EC100
Counting Scale
Operations Manual v1611

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1.   Introduction

Thank you for choosing the EC100 Counting Scale. The EC100 is ideal for converting the weight of uniform objects into a reading of a number of items. The EC100 is available in 6 different capacities and incorporates a fast and stable display with a variety of functions. As an integral part of its design, it is equipped with adjustable feet and levelling bubble to ensure accurate weighing as well as a full keyboard with 9 one-touch memory buttons. With a stainless steel platform and full keyboard, these counting scales are ideal for industrial settings, wholesale markets and retail environments in which high accuracy counting functions are equipped.

This manual provides the user's guide in using the product, safety, installation, features and technical specifications, calibration procedures, configurations and other technical related in using the scale.

2.   Safety Recommendations

When using this weight equipment the following recommendations shall be observed for safety:

> The weighing machine may only be used with the power adapter supplied exclusively for use with the weighing machine. Before inserting the power adapter, the user must ensure that the operating voltage stated on the power adapter meets with the mains voltage. If not, please contact Customer Service.

> If the power adapter or its cable is damaged, the weighing machine must immediately be disconnected from the electricity supply (pull out the power adapter). The weighing machine may only be operated from mains electricity supply with a power adapter which is in perfect condition.

> If there should be any reason to believe that it is no longer possible to operate the weighing machine without danger, the weighing machine is to be immediately unplugged from the electricity suppl and secured against inadvertent operation.

> The weighing machine must not be operated in an area subject to explosion risks.

> Care must be taken when weighing liquids to ensure that no liquid is spilt into the inside of the weighing machine or into connections on

the rear of the equipment or the power adapter. If liquid is spilt on the weighing machine, it must immediately be unplugged from the mains electricity supply (pull out power adapter). The weighing machine may only be operated again after it has first been re-checked by a service technician.

These instructions must be read by each operator of the equipment and must be available at the workplace at all times.

3. Preparation

Place the scale horizontally and keep the bubble inside the bubble level aligned with the red circle (See Fig.1).

Correct   Incorrect

(Fig.1)

4. Functions
4.1 Key Functions

KEY	Function
WEIGHT	Indicates the gross or net (when the tare function is activated) weight
UNIT WEIGHT	Indicates the average or set unit weight
TOTAL	Indicates the accumulated total piece number on the platter
NUMERIC (0-9)	To set numeric data for number of samples, samples weight or limit number of checking
DECIMAL POINT (.)	To set the decimal position of samples' weight
[ZERO]	To set or re-adjust the scale in correct zero position for accurate counting operation
[TARE]	To reduce the gross weight on the platter (box or container etc.) as the tare weight
[SAMPLE/UNIT]	To set the counted samples number on the platter into scale's memory
[UNIT WEIGHT]	To set the known unit weight data into scale in normal operation

[CE]	To cancel the numeric setting data or cancelling the previous unit weight data
[QTY/SET]	For the alternation of changing normal counting and quantity check operation
MEMORY [M+]	To store accumulated counts data into memory, up to 99 counts
MEMORY CANCEL [MC]	To cancel stored data
[TOTAL]	For the alternation of changing normal counting and memory data recalling
[SAMPLE/UNIT] (lb/Kg)	To select weight unit; Once the unit is selected, the selected unit indicates the different calibration and weighing unit.

4.2 Indicator Lamps

LAMP	"ON"
ZERO	When the gross weight is zero
TARE	When tare weight is set
LACK of SAMPLE	When the sample unit weight is not heavy enough for accurate counting operation in case of number of sample setting mode

5. Operation

5.1 Tare
5.1.1. Reduce tare weight
Place the empty container on the platter. Press [TARE] key, the tare indicator turns on and the WEIGHT display shows Zero. Removing the container from the platter a f t e r taring, the WEIGHT display will show a minus sign.

5.1.2. Clearing the previous tare value:
Remove weights from the platter then press [TARE] key. The Tare indicator turns off and WEIGHT display will return to Zero.

5.2 Sample Settings

There are two sample setting methods:

5.2.1 Number settings:

The setting is used in the case of counting the unknown unit weight. Place a certain number of samples on the platter. Note the total weights reading for these samples displaying in the WEIGHT display. Set the number of samples using numeric keys. The set number will be shown in UNIT WEIGHT display. Pressing the [SAMPLE/UNIT] key, the UNIT WEIGHT display will show the average unit weight per piece and TOTAL display will show the number of samples.

5.2.2. Unit weight setting:

This setting is used in the case the unit weight is already known. Set the unit weight data then numbers will display in UNIT WEIGHT. Press **[UNIT WEIGHT]** key to accept the settings. To cancel previous unit weight and sample setting, press **[CE]** key.

5.3. Alarm Function

To avoid counting error, the scale has useful alarm function to alert the operator of possible counting inaccuracy in case of shortage of number of samples or shortage of sample unit weight

5.3.1. Sample number alarm:

Lack of Sample light will turn on if the total weight of sample is below the limit value. Add pieces of samples until the lack of sample disappears. Then set the new number of samples through numeric key then press [SAMPLE/UNIT] key.

FREE SAMPLE FUNCTION is the same as above. Scale will automatically adjust and calculate new average unit weight if operator add samples slowly with the numbers.
FREE SAMPLE FUNCTION will not work if the displayed number exceeds 1,000,000 pieces

5.3.2 Unit weight alarm:

Lack of Piece Weight light will turn on if the average unit weight or set unit weight is not enough for accurate counting operation. Operator may use scale even the light is on, but counting error may happen.

5.3.3. Alarming by press [QTY/SET]:

THE SCALE has useful check function to alert operator that the total piece counts quantity has reached the lower limit and the upper limit desired. This function is designed for packing purpose. For example, if the

operator wishes to count 1,000 pieces for every package, he can set the lower limit and the upper limit as 1,000 pieces as following:

1. Press [QTY/SET] to enter quantity alarm menu
2. Setting quantity alarm: repeat step (1), enter quantity alarm menu, press **[ZERO]** key to select "CH=on", this means quantity alarm is turned on. If "CH=off" means quantity alarm is turned off.
3. Setting lower limit and upper limit: repeat step (1), enter quantity alarm menu, press **[TARE]** key to select when the display shows "L=0000"(L for flash). Press digital key to input "990" then press **[TARE]** key again, the input lower limit is set. The display will show "H=0000"(H is flashing), press digital key to input "1010" then press **[TARE]** key again, the input upper limit is set.
4. Exit the quantity alarm menu by pressing **[QTY/SET]** key.

6. **Functions settings**

6.1 Backlight Function

1. Turn off the scale.
2. Press and hold **[UNIT WEIGHT]** key to turn on the scale. The display will show ----- and then b=ON/OFF on the first line, A-XX on the second line and L=ON/OFF on the third line. Press **[QTY/SET]** to activate or deactivate the function of the beep. Press **[TARE]** to select auto off time. Press **[ZERO]** key to activate or deactivate the function of the backlight.

6.2 UNIT WEIGHT function: when there is no weight on the platter, press **[SAMPLE/UNIT]** key to select the unit (kg or lb). When there is something on the platform, press **[UNIT WEIGHT**] key to sample.

Unit weight memory

1. Turn on the scale
2. Press 0 to 9 to input the unit weight you want to save.
3. Press **[STORE]** to confirm the unit weight and then the display will show "c   xxx".
4. Press M1 to M9 within 2 seconds, the third line of the display will show "- - - -".

Unit weight transfer
1. Press **[CE]** to clear the memory, the second line of the display will show 0.
2. Press M1 to M9 to transfer the unit weight from memory.

Total weight clear
1. Press [**TOTAL**] to show total pieces on the third line of the display.
2. Press [**MC**] to show the unit which will be cleared.
3. Press **[CE]** to confirm clear.

7. CALIBRATION

7.1 When to calibrate?
Calibration may be required when it is initially installed or if the scale is installed to an environment where gravitational pull is different from where the scale is initially calibrated. Also, recalibration maybe required considering on the time and length of usage of scale (mechanical deviations may occurring).

7.2 Linearity calibration:
1. Turn on the scale, check if it is responding stable and then turn it off.
2. Press and hold [TARE] key and then switch on the scale. The display will show LINE on first line, CAL-0 (flashing) on the second line and AD value on the third line.
3. Linearity calibration will require more than one test weights depending on the capacity of the scale. The table below shows the required test weights of each model:

Models	1st Test Weight	2nd Test Weight	3rd Test Weight
EC100-1.5kg	500g	1kg	1.5kg
EC100-3kg	1kg	2kg	3kg
EC100-7.5kg	2.5kg	5kg	7.5kg
EC100-15kg	5kg	10kg	15kg
EC100-30kg	10kg	20kg	30kg
EC100-50kg	15kg	30kg	50kg

4. In this instruction, we assume the scale is a 3kg scale.
5. When the AD value is stable, press [ZERO] to start ZERO calibration. After 2 or 3 seconds, the second line will show 1.0000 because this is a 3kg scale. If the scale is let us say 15kg capacity then the 1st test

weight shall be 5kg. Refer to the table above on the test weight requirements.

6. Place the first required test weight (1kg) on the platter and then press [ZERO] when the stable A/D value is displaying. After 2 or 3 seconds, the display will show 2.0000.
7. Place the second required test weight/s (2kg) on the platter and then press [ZERO] when the stable A/D value is displaying. After 2 or 3 seconds, the display will show 3.0000.
8. Place the third and final required test weight (3kg) on the platter and then press [ZERO] when the stable A/D value is displaying. After 2 or 3 seconds, the display will show 0.0000 meaning the calibration is succeeded.
9. Turn off the scale then turn it on. Place some weights on the platter and check if the weight reading meets your desired accuracy. If not, repeat steps 1-8

7.3 Single segment calibration:

1. Turn on the scale, check if it is responding stable and then turn it off.
2. Press and hold [ZERO] key and then switch on the scale. The display will show SCALE on first line, CAL-0 (flashing) on the second line and AD value on the third line.
3. Press [SAMPLE/UNIT] to select the unit to be calibrated (kg or lb).
4. Once a stable A/D value is displaying, press [ZERO] to start ZERO calibration. After 2 or 3 seconds, the second line will show 0.
5. Input span calibration weight using numeric keys (0 to 9) and then place the span calibration weights on the scale. The recommended span calibration weights shall be at least 80% of the full capacity of the scale. If you have 15kg scale then you shall have at least 12kg test weight to have a better calibration output. Press [ZERO] to run span calibration. Once the indicator light is on, press the [ZERO] key and the second line of the display will show 00000 meaning calibration is succeeded.
6. Turn off the scale then turn it on. Place some weights on the platter and check if the weight reading meets your desired accuracy. If not, repeat steps 1-6 and increase the test weight value (better if it is 100% of its full load capacity).

8. Specifications

Part No.	Capacity	Graduation	Platter Size (mm/inch)
EC100-1.5	1.5kg / 3.3 lb	0.05g/0.0001 lb	227x337 / 9'x13-1/4'
EC100-3	3kg/ 6.6 lb	0.1g/ 0.0002 lb	227x337 / 9'x13-1/4'
EC100-7.5	7.5kg/ 16.5lb	0.25g/ 0.005 lb	227x337 / 9'x13-1/4'
EC100-15	15kg/ 33lb	0.5g/ 0.001 lb	227x337 / 9'x13-1/4'
EC100-30	30kg/ 66lb	1g/ 0.002 lb	227x337 / 9'x13-1/4'
EC100-50	50kg/ 110lb	2g/ 0.005 lb	227x337 / 9'x13-1/4'
Net/gross weight	4.2kg / 5.1kg		
Package	Standard carton: 39 × 39 ×15.5 (cm^3)		
	2Units in one box: 40×40×35 (cm^3)		
Power source	Recharge Batteries or AC/DC		
	Adapter 10~12V/500mA (optional)		

9. Features

Auto zero tracking Auto calibration
Low batter indication Auto backlight
Large LCD Unit exchange: kg, lb
Large square pan Counting function
Stability indication

10. Error Codes

Error Codes / Problems	Reason	Trouble Shooting
ERR-O	Over load	Use within capacity
ERR-Z	1). exceed Zero tracing range when powered ON. 2). Forgot to place platform when linearity calibration	1). Tack off the weight when powered on 2). Place platform and then recalibrate scale（linearity calibration） 3) Load cell maybe crushed
ERR-S	inner code unstable when switched on	1) Make sure the scale is stale when powered on 2) Low battery, change or charge battery 3) Warm up the scale 4）load cell maybe unstable
N0CON	Probably the scale selected has no connection	Check the scale if it has connected to the load cell.

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