

User Manual

Waterproof Weighing Scale

SUB AirCharge / SUB

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V24. 0520

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Check Firmware Version

Turn off the scale and hold  key, then turn on the scale and hold  key. Display 01 Adc. Press  key twice, then display 03 VEr. Press  key. Display firmware version 02035. Press  key. Display maintenance number 8XX for 2 seconds. Turn off and turn on scale to return to weighing mode.



Thank you for purchasing EXCELL waterproof weighing scale. In order to use the scale properly, please read this instruction carefully before use. If you have a problem concerning the scale, please contact your supplier.

Preparing to Use the Scale

1. Locate the scale on a firm level surface free from vibrations for accurate weight readings. Adjust the four leveling feet to centre the leveling bubble on the scale.
2. Avoid hot sunshine directly on the scale or near the exhaust port of ventilating system.
3. Please use a separate power source plug to avoid the disturbance of other electric appliances.
4. There should be no weight on the scale when power is turned on.
5. Commodity should be placed at the centre of platter when being weighed, and its size should not exceed the dimension of the platter.
6. Please warm the scale 15 ~ 20 minutes before using.
7. Please note that when  symbol appears on the screen, the scale needs to be charged.
8. Any suggestion is warmly welcome.




Precautions for Use

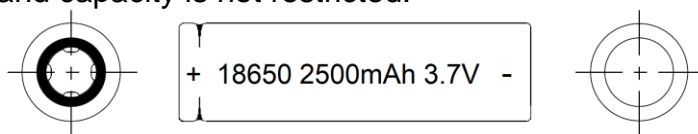
1. Please operate or charge the scale in an open area. Do not squeeze the power cord to avoid wire on fire.
2. Please keep scale in a cool and dry place. Do not store under high temperatures.
3. Please keep the scale clean and free from insect infestation.
4. Avoid impacting with other items or overloaded with excessively heavy weights (The load must not exceed the maximum capacity of the scale).
5. If the scale is not going to be used for some time, please clean it and store it in a plastic bag in dry condition. A desiccant sachet may be included to prevent moisture from building up.
6. Operating temperature: -10°C ~ +40°C
7. It is recommended to be used indoors and in environments with a height of less than 2000m
8. If the product is used in a manner not specified by the manufacturer, product warranty may be limited.

Safety Instructions for Lithium Batteries

1. Please pay attention to the storage temperature of the product. Do not place it in a high temperature environment. The ambient temperature should be less than 50°C.
2. After installing the battery, if no display when power is turned on, please check whether the battery polarity is reversed. The polarity must be installed correctly to avoid battery power wasted away.
3. When the "Charging" indicator flashes in the charging state, it means there are the following abnormal states, please check:



- a) Battery is installed but the contact is poor, please check whether the battery is installed properly.
 - b) Please check whether the polarity of the battery is reversed. When the polarity is reversed, the “Charging” indicator will flash after charging for a period of time.
 - c) When battery is removed and the AC power cord is still plugged in, the “Charging” indicator will also flash. When plugged in without the battery installed, there will be a slight frequency conversion sound, which is normal and does not affect the use of the function.
4. When  symbol appears, scale needs to be charged.
- a) When charging, “Charging” indicator will be red
 - b) When the battery is fully charged, “Charging” indicator will be blue.
 - c) If scale is fully charged, after plugging in, the blue light will turn on after about 5~10 minutes of voltage detection. The “Charging” indicator is to indicate the status of the charging process and whether the charging is working properly. To check the battery level, please unplug the AC cable first and turn on scale, and then check the battery symbol  displayed in the lower left corner of the display. The number of bars under the battery symbol indicates battery level. 0 bar means $\leq 10\%$. When the low power warning symbol () flashes, that indicate scale needs to be charged.
5. Please operate or charge the scale in an open area. Do not squeeze the power cord to avoid wire on fire. While charging, the temperature of battery should below 45°C .
6. Our product uses a single-cell cylindrical 18650-3.7V lithium-ion battery. Battery's should be 3.6~3.7V and capacity is not restricted.



7. If the appearance of the battery is deformed, damaged, etc., please do not install it for the safety of use.



Chapter 1 Introduction

1-1 Features and Specifications


Features:



- ◆ Up to 1/7,500 display resolution available.
- ◆ IP68 and IP 69 waterproof and dustproof design
- ◆ Food grade SUS304 stainless steel housing and weighing pan.
- ◆ Futuristic streamlined design, lightweight and portable, integrated
- ◆ Sturdy waterproof mechanical switches buttons
- ◆ Powered by 18650 lithium battery, aligning with environmental and social trends.
- ◆ Exclusive power protection design, eliminating concerns of overcharging and over-discharging risks
- ◆ Exclusive energy-saving patent, maximizing performance with single-cell 18650 battery
- ◆ UL 94 V0 flammability rating standard plastic bottom ensuring user safety
- ◆ Maximum capacity up to 15kg
- ◆ Selectable units: Kilogram (kg), gram (g), and pound (lb) weighing units available.
- ◆ Low power indication and auto power off.
- ◆ Well-designed protection point for transportation.

1-2 Power Supply


Model		SUB	SUB AirCharge
Battery		18650 Li-ion rechargeable battery DC 3.7V	
Input power: AC 100~240V ($\pm 10\%$)		Output: DC12V/1.5A	Output: DC12V/1.5A Output > 15W (15W QI TX module)
Power Consumption and Operation Time	2500mA	Without backlight 28mA, 65 hours; With backlight 50mA, 35 hours	
	3200mA	Without backlight 28mA, 100 hours; With backlight 50mA, 50 hours	
	3350mA	Without backlight 28mA, 120 hours; With backlight 50mA, 60 hours	

Low Power Alarm

When low power warning symbol  flashes, scale needs to be charged at once to keep the weight accuracy. If it is not charged immediately, scale auto shuts down within 5~10 hours if it is used without backlight or 1~2 hours with backlight. The cut off voltage is about 3.5V. Once it auto shuts down and enters the battery protection mode, it must be charged before it can be used again.

To check the battery level, please unplug the AC cable first, and turns on the scale and check the battery symbol  displayed in the lower left corner of the display. The number of bars under the battery symbol indicates battery level. 4 bars mean 100%, 3 bars mean 75%, 2 bars mean 50%, 1 bar means 25%, and 0 bar means $\leq 10\%$. When  flashes, that indicates scale needs to be charged.



- ☞ Please recharge at once when the symbol  shows in order to keep the weight accuracy.
- ☞ Charging indicator a) When charging, "Charging" indicator will be red.
b) When the battery is fully charged, "Charging" indicator will be blue.
c) If scale is fully charged, after plugging in, the blue light will turn on after about 5~10 minutes of voltage detection. The "Charging" indicator is to indicate the status of the charging process and whether the charging is working properly. To check the battery level, please unplug the AC cable first and turn on scale, and then check the number of bars under battery symbol for battery level.

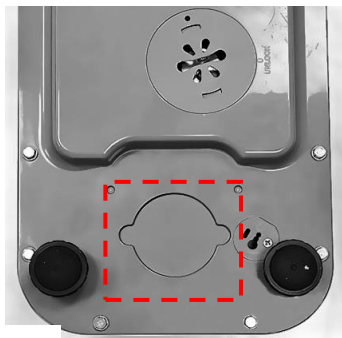
Notice for SUB AirCharge for Wireless Charging

- a. While the scale is charging, the spacing between charging plate and scale shall be within 2mm. Metal objects are prohibited between the spacing; otherwise, it might cause overheating or burning.
- b. After the charging pad is attached in position on the bottom of the scale, charging indicator will light up in about 5 seconds.
- c. Charging without battery will cause charging indicator to flash red and blue. Please avoid that.

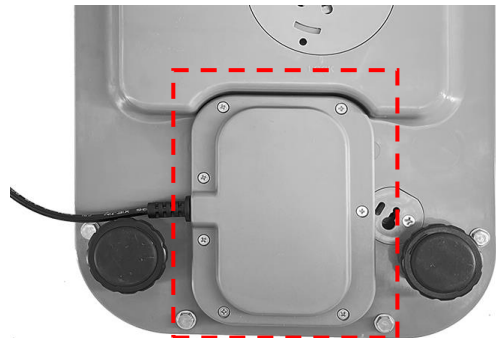
Plug in wireless adapter from left or from right



Position hole is located the bottom of the scale



Raise the scale and aim the point near the center. Slide the charging pad and attach to the position hole



Try to move around the charging pad and ensure it is well attached.



Charging indicator on the display will show:
Red indicates it is charging
Blue indicates it is fully charged



EXCELL®

EXCELL PRECISION CO., LTD.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

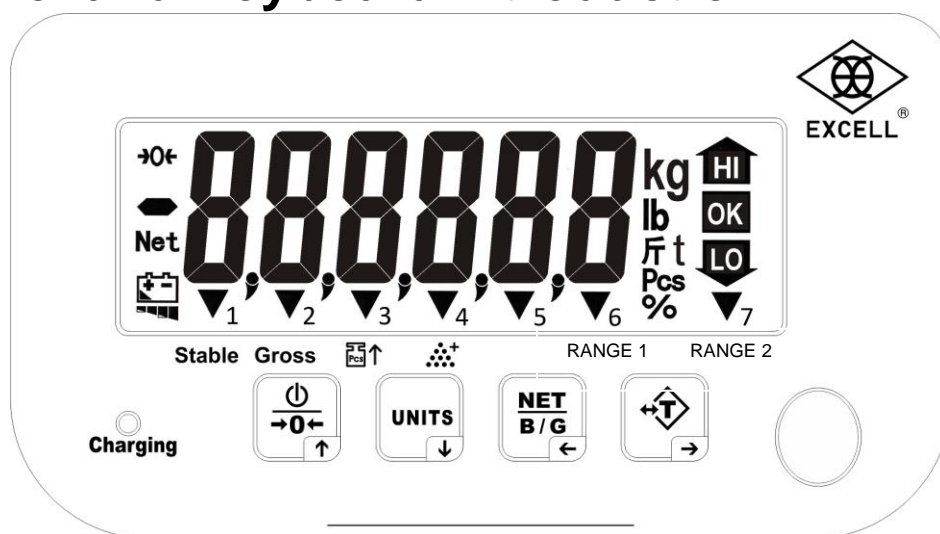
The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC ID for charging pad: 2BFJV000001



1-3 Panel and Keyboard Introduction



→0←	: Zero point indication	LO	: Lower limit
Net	: Net weight indication	kg	: Unit “kilogram”
	: Low Power indication	lb	: Unit “pound”
HI	: Upper limit	斤	: HK tael or Taiwan Tael
OK	: Value between HI and LO	Pcs	: Counting mode indication

STABLE : The weight is stable.

GROSS : The scale is in the gross mode. The display shows the goods and any container weight. This Gross status indication is on when the TARE function is used.

: The unit weight is not sufficient (<0.2d, d=increment). When the icon is on, the counting function is operational but the count may contain errors.

: The sampling size is not sufficient (<20d, d=increment). When the icon is on, the counting function is operational but the count may contain errors.

RANGE 1 : Only available for multi-range models

RANGE 2 : Only available for multi-range models

Keyboard Function



POWER/ZERO KEY

This key possesses three functions: ❶ Power On: press the key when scale is off.

❷ Power Off: while scale is on, hold the key until the scale is switched off.

❸ Zero function: when the weigh pan is empty (free of load) and the display is not showing zero, press the key to zero the scale. At zero, the “→0←” indication is on.



UNITS KEY

Press the key to switch weight units; the icons will indicate the active units.


After power off, the scale will memorize the active units. When the scale is powered on again, it displays the previously active units.




TARE KEY

The tare function will not operate during the following conditions:


1. When the scale powers on if the weight is negative and after a container is placed on the weigh pan if the weight is still below zero.
2. The tare value is over the full scale capacity.

❶ Put a container on the weigh pan and after the weight is stable, press the  key to zero the weight of the container. The screen displays the “Net” icon.

❷ Put the goods in the container, the screen displays the net weight value of the goods.


❸ Remove the full container; the screen displays the negative weight value of the container. At this time pressing the  key again will cancel the tare and the scale reverts back to zero. The “Net” icon is switched off.


☞ The tare function can be operated continually to the full weighing capacity of the scale.


☞ Continual tare operation is adding or removing tare objects on weigh pan and pressing the  key each time.



NET/GROSS KEY

In the Tare mode, the screen displays the “Net” icon, press the  key to switch between the “Net value” and the “Gross value”.

☞  key is only used in Tare mode.

☞ When the ▼ GROSS icon is on, it is in Gross mode and the gross weight value is on the display. Only  keys are functional in Gross mode.

SIMPLE COUNTING FUNCTION

Use the  key to enter into the “PCS” mode

❶ Press the  key to select the counting sample size

(S = 10, S = 20, S = 50, S = 100, S=200).

The LCD shows , , , ,  in order.

❷ Put the samples on the weigh pan and press the  key, the screen displays “-----”.

After the sampling process is complete, put the goods on the weigh pan and the screen shows the quantity of the items.



: The unit weight is not sufficient (<0.2d, d=increment). When the icon is on, the counting function is operational but the count may contain errors.



: The sampling size is not sufficient (<20d, d=increment). When the icon is on, the counting function is operational but the count may contain errors.



☞ The sample weight should be heavier than the minimum capacity of the scale (20d), if not the arrow pointing to the icon(▼) will be activated.

☞ To power off in this mode, the scale will memorize the “Pcs” unit. When the scale is powered on again, it directly enters the simple counting mode.



☞ While the “Auto unit weight average” function is available in the Advanced Function, the goods on the weigh pan are 5pcs greater than the sample size and less than double the sample size, the scale will automatically re-sample the unit weight.

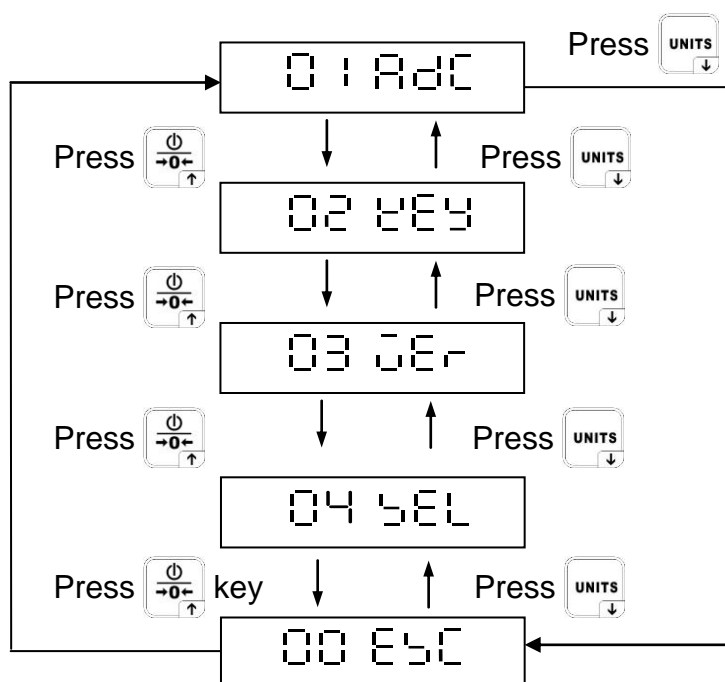


Patented Power Saving Management Function



In weighing mode, hold  and  at the same time for 10 seconds, it will display “IE_ON” or “IE_OFF” and then scale will restart. If it is “IE_ON”, which means power saving management function is on.

1-4 Operating the Scale






Set the switch SWA1 on the bottom of machine to the LOCK position. When power is off, hold , and press  key, Wait till display shows 01 AdC to enter “Self-Test Mode”.



01 AdC INTERNAL VALUE MODE (must hook up Load Cell to test)




- ① Press  to enter, and the display shows internal value
- ② Please check whether the internal value has changed obviously with weight changing.
- ③ Please check the backlight.
- ④ Press  key to back to the last screen , the display shows 01 AdC

02 KEY KEYPAD TEST MODE


- ① Press  to enter, display shows KEY 07
Keypad's internal code:  key= 04,  key=03,  key= 02
- ② Press  key to back to the last screen , the display shows 02 KEY





03 0Er FIRMWARE VERSION DISPLAY MODE


- ① Press  to enter, display shows the firmware version 02035
- ② Press  key again, the display shows maintenance number 8XX for 2 seconds
- ③ Press  key to back to the last screen, display shows 03 0Er

04 5EL CURRENT EVENT COUNTER NUMBER

 Only available when software seal is enabled (CFn 07 = 1).

- ① Press  to enter, display shows the current event counter number, which has to be the same number as in the event counter sticker.
- ② Press  key, back to the last screen, the display shows 04 5EL
- ③ When the event counter number is “999”, it can no longer enter service mode without opening housing. Break the seal and open the scale and adjust SWA1 to ADJ, reset the number back to 1

00 E5C BACK TO THE LAST SCREEN

Press  key to exit self-test mode, the scale will restart automatically.

1-5 Error Messages

E1 ⇒ Initial zero is higher than the zero range when switching the indicator on. (Approval models)

E2 ⇒ Initial zero is lower than the zero range when switching the indicator on. (Approval models)

E4 ⇒ Internal value is below Zero.

oL ⇒ The weight of the object is over 9 divisions of the maximum capacity.



----- ⇒ For weight < -20d without tare or pretare device in operation.

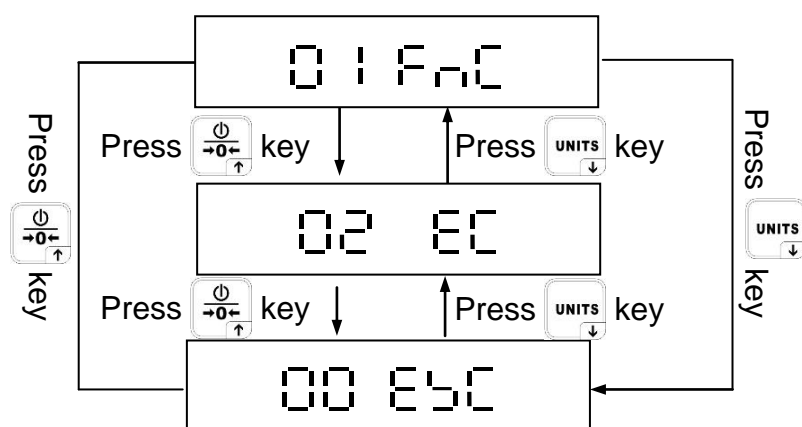
1-6 Weight Unit

kg	1 g = 0.001 kg
g	1 g = 1 g
lb	1 g = 0.002204623 lb
oz	1 g = 0.03527396 oz




Chapter 2 Advanced Functions

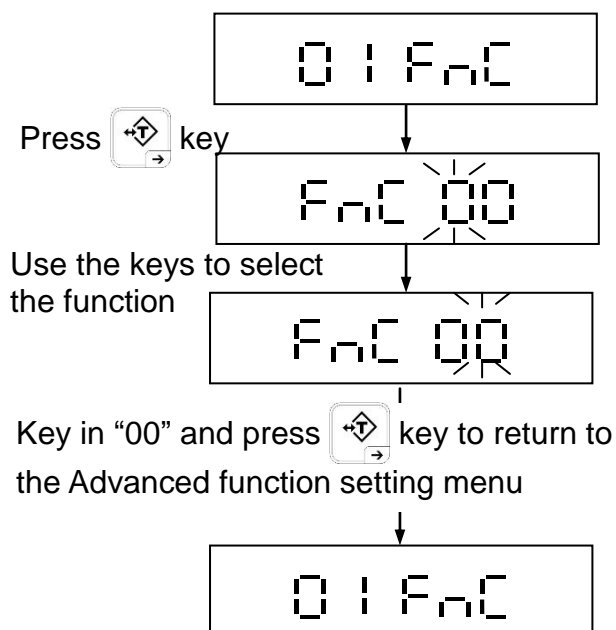
In the weighing mode, press the  and  keys at the same time to enter the Advanced Function setting mode. The display shows 01 FnC.



01 FnC ⇒ General Function setting mode
 02 EC ⇒ External Weight Calibration
 00 ESC ⇒ Exit the Advanced Function setting mode

 For Brazil approval models, only when the unit weight is 0 can we enter the advanced function setting mode. Returning to the weighing mode by 00 ESC, It would display E1 if the unit weight exceeds 2% of the high limitation. It will reset automatically until the unit weight is lower than 2% of the high restriction.

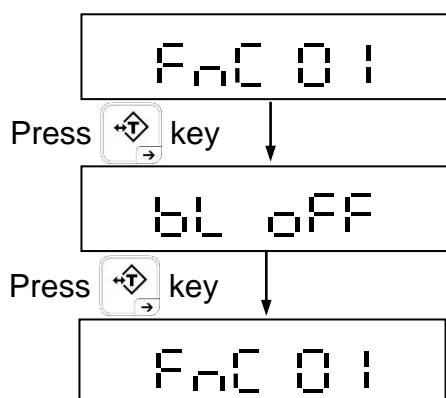
2-1 01 FnC General Function



FnC 00 ⇒ Return to the Advanced Function Setting Mode Menu
 FnC 01 ⇒ Automatic Backlight Function Settings
 FnC 02 ⇒ Automatic Power-off Timer Settings
 FnC 03 ⇒ Hi/Lo/OK Settings
 FnC 04 ⇒ Restore the Default Settings
 FnC 05 ⇒ Noise Filter Settings
 FnC 06 ⇒ Hold Function Settings
 FnC 07 ⇒ Auto Unit Weight Averaging Setting
 FnC 08 ⇒ Two Weighing Units Setting
 FnC 09 ⇒ Unstable Tare



2-1-1 FnC 01 Automatic Backlight Function Setting



Automatic backlight function

Display the setting last time. Default setting = OFF

Use or key to switch

on ⇒ backlight always on

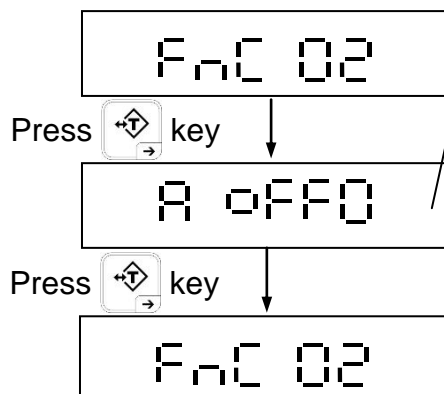
AT ⇒ turn on automatic backlight

When the scale is idle near zero (< 10d) without any key being pressed for 10 seconds, it will automatically disable the backlight.

off ⇒ turn off backlight

When select "on" or "AT", use to adjust brightness

2-1-2 FnC 02 Automatic Power-off Timer Setting



Automatic power-off timer setting

Use or key to key in parameter

0 ⇒ No auto power-off

1 ⇒ When the scale is idle for 1 minute, the scale automatically switches off

2 ⇒ When the scale is idle for 2 minutes, the scale automatically switches off

⋮

⋮

9 ⇒ When the scale is idle for 9 minutes, the scale automatically switches off

Automatic power-off function

When the scale is idle near zero (< 10d) without any key being pressed, the scale will automatically switch off once it reaches the set time (1~9 minutes).



key ⇒ Upward key (from 0 to 9)

key ⇒ Downward key (from 9 to 0)

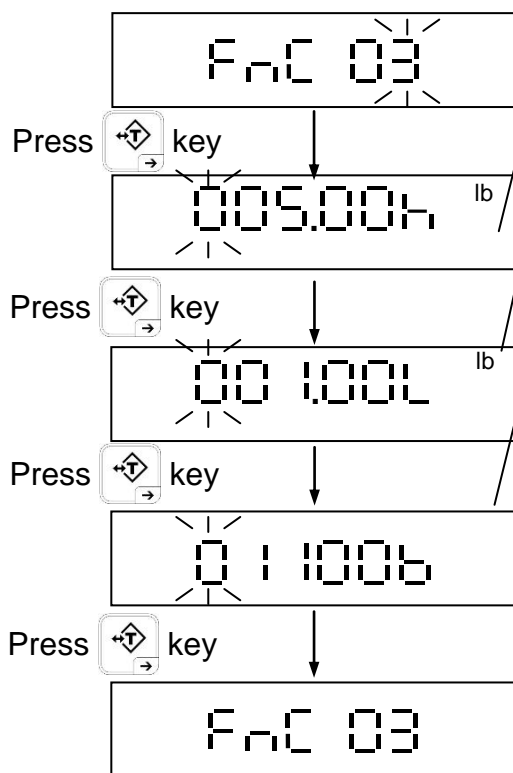
key ⇒ Move the cursor to right

key ⇒ Move the cursor to left.



2-1-3 FnC 03 Hi/Lo/OK Function Setting

- When the high limit and low limit are both set as "0", the Hi/Lo/OK function is disabled. This function is available in all unit modes. In one specific unit mode, enter FnC 03 to set the Hi/Lo/OK values.



LCD displays the last saved status. Key in the desired high limit value, then press key.

LCD displays the last saved status. Key in the desired low limit value, then press key.

LCD displays the last saved status.

Alarm setting

00000b

(a) (b) (c)

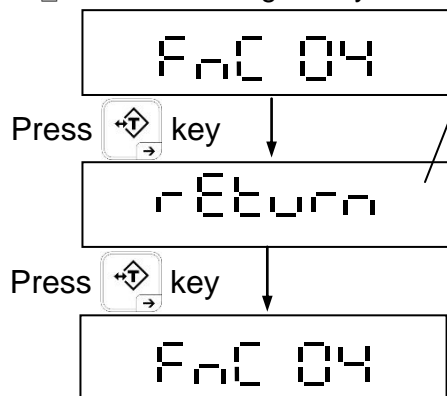
(a) ⇒ 1 = beep sound on 0 = beep sound off

(b) ⇒ 1 = beep sound on when stable
0 = beep sound on when unstable

(c) ⇒ 1 = beep sound on when the weight is between high and low limits
0 = beep sound on when the weight is not between high and low limits and higher than 10d

2-1-4 FnC 04 Restore to the Default Setting

- FnC 04 Setting is only available for non-approval models. (CFN02=0)



Use or key to select "return" or "format"

return ⇒ Return (Cancel the restoration)
format ⇒ Restore to the default setting

- The default setting includes the following:

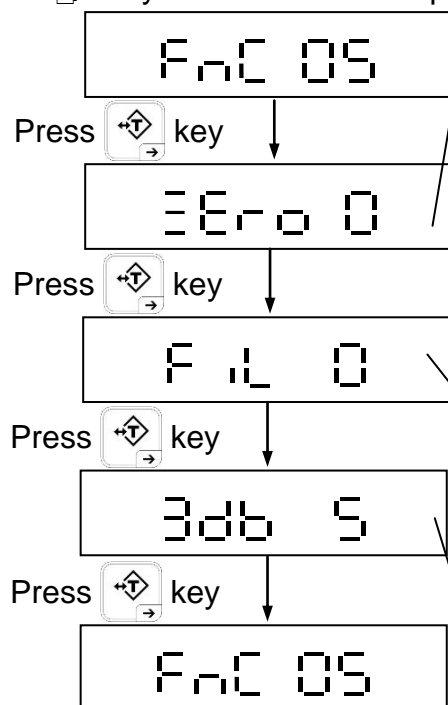
- 1) External weight calibration
- 2) HI/LO/OK setting value
- 3) Noise filter setting (External)
- 4) Sampling setting for the counting function

- If FnC 04 is set to Format, and the scale has not been restarted automatically. Please ensure to restart the scale manually



2-1-5 FnC 05 Noise Filter Setting

Only available for non-approval models. (CFn 02 = 0)



Returning to the zero point setting

Use **←0→** or **UNITS** key to key in the parameters or zero point.

Default setting = 0

When the weight on the scale is over 1/3 full capacity, the function is on.

0 ⇒ 0	4 ⇒ ± 4d	7 ⇒ ± 7d
1 ⇒ ± 1d	5 ⇒ ± 5d	8 ⇒ ± 8d
2 ⇒ ± 2d	6 ⇒ ± 6d	9 ⇒ ± 9d
3 ⇒ ± 3d		

Digital switch & Stabilization range setting

Use **←0→** or **UNITS** key to key in the parameters. Default setting = 0

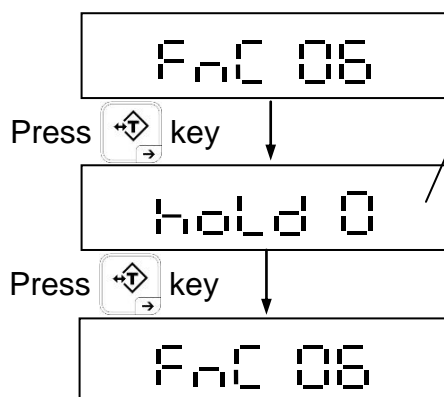
Parameter 0 ~ 9, the larger the number the more stable the weight.

Filter parameter setting

Use **←0→** or **UNITS** key to key in the parameters. Default setting = 5.
Parameter 0 ~ 9, the larger the number, the faster the filter response.
Fast response can lead to weight instability.

2-1-6 FnC 06 Hold Function Setting

FnC 06 Setting is unavailable for Brazil models and OIML approval models.



Hold function setting

LCD displays the last saved parameter setting

Use **←0→** or **UNITS** key to key in the parameters

Default setting = 0

- 0 ⇒ Hold function disabled
- 1 ⇒ "Peak hold" mode
- 2 ⇒ "Stable hold 1" mode
- 3 ⇒ "Stable hold 2" mode

hoLd 0 = **Hold function disabled**

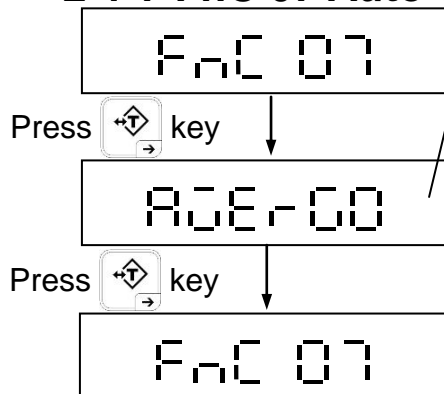
hoLd 1 = **"Peak hold" mode** Keep displaying the maximum weight when the weight is continually changing. To exit this mode, press any key

hoLd 2 = **"Stable hold 1" mode** When the weight is stable, the LCD shows the current weight value. To exit this mode, press any key

hoLd 3 = **"Stable hold 2" mode** When the weight is stable, the LCD shows the current weight value. When the weight returns to zero (<10d), the hold mode is cancelled automatically.



2-1-7 FnC 07 Auto Unit Weight Averaging Setting



Auto unit weight averaging setting

LCD displays the last saved parameter setting

Use or key to key in the parameters

Default setting = 0

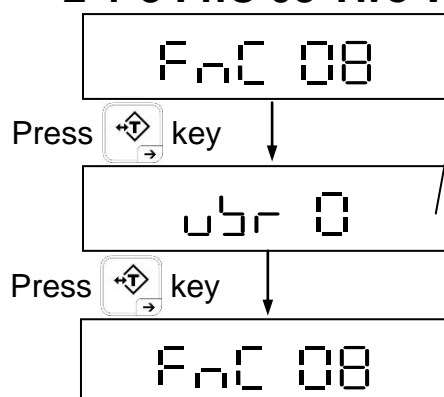
0 ⇒ Auto unit weight averaging

1 ⇒ Disable auto unit weight averaging

☐ FnC 07 setting is unavailable if:

- CFn 05 = PCS OFF (details see 3-4-5)
- CFn 02 = 4 (Brazil Business).

2-1-8 FnC 08 Two Weighing Units Setting



Two weighing units setting

LCD displays the last saved parameter setting

Use or key to key in the parameters for two weighing units

Default setting = 0

0 ⇒ two weighing units function is not activated

To activate two weighing units, please set the 2nd weighing unit to be:

1 ⇒ 2nd weighing unit in CSP 01

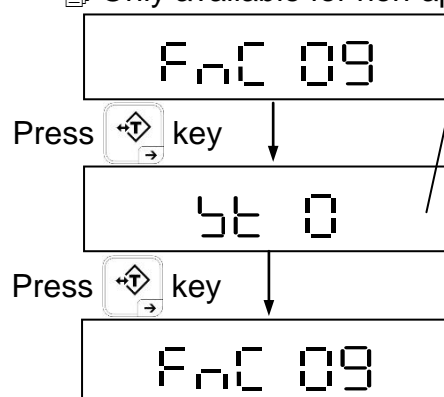
2 ⇒ 3rd weighing unit in CSP 01

3 ⇒ 4th weighing unit in CSP 01

If it set to 1~3, it only displays the 1st weighing unit and the selected 2nd weighing unit

2-1-9 FnC 09 Unstable Tare

☐ Only available for non-approval models. (CFn 02 = 0)



Unstable Tare setting

LCD displays the last saved parameter setting

Use or key to key in the parameters for second weighing unit

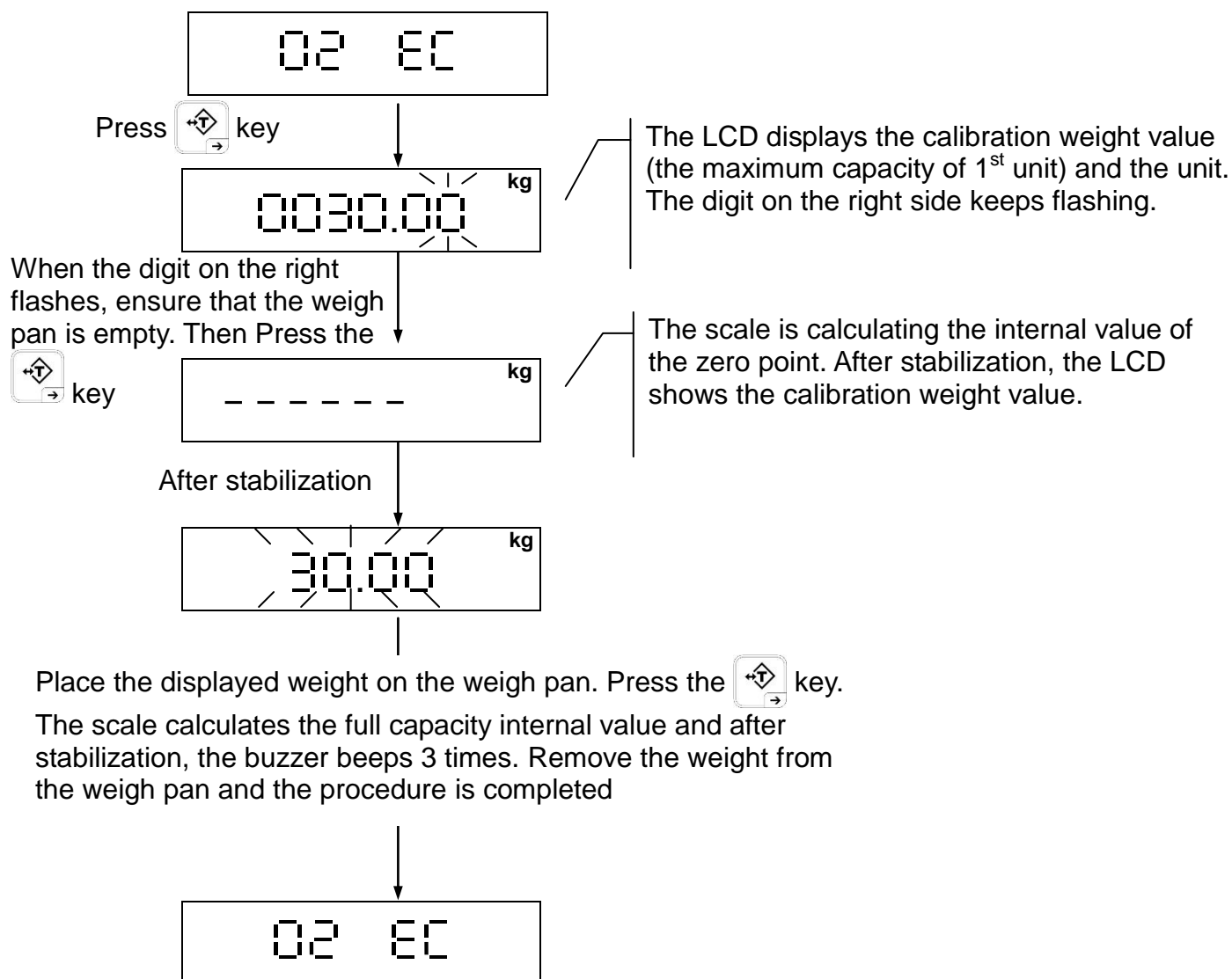
Default setting = 0

0 ⇒ Disable tare operation while unstable

1 ⇒ Enable tare operation while unstable



2-2 02 EC Weight Calibration



Unavailable for approval models can't enter weight value mode by 02 EC

Weight calibration conditions:

The calibration weight value placed on the weight pan must be over 100e, and must be within the 90% and 110% of the full weight



Appendix 1 7-Segment Display Characters

0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z				

