

BW

Series

Digital Weighing Scales

User's guide



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SECTION 1 INTRODUCTION

NOTE: These scales are not suitable for the uses listed in paragraph 2a of the article 1 of Directive 90/384/EC.

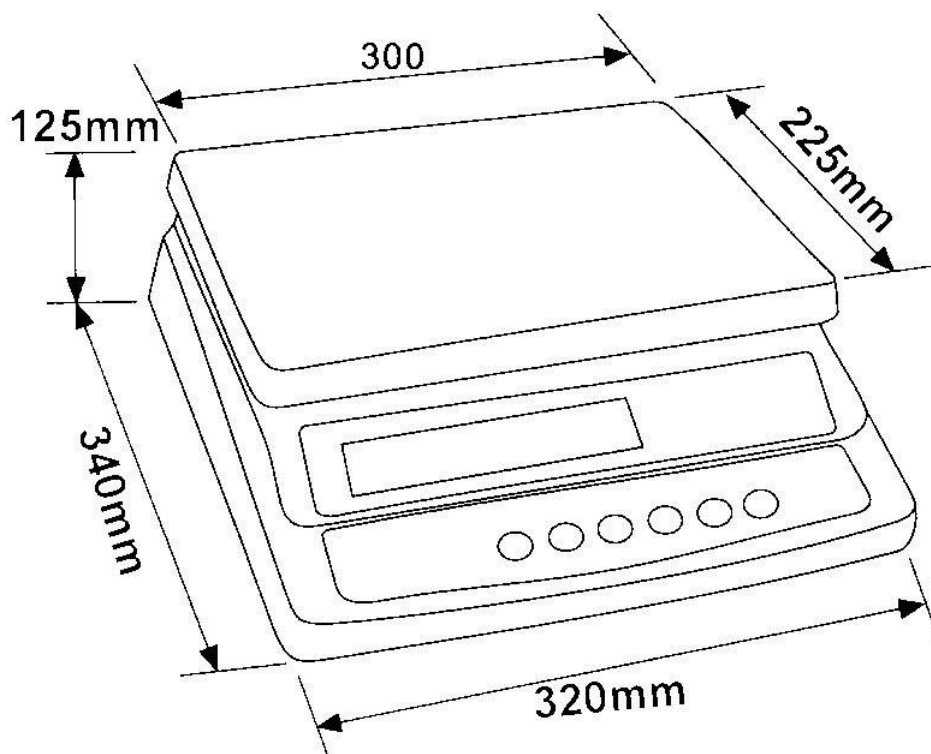
The electronic scales series BW of provides a precise, fast and versatile scales with functions of counting and percentage weight.

The series consists of 4 models, with capacities up to 30 Kg.

All of them incorporate stainless steel plate on a base unit of ABS.

All keyboards are compounds of keys for easy touch and display screens are liquid crystal displays (LCD) of great size and easy to read. The LCDs feature backlight.

All the units incorporate auto zero, auto tare, and a accumulation function that allows to store the count and retrieved as cumulative total.



SECTION 2 SPECIFICATIONS

SERIES BW

SERIES BW				
Number Model	BW3	BW6	BW15	BW30
Range	3 Kg	6 Kg	15 Kg	30 Kg
Stair	0,1 g	0,2 g	0,5 g	1,0 g
Resolution	1/30.000	1/30.000	1/30.000	1/30.000
Tare maximum	3 Kg	6 Kg	10 Kg	30 Kg
Minimum weight	2,0 g	4,0 g	10,0 g	20,0 g
Repeatability	0,1 g	0,2 g	0,5 g	1,0 g
Linearity ±	0,2 g	0,4 g	1,0 g	2,0 g
Units of measure	Kg / g / Lb / oz			

COMMON SPECIFICATIONS

Interface	Exit RS.232 optional
Settling Time	Usually 2 seconds.
Temperature of operation	0 °C until 40 °C / 32 °F until 104 °F
Supply of current (external)	115 / 230 V ac, 50/60 Hz, 10 watts
Calibration	External automatic
Screen	Digital screen LCD of 6 digits
Materials of manufacture	Plastic ABS, dish of stainless steel
Size of the dish	225 x 300 mm
General dimensions (width x bottom x high)	320 x 340 x 125 mm
Applications	Scales for general ends
Functions	Weight, counting, percent weighing, check weighing.
Other components and specifications	Internal battery rechargeable (70 h. Of length approx.)

SECTION 3 INSTALLATION

3.1 GENERAL INSTALLATION

The scales should be sited in a location that will not degrade the accuracy.

Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.

Avoid unsuitable tables. The tables or floor must be rigid and not vibrate. Do not place near vibrating machinery.

Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.

Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.

Avoid air movement such as from fans or opening doors. Do not place near open windows.

Keep the scales clean.

Do not stack material on the scales when they are not in use.

3.2 INSTALLATION OF BW SERIES

The AHW Series comes with a stainless steel platform packed separately. Place the platform in the locating holes on the top cover. Do not press with excessive force as this could damage the load cell inside.

Level the scale by adjusting the four feet. The scale should be adjusted such that the bubble in the spirit level is in the centre of the level and the scale is supported by all four feet, If the scale rocks readjust the feet.



Attach the mains cable to the connector on the bottom of the scale. The power switch is located on the base near the front of the scale.

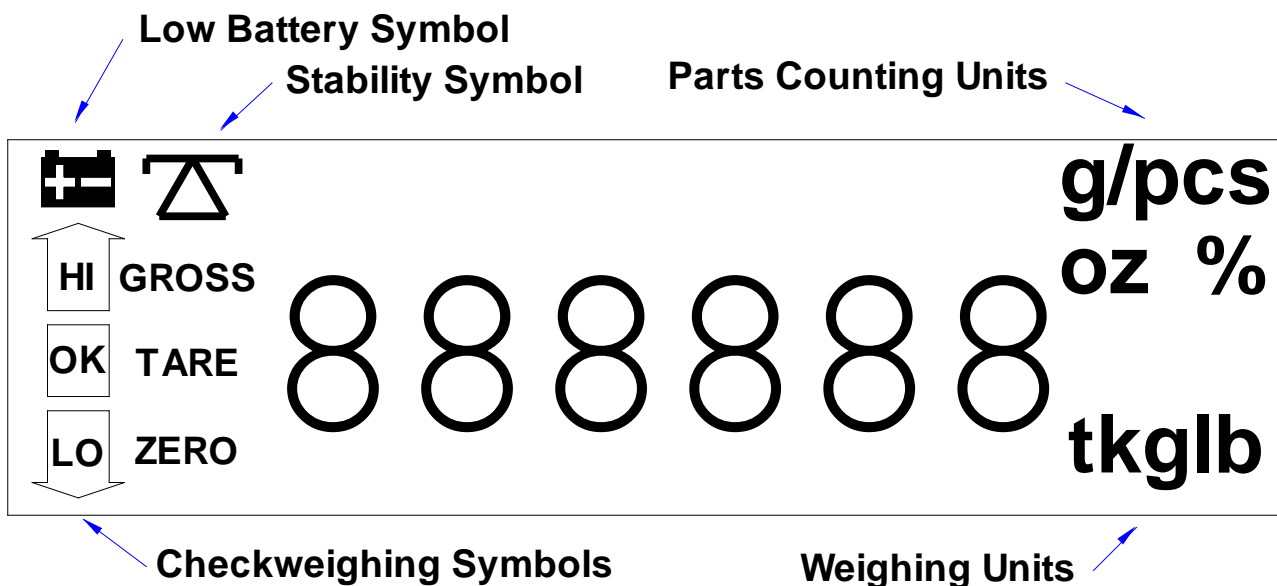
SECTION 4 KEY DESCRIPTIONS

KEY	DESCRIPTION	
	PRIMARY FUNCTIONS	SECONDARY FUNCTIONS
Zero	Enter the zero point for all of the following weigh. The display shows zero.	Fixed the parameters or other functions.
Tare	Tare the balance. Saves the current load in memory as a tare value, subtracts the value of tare weight of the load and displays the results. This is the net weight. By entering the values using the password memorized this value as a tare value. this value like a value tare.	▲ To increase the active digit when it enter a value for parameters or other functions.
Limit	It establishes the limits to check the load. It allows the operation of the low or high limits or both.	To move the activated digit ► rightwards , to establish the values of setting or other functions.
%	It enters the function of weight percentage. It allows the weight, the unit of load and account.	To move the digit ◀ of activated leftwards, to establish the values of parameter or other functions.
Func	To select the function of the scale. If the scale is weighing, will select the parts to explain. If it does not find in way of heavy will go back to the position of heavy of user.	(C) To act like button of help to select values for the parameters or other functions.
Print	To print the results to PC or printer using the optional RS- 232 interface. Also it adds the value of accumulation if the function of accumulation is not automatic.	(ESC) To go back to the normal operation when the scales is on settings menu.
Mode	This button will select Kg, Lb or oz.	

SECTION 5 DISPLAYS

The LCD display will show a value and a unit to the right of the digits.

In addition there are labels for TARE, GROSS weight, ZERO  and for Low battery 



SECTION 6 OPERATION

6.1 ZEROING THE DISPLAY

You can press the **ZERO/ENTER** key at any time to set the zero point from which all other weighing and counting is measured, within 4% of power up zero. This will usually only be necessary when the platform is empty. When the zero point is obtained the display will show the indicator for zero.

The scale has an automatic rezeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press the **ZERO/ENTER** key to rezero the scale if small amounts of weight are shown when the platform is empty.

6.2 TARING

Zero the scale by pressing the **ZERO/ENTER** key if necessary. The zero indicator will be on.

Place a container on the platform, a value for its weight will be displayed.

Press the **TARE** key to tare the scale. The weight that was displayed is stored as the tare value and that value is subtracted from the display, leaving zero on the display. The "TARE" indicator will be on. As product is added only the weight of the product will be shown.

When the container is removed a negative value will be shown. If the scale was tared just before removing the container this value is the gross weight of the container plus all product that was removed. The zero indicator will also be on because the platform is back to the same condition it was when the **ZERO/ENTER** key was last pressed.

6.3 WEIGHING A SAMPLE

To determine the weight of a sample first tare the empty container then place the sample in the container. The display will show the weight and the units of weight currently in use.

6.4 PERCENT WEIGHING

The scale will allow a sample weight to be shown as 100%. Then any other weight placed on the scale will be displayed as a percentage of the original sample. For example if 350g is placed on the scale and the % key is pressed the display will show 100.00%.

Removing the 350g weight and putting a 300g weight on the scale the display will show 85.71% as 300g is 85.71% of 350g.

Note: the scale may jump by large numbers unexpectedly if small weights are used to set the 100% level. For example if only 23.5g is on a scale with 0.5g increments and the scale is set to 100%, the display will show 100.00%, however a small change of weight will cause the display to jump to 102.13% as one scale division (0.5g) increase to 24.0g will be equivalent to a 2.13% increase.

Removing the 350g weight and putting a 300g weight on the scale the display will show 85.71% as 300g is 85.71% of 350g.

Pressing the **FUNC** key will return the scale to weighing.

6.5 PARTS COUNTING

When the scale is showing weight, pressing the **FUNC** key will start the parts counting function.

Before beginning, tare the weight of any container that will be used, leaving the empty container on the scale. Place the number of samples on the scale. The number should match the options for parts counting, 10, 20, 50, 100 or 200 pieces.

Press the **FUNC** key to begin. The scale will show "SP 10" asking for a sample size of 10 parts. Change the sample size by pressing the **TARE/↑** key. the display will cycle through the options: 10,20, 50, 100, 200 and back to 10.

Press the **ZERO/ENTER** key when the number matches the number of parts used for the sample. As more weight is added the display will show the number of parts (pcs).

Press the **%** key to display unit weight (g/pcs), Total weight (kg) or the count (pcs). Press the **FUNC** key to return to normal weighing.

6.6 CHECK-WEIGHING

Check-weighing is a procedure to cause an alarm to sound when the weight on the scale meets or exceeds values stored in memory. The memory holds values for a high limit and a low limit. Either limit can be used or both can be used.

Press the **LIMIT** key. The display will show the current High Limit with the left most digit flashing and the HI symbol on to the left of the display..

To change the value shown use the **%/←** and the **LIMIT/→** to select the digit to change. Then use the **TARE/↑** key to increment the flashing digit. When the desired value is shown press the **ZERO/ENTER** key to accept the value. If you want to reset the value to zero press the **FUNC/C** key to clear the value.

After pressing the **ZERO/ENTER** key the display will then show the Low Limit, the LO symbol will be on to the left side of the display.

Enter the low limit in the same way the high limit was entered.

After pressing the **ZERO/ENTER** key the scale will return to weighing with the Check-weighing function enabled.

When a weight is placed on the scale the arrows will show if the weight is above or below the limits and the beeper will sound as described below.

BOTH LIMITS SET

The display will show OK and the beeper will sound when the weight is

between the limits.

LOW LIMIT SET,

HIGH LIMIT is set to zero

The display will show OK and the beeper will sound when the weight is less than the Low Limit. Above the Low Limit the display will show HIGH and the beeper will be off.

HIGH LIMIT SET,

LOW LIMIT is set to zero

The display will show LOW and the beeper will be off when the weight is less than the High Limit. Above the High Limit the display will show OK and the beeper will be on.

BOTH LIMITS SET. LOW IS SET GREATER THAN HIGH

The beeper will never sound and the display will show LOW if the weight is less than the LOW limit, and HIGH if the weight is greater than the Low Limit.

NOTE: The weight must be greater than 20 scale divisions for the check weighing to operate.

To disable the Check-Weighing function enter zero into both limits by pressing the **FUNC/C** key when the current limits are shown then pressing the **ZERO/ENTER** key to store the zero values.

6.7 ACCUMULATED TOTAL

The scale can be set to accumulate automatically when a weight is added to the scale or manually by pressing the **PRINT** key. See the PARAMETERS Section for details of selecting the method. The accumulation function is only available when weighing. It is disabled during percent weighing or parts counting.

6.8 MANUAL ACCUMULATION

When the scale is set to manual accumulation the weight displayed will be stored in memory when the **PRINT** key is pressed and the weight is stable.

The display will show "ACC 1" and then the total in memory for 2 seconds before returning to normal. If the optional RS-232 interface is installed the weight will be output to a printer or PC.

Remove the weight, allowing the scale to return to zero and put a second weight on. Press **PRINT**, the display will show "ACC 2" and then show the new total. Continue until all weights have been added.

To view the totals in memory press the **PRINT** key when the scale is at zero. The display will show the total number of items "ACC xx" and the total weight before returning to zero. The totals will also be printed via the RS-232 interface.

To erase the memory press **PRINT** to view the totals and then press the **FUNC/C** key to clear the memory.

6.9 AUTOMATIC ACCUMULATION

When the scale has been set to Automatic Accumulation the value is stored in

memory automatically.

Add a weight to the scale, the beeper will sound when the scale is stable to signify the value is accepted. Remove the weight.

The display will show "ACC 1" and the totals in memory when the scale returns to zero. Adding a second weight will repeat the process.

While the weight is on the scale it is permissible to press the **PRINT** key to store the value immediately. In this case the scale will not store the value when the weight is removed.

The totals can be viewed as above.

In all cases the scale must return to zero or a negative number before another sample can be added to the memory.

More product can then be added and **PRINT** pressed again. This can continue for up to 99 entries, or until the capacity weight display is exceeded.

SECTION 7 BATTERY OPERATION

The scales can be operated from the battery if desired. The battery life is approximately 100 hours.

When the battery needs charging the arrow above the low battery symbol under the weight display will turn on. The battery should be charged as soon as the arrow above the symbol is on. The scale will still operate for about 10 hours (without backlight) after which it will automatically switch off to protect the battery.

To charge the battery simply plug into the mains power. The scale does not need to be turned on.

The battery should be charged for 12 hours for full capacity.

Just under the quantity display is an LED to indicate the status of battery charging. When the scale is plugged into the mains power the internal battery will be charged. If the LED is green the battery has a full charge. If it is Red the battery is nearly discharged and yellow indicates the battery is being charged.

As the battery is used it may fail to hold a full charge. If the battery life becomes unacceptable then contact your distributor.

SECTION 8 RS-232 OUTPUT

The BW Series of scales can be ordered with an optional RS-232 output.

Specifications:

RS-232 output of weighing data
 ASCII code
 4800 Baud
 8 data bits
 No Parity

Connector: 9 pin d-subminiature socket

Pin 2 Output
 Pin 3 Input, not used at this time
 Pin 5 Signal Ground

Check weighing output(9 pin d-subminiature socket)

pin 1 VB
 pin 4 vcc (5V)(output)
 pin 5 com (gnd) public
 pin 6 ok (output)
 pin 7 low (output)
 pin 8 hi (output)
 pin 9 beep (output)

Data Format for normal weighing operations, parts counting or recalling of totals from memory will all be different. Examples follow:

Normal Output

GS	1.234kg	GS for Gross weight, NT for net weight and a unit of weight
No..	1	This number increments every time a new value is stored in memory
Total	1.234kg	The total value stored in memory
<lf>		Includes 2 line feeds
<lf>		

When percent weighing, the output is the weight will be show in percent only.

GS	100.00%	GS for Gross weight, NT for net weight and a unit of weight
<lf>		Includes 2 line feeds
<lf>		

SECTION 9 SETTINGS

The scale has 6 parameters that can be set by the user. These allow the user to set the scale for:

- Show the weight in increases of weight to minimise the damage that can cause vibrations, wind or other environmental conditions.
- Control the backlight of the screen. It can't be necessary turn off this light for maximize the duration of the battery.
- Select the automatic accumulation, manual or install the RS-232 interface to print the weight continuously.
- Program when it has to make accumulation and when it has to print.
- Program the value of auto zero.
- Select another unit of weight in addition to the standard .

For acces to the parameters you must press the buttons **FUNC** and **PRINT** at the same time.

The screen will show "XX Inc". The first value that show is the value of error of increase of the Scales. To select an increase of different value, press the button **TARE** and afterwards press the button **ZERO**.

For example, with a weight of 15kg on the scales the standard increase is of 0.5, the value can be changed of 1,0g to 2,0g.

The next parameter is the backlight control. The standard consists in that the backlight work automatically, turning off when the scales does not use. The backlight can be set with "EL ON", "EL AU" (Automatic) or "EL Off". The maximum duration of the battery achieves when the backlight turns off.

Press the button **TARE** to change the value, afterwards press the button **ZERO** the automatic accumulation is the following step. With " Au On "the memory will accumulate the weight automatically, " Au Off "will allow the manual accumulation and with"P COnt"the RS-232 interface will send the weight continuously and the function of accumulation will be disabled.

Press the button **TARE** to change the value, afterwards press the button **ZERO**.with " ACC ON "when you press will make the accumulation, with " ACC OF "only will print, without accumulation.

Press the button **TARE** to change the programming, afterwards press the button **ZERO**.

The value of auto zero is the next. You can select between 0, 5 d, 1 d, 2d and 4 d. Press the button **TARE** to change the programming, afterwards press the button **ZERO**.

The unit of weight will show to continuation. The scales are calibrated and weight in kilograms, however will show him the weight in grams, you pounds if you selects this function.

Press the button **TARE** to change the value, afterwards press the button **ZERO** when the scales was programmed to weigh with other units of weight, the function of accumulation will continue saving the weight in kilograms.

SECTION 10 CALIBRATION

CALIBRATION LINEAR

To start with the calibration, turn off the scales and go back to light it. Press **LIMIT** and **%** together during the initial account, from 9 to 0 in the screen.

The screen will show "unLOAD". Unload all the weight of the pan and press **ZERO** to go back to the point zero.

The screen will show to continuation the first calibration. Put the weight on the platform and press **ZERO** when the scales was stable. The scale must to be stable to accept weight. The indicator of stability will light to show that the value is stable. After completing all the calibration of weight, press **ZERO** to complete the calibration. The scales will begin to explain backwards to zero after selecting the last weight.

CALIBRATION OF WEIGHTS

SERIES BW				
Model	BW3	BW6	BW15	BW30
Weight 1	ZERO	ZERO	ZERO	ZERO
Weight 2	1 Kg	2 Kg	5 Kg	10 Kg
Weight 3	3 Kg	6 Kg	15 Kg	30 Kg

NORMAL CALIBRATION

To start with the calibration turn off the scales and go back to light it. Press **TARE** and **%** at the same time during the initial account from 9 to 0.

The screen will show "UNLOAD". Unload the weight of the scales and afterwards press **ZERO** to go back to the point zero.

Afterwards it use **%**, the buttons **LIMIT** and **TARE** to calibrate the weight. Press **ZERO** to be sure, the display will show "LOAD". Place the weight on the pan when the indicator is turned on, press zero to ensure. After returning to the self-check, the balance BW is ready to be used.

SECTION 11 ERROR CODES

During the initial checking or during another operation, it is possible that the scales show a message of error. The meaning of the messages of error are described.

If a message of error appears in screen, repeat the operation that has produced the appearance of this message, going back to light the scales, calibration or other functions. If the message of error persists contact to your provider for more details.

CODE OF ERROR	DESCRIPTION	POSSIBLE CAUSES
Err 4	Initial Zero is greater of the allowed (4% of maximum capacity) when it lights the scales or when the button ZERO powered is.	Weight on the scales when it lights the scales. Excessive weight on the tray when it installs the function zero. Wrong calibration of the
Err 5	Error of keyboard.	Wrong operation of the scales.
Err 6	The account To/D is not correct when it lights the scales.	The platform is not installed. The cell of load is damaged. Failures in the electronics.

For viewing the account A/D press the button **ZERO** and the **%** at the same time while the scales is making the initial lighting when checking. Pressing **ZERO/ENTER** to go back to the normal function.