-02


A. Key output mode


The scale will transmit the data by pressing the key. .


B. Output mode by external commands


A command from a peripheral device connected to the balance can perform the functions of turning the balance on / off, calibration, selection mode, conversion of weighing units and printing. As soon as the balance receives a command from a peripheral device, it sends a message whether the command is valid or invalid. If the display shows the message **Err**, it means that the command is invalid.

12. EXTERNAL COMMANDS

Command ON/OFF (4F 0D 0A) <O> <CR> <LF> is the same as the key  on the scale.

Command TARA (54 0D 0A) <T> <CR> <LF> is the same as the key  on the scale.

Command CALIBRACION (43 0D 0A) <C> <CR> <LF> is the same as the key  on the scale.

Command MOD0 (4D 0D 0A) <M> <CR> <LF> is the same as the key  on the scale.


Command PRINT (50 0D 0A) <P> <CR> <LF> 50 0D 0A) is the same as the key  on the scale.

13. CONNECTING THE SCALE TO AN EXTERNAL DEVICE

SCALE	PC
9 PINS	9 PINS
2	2
3	3
5	5

SCALE	PC
9 PINS	25 PINS
2	2
3	3
5	7

14. TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
The display does not show anything	<ul style="list-style-type: none"> - The scale is not connected to the power supply. - The AC / DC transformer is faulty 	<ul style="list-style-type: none"> - Connect the poweradapter to the main socket. - Replace the transformer. - Send the balance to the Technical Service.
The value shown on the display is unstable.	<ul style="list-style-type: none"> - Unsuitable scale environment. - The cabinet doors are not closed properly. - There is an object between the pan and the balance housing. - Instability in the current weight - The object is unstable (evaporation or moisture absorption). 	<ul style="list-style-type: none"> - Improve the conditions of scale, avoid vibrations and air currents. - Close the cabinet doors correctly. - Remove the object between the pan and the balance housing. - Connect an external current stabilizer.
There is a big error between the actual weight of the object and the value displayed on the display.	<ul style="list-style-type: none"> - The balance is not calibrated. - Tare has not been carried out before weighing. - The balance is not correctly leveled. 	<ul style="list-style-type: none"> - Calibrate the scale - Press  to reset the scale - Level the balance using the adjustable feet.

15. CARE AND MAINTENANCE

Precision balances are high precision instruments, they must be treated with great care like other precision laboratory instruments.

- Do not use sharp or rough objects, such as ballpoint pens.
- To press the keys, only use your fingers.
- Do not drop any object on the pan, the weighing system could be damaged.
- Do not expose the balance for a long time to high temperatures or environments with excessive dust.
- Do not disassemble the balance.
- It is recommended to cover the balance after use.
- Always keep the balance clean and dry.

15.1 CLEANING

- Disconnect the adapter from the mains socket before cleaning it.
- Do not use aggressive liquids such as solvents.
- Use a soft, damp cloth with a mild detergent such as soap.
- Make sure that no liquid enters the balance.

16. WARRANTY

- This scale is guaranteed against all manufacturing and material defects, for a period of 1 year from the date of delivery.
- During this period, GIROPES SL will be in charge of repairing the scale.
- This warranty does not include damages caused by improper use or overloads.

The warranty does not cover the shipping costs (postage) necessary for repair the scale.



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