

User Manual

Waterproof Weighing Scale

ELW Plus / ESW Plus ELW Plus Wipower

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Table of Content

Instruction for Use2

Preparing To Use the Scale2

Chapter 1 Introduction4

 1-1 Features and Specifications.....4

 1-2 Power Supply5

 1-3 Panel and Keyboard Introduction6

 1-4 Operating the Scale6

 1-5 Self-Test Mode8

 1-6 Error Messages9

 1-7 Weight Unit9

Chapter 2 Advanced Functions10

 2-1 Advanced Function Setting Table.....10

 2-2 Advanced Function Setting Workflow.....11

 2-3 General Function Setting 01 Fnc12

 2-3-1 Automatic Backlight Function Setting Fnc 0113

 2-3-2 Automatic Power-off Timer Setting Fnc 0214

 2-3-3 Hi/Lo/OK Function Setting Fnc 0315

 2-3-4 Restore to the Default Setting Fnc 0416

 2-3-5 Noise Filter Setting Fnc 0517

 2-3-6 Hold Function Setting Fnc 0618

 2-3-7 Auto Unit Weight Averaging Setting Fnc 0719

 2-4 Weight Calibration 02 EC20

Appendix 1 7-Segment Display Characters21




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.

Instruction for Use

1. Please keep the scale in a cool dry place. Do not store it at high temperature.
2. Avoid objects impacting with the scale. Do not drop loads onto the scale or subject the weigh pan to any strong shock loads.
3. The load placed on the weigh pan must not exceed the maximum weighing capacity of the scale.
4. If the scale is not going to be used for some time, please clean it and store it in a plastic bag in dry conditions. A desiccant sachet may be included to prevent any moisture build up.
5. Please operate or charge the scale in an open area. Do not squeeze the power cord to avoid wire on fire.

Preparing To Use the Scale

1. Adjust the four levelling feet (if fitted) to set the scale pan level using the spirit level bubble located at the front of the scale.
2. Avoid operating the scale in direct sunlight or drafts of any kind.
3. If possible avoid connecting the scale to ac power outlet sockets which are adjacent to other appliances to minimise the possibility of interference affecting the performance of the scale.
4. Remove any weight that might be on the weigh pan before the scale is switched on and avoid leaving weight on the pan for long periods of time
5. All goods weighed should be placed in the centre of the weigh pan for accurate weighing. The overall dimensions of the goods being weighed should not exceed the dimension of the weigh pan.
6. We suggest to warm up the scale for 15~20 minutes before operation to ensure best accuracy.
7. When  symbol keep flashing on the display, please charge the batteries soon.
8. Introduction of Storage Battery



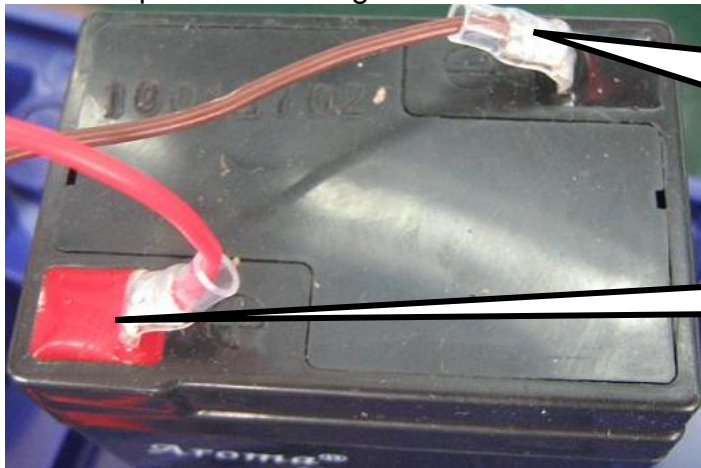
Due to the storage battery adopt the advanced free-maintaining technique, customers need not to replenish electrolyte.

The scale should be recharged every 3 months to prevent failure of the internal rechargeable battery.

1. The battery should be charged for 8~10 hours.
2. The temperature of battery should below 45°C.

Maintaining

1. Please do not discharge with over-current when using the battery. Please charge the battery after discharging current.
2. Please take down the battery when the scale is not used for a long time or break the connection of cathode.
3. Do not short the battery terminals to check whether there is current. Please check whether the connection point is firm to guarantee good connection.
4. The battery should be replaced by specialized person. **No reverse-battery or the product will be damaged.**
 - a) Anode of battery should be connected with Anode of product battery (usually red cable)
 - b) Cathode of battery should be connected with Cathode of product battery (usually brown cable or black cable)
 - c) See the picture following:



Brown cable(or black cable) connected with Cathode of battery

Red cable connected with Anode of battery

Safety warnings

1. The electrolyte of battery is caustic which causes metal, cotton, etc to corrode.
2. The hydrogen will be resolved when using or charging the battery and it will cause explosion when approaches fire.



No burning



Caution Corrosion



Warning explosion



Children faraway



Chapter 1 Introduction

1-1 Features and Specifications

Features:

- ◆ Sealed waterproof silica gel strip blocks water from infiltrating into the scale.
- ◆ Surrounded by waterproof grade sheeting to ensure the water free.
- ◆ 1/3,000~1/6,000 display resolution available.
- ◆ ESW Plus adopts stainless steel housing while ELW Plus and ELW Plus Wipower plastic ABS housing.
- ◆ High speed of 24bits AD fast reacts and shortens the weighing operation duration.
- ◆ Selectable units: Kilogram (kg), gram (g), ounce (oz), and pound (lb) weighing units available.
- ◆ Built-in rechargeable battery can be easily replaced.
- ◆ Well-designed protection point for transportation.
- ◆ Low power indication and auto power off.

Specifications:

Model	Capacity	Division	Resolution
ELW Plus-3 ELW Plus Wipower-3 ESW Plus-3	3kg	0.5g 1g	1/6,000 1/3,000
ELW Plus-6 ELW Plus Wipower-6 ESW Plus-6	6kg	1g 2g	1/6,000 1/3,000
ELW Plus-15 ELW Plus Wipower-15 ESW Plus-15	15kg	2g 5g	1/7,500 1/3,000
ELW Plus-30 ELW Plus Wipower-30 ESW Plus-30	30Kg	5g 10g	1/6,000 1/3,000
Operating Temperature : -10°C ~ 40°C (14°F ~ 104°F)			
Dimensions : ELW Plus:270 x 124 x 310mm (W x H x D) ELW Plus Wipower:270 x 124 x 310mm (W x H x D) ESW Plus: 240 x 120 x 280mm (W x H x D)			
Weight of the scale: ELW Plus: 3.3 kg approximately; ELW Plus Wipower: 3.3 kg approximately; ESW Plus: 3.5 kg approximately;			



1-2 Power Supply

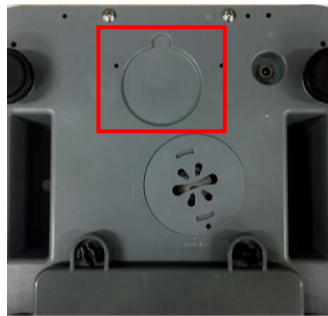
Power Supply and Power Consumption

- ❶ DC 6V / 4Ah rechargeable battery
- ❷ AC 100V~240V (±10%) adapter
- ❸ 29 mA (system no backlight) about 153 hours
80 mA (system backlight) about 50 hours
- ❹ Wireless Charging (ELW Plus Wipower only)
Power Supply adapter 100V~240V(50~60Hz)
Output : >5W (meets WPC1.12_Qi Wireless Power Supply's)
 - 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. Charging without battery will cause charging indicator to flash red and green. Please avoid that.
 - c. How to use Wireless charging

Plug in wireless adapter



Position hole is located the bottom of the scale



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



Try to move around the charging plate and ensure it is unmovable



Red indicates it is charging
Green indicates it is fully charged



Low Battery Warning



When  symbol keep flashing on the display, please recharge the batteries soon.



1-3 Panel and Keyboard Introduction



Icon Introduction

- 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. When the icon is on, the counting function is operational but the count may contain errors.
-  : The sampling size is not sufficient. When the icon is on, the counting function is operational but the count may contain errors.

Keyboard Function

ON/ZERO KEY

This key possesses two functions: Power On and Zero function.

OFF KEY

When the scale is switched on, press the **OFF** key, the scale will switch off.

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.

UNITS KEY

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

NET/GROSS KEY

In the Tare mode, the screen displays the “TARE” icon; press the **NET/GROSS** key to switch between the “Net value” and the “Gross value”.

1-4 Operating the Scale

POWER ON

When the scale is off, press the **ON/ZERO** key, the scale will switch on.

POWER OFF

When the scale is on, press the **OFF** key, the scale will switch off.



ZERO

When the weigh pan is empty (free of load) and the display is not showing zero, press the **ON/ZERO** key to zero the scale. At zero, the “→0←” indication is on.

- ☞ When the weight value is within the zero range, the zero function operates to zero the scale or cancel the tare function.
- ☞ Zero range: The OIML & NTEP models have a zero range of $\pm 2\%$ of Full Scale. The Sri Lanka model has a zero range of $\pm 4\%$ of Full Scale.

SWITCHING UNITS

Press the **UNITS** key to switch weight units, the icons or arrows will indicate the active units as appropriate. The units available are dependent on the exact scale model.

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

TARE FUNCTION

- (1) Put a container on the weigh pan and after the weight is stable, press the **TARE** key to zero the weight of the container. The screen displays the “Net” icon.
- (2) Put the goods in the container, the screen displays the net weight value of the goods.
- (3) Remove the full container; the screen displays the negative weight value of the container. At this time pressing the **TARE** 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 **TARE** key each time.

NET/GROSS FUNCTION

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

- ☞ When the **▼ GROSS** icon is on, the weight value on the display is the total amount of the tare value and net value.
- ☞ At the Gross status, only **OFF** and **NET/GROSS** keys are functional.
- ☞ **NET/GROSS** key is only used in Tare mode.

SIMPLE COUNTING FUNCTION

- (1) Use the **UNITS** key to enter into the “PCS” mode
- (2) Press the **NET/GROSS** key to select the counting sample size
(S = 10, S = 20, S = 50, S = 100, S=200).

The LCD shows **10**, **20**, **50**, **100**, **200** in order.

- (3) Put the samples on the weigh pan and press the **UNITS** 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.

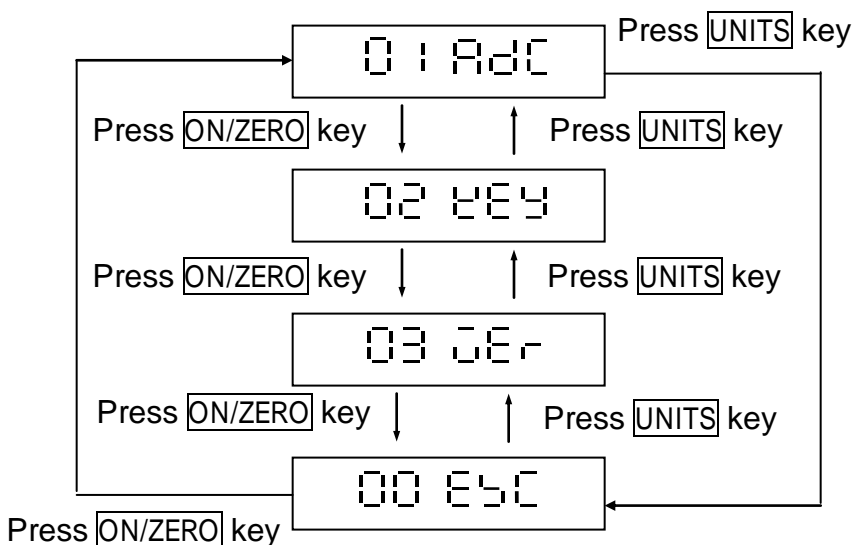
- ☞ The sample weight should be heavier than the minimum capacity of the scale (20d), If not the arrow pointing to the icon will be activated.
- ☞ The weight of a sample should be heavier than the 0.2d (d=division), or the arrow pointing to the icon will be on.
- ☞ When the or are indicated, the scale is still operational but the count may contain errors.



- 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.

1-5 Self-Test Mode

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



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

- Press **TARE** to enter, and the display shows internal value
- Please check whether the internal value has changed obviously with weight changing.
- Please check the backlight.
- Press **ON/ZERO** key to back to the last screen, the display shows **01 AdC**

02 EEY KEYPAD TEST MODE

- Press **TARE** to enter, display shows **EEY 07**
Keypad's internal code: **TARE** key= 07 **UNITS** key= 06 **NET/GROSS** key=05
- Press **ON/ZERO** key to back to the last screen, the display shows **02 EEY**

03 EEr FIRMWARE VERSION DISPLAY MODE

- Press **TARE** to enter, display shows the firmware version **02026**
- Press **TARE** key again, the display shows maintenance number **100** for 2 secs
- Press **ON/ZERO** key to back to the last screen, display shows **03 EEr**

00 E5C BACK TO THE LAST SCREEN

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



1-6 Error Messages

- Ⓔ 1 ⇒ Initial zero is higher than the zero range when switching the indicator on.
(Approval models)
- Ⓔ 2 ⇒ Initial zero is lower than the zero range when switching the indicator on.
(Approval models)
- Ⓔ 4 ⇒ Internal value is below Zero.
- Ⓛ ⇒ The weight of the object is over 9 divisions of the maximum capacity.
- Ⓧ ⇒ A/D IC value is over the maximum range.

1-7 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

2-1 Advanced Function Setting Table

Below is an overview of the advanced functions. For detailed settings refer to the following sections:

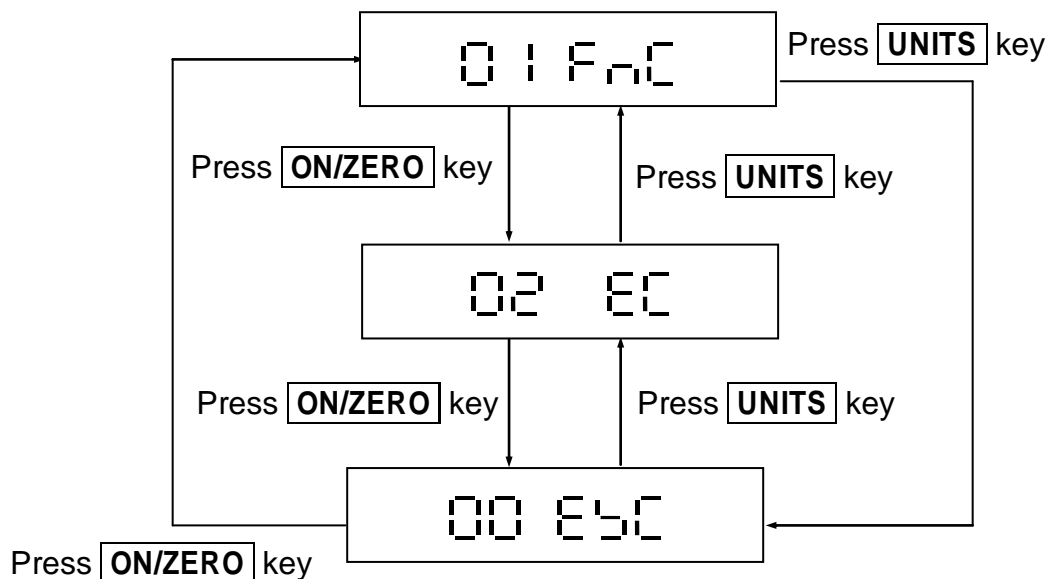
DISPLAY	LEVEL 1 FUNCTION	DISPLAY	LEVEL 2 FUNCTIONS
00 ESC	Exit the ADVANCED FUNCTION setting mode	---	---
01 F _n C	General Function setting mode	F _n C 00	Return to the ADVANCED FUNCTION setting menu
		F _n C 01	Automatic backlight function setting
		F _n C 02	Automatic power-off timer setting
		F _n C 03	Hi/Lo/OK function setting
		F _n C 04	Restore the default settings
		F _n C 05	Noise filter setting
		F _n C 06	Hold function setting
		F _n C 07	Auto unit weight averaging setting
02 EC	External Weight Calibration	---	---



2-2 Advanced Function Setting Workflow

In the weighing mode, press the **NET/GROSS** and **ON/ZERO** keys at the same time to enter the **Advanced Function** setting mode. The LCD shows **01 Fnc**.

Overall workflow of the Advanced Function setting mode:



01 Fnc ⇒ General Function setting mode
02 EC ⇒ External Weight Calibration
00 ESc ⇒ Exit the Advanced Function setting mode

Refer to the following sections for the detailed operation procedures of each function setting.



2-3 General Function Setting 0 | F n C

There are 7 functions in the general function setting mode from F n C 01 to F n C 07.

Workflow of the General Function setting:

ACTIONS

DISPLAY

NOTE

Press **TARE** key

Use the keys to select the function

Key in "00" and press **TARE** key to return to the Advanced function setting menu

0 | F n C

F n C 00

F n C 00

0 | F n C

ON/ZERO key ⇒ Upward key (from 0 to 9)

UNITS key ⇒ Downward key (from 9 to 0)

TARE key ⇒ Move the cursor to right

NET/GROSS key ⇒ Move the cursor to left

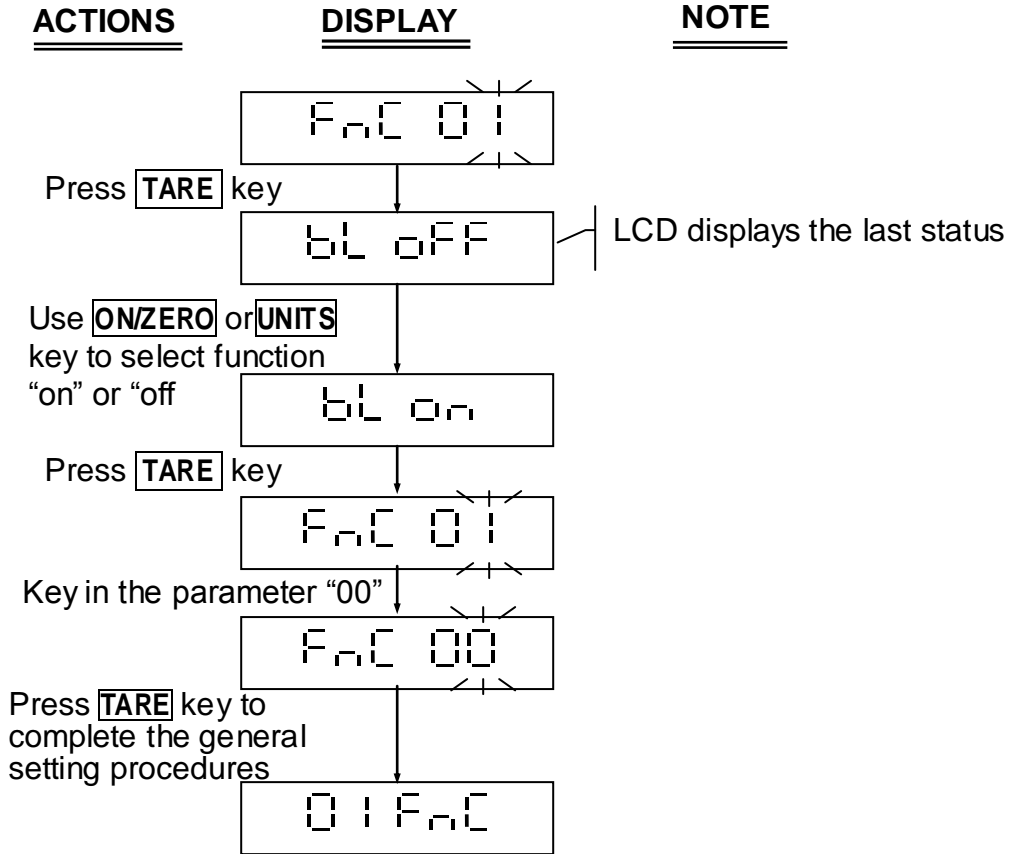
F n C 00	⇒ Return to the Advanced Function Setting Mode Menu
F n C 01	⇒ Automatic Backlight Function Settings
F n C 02	⇒ Automatic Power-off Timer Settings
F n C 03	⇒ Hi/Lo/OK Settings
F n C 04	⇒ Restore the Default Settings
F n C 05	⇒ Noise Filter Settings
F n C 06	⇒ Hold Function Settings
F n C 07	⇒ Auto Unit Weight Averaging Setting

Refer to the following sections for detailed operation procedures of each setting.



2-3-1 Automatic Backlight Function Setting F_nC 01

Select F_nC 01 in the General Function setting mode 01 F_nC to change the backlight function setting.



Automatic backlight function

When the weight is over 10d, the display backlight will be on. After the weight is stable for 10 seconds or when the scale returns to zero, the display backlight switches off.



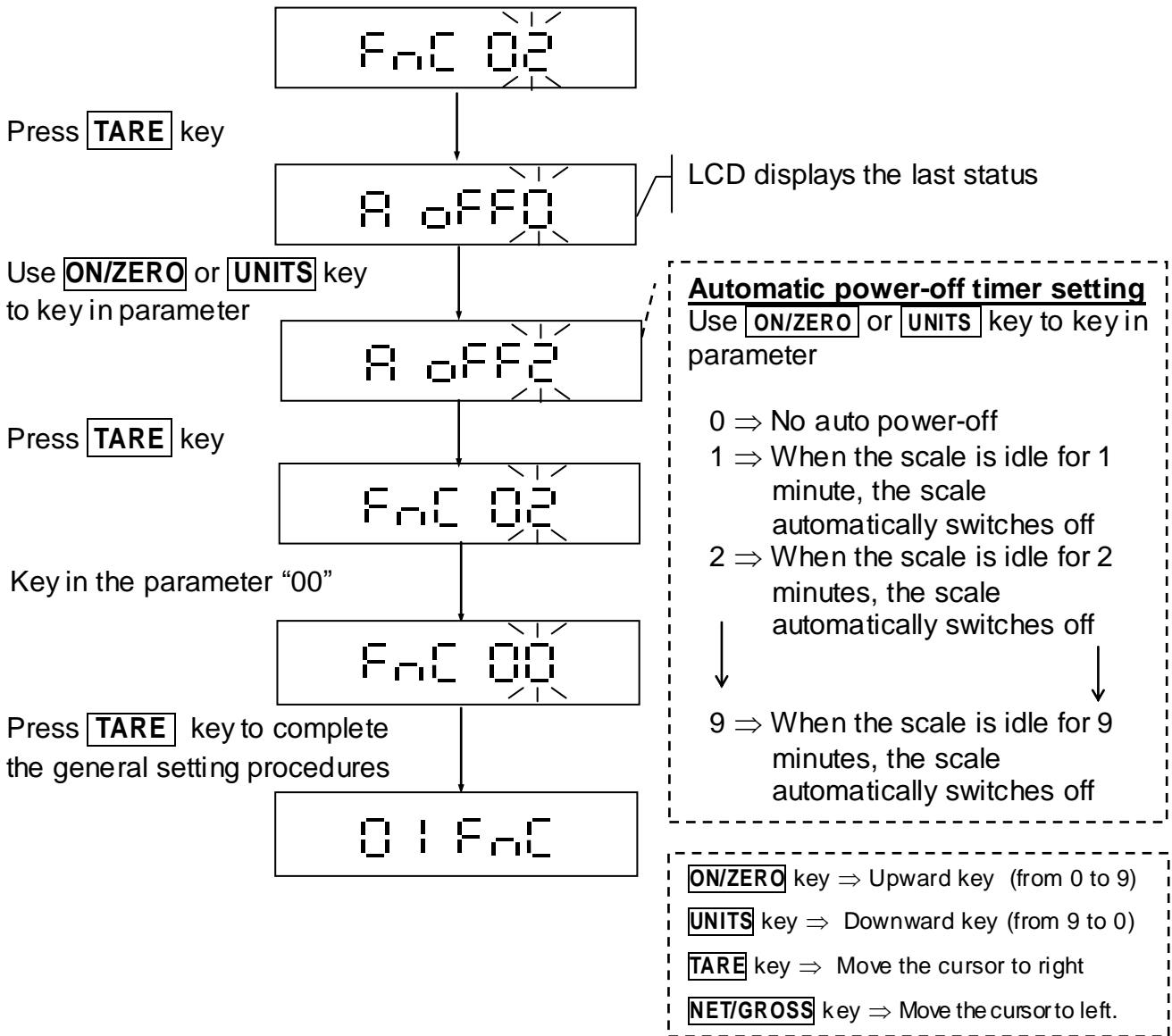
2-3-2 Automatic Power-off Timer Setting F_nC 02

Select F_nC 02 in the General Function setting mode 01 F_nC to change the automatic power-off timer setting.

ACTIONS

DISPLAY

NOTE



Automatic power-off function

When the weight on weigh pan is less than 10d or keeps idle for the set time, the scale will automatically switch off.



2-3-3 Hi/Lo/OK Function Setting F_nC 03

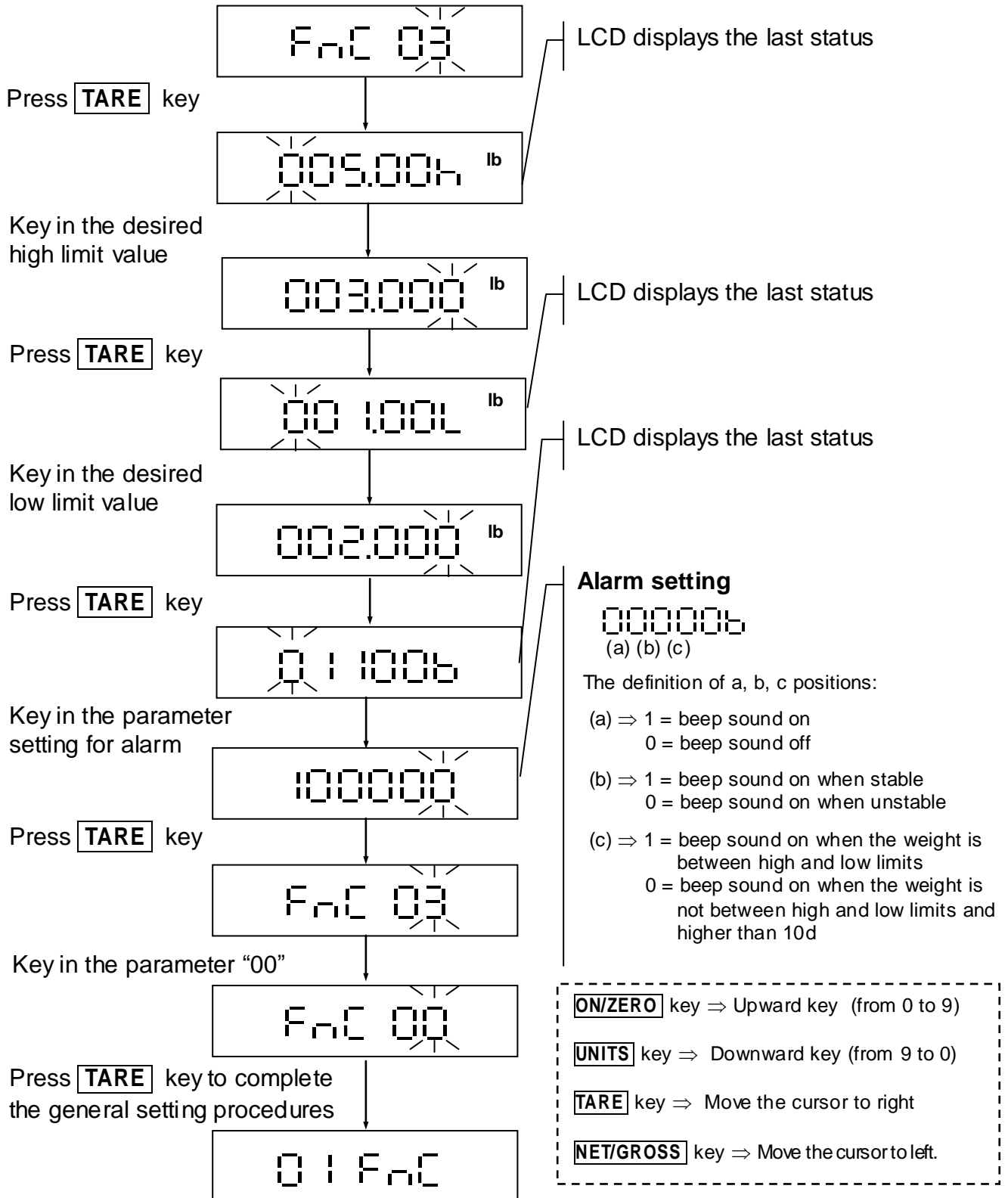
Select F_nC 03 in the General Function setting mode 0 | F_nC to set the Hi/Lo/OK function. This function is available in all unit modes. In one specific unit mode, enter F_nC 03 to set the Hi/Lo/OK values.

☞ When the high limit and low limit are both set as "0", the Hi/Lo/OK function is disabled.

ACTIONS

DISPLAY

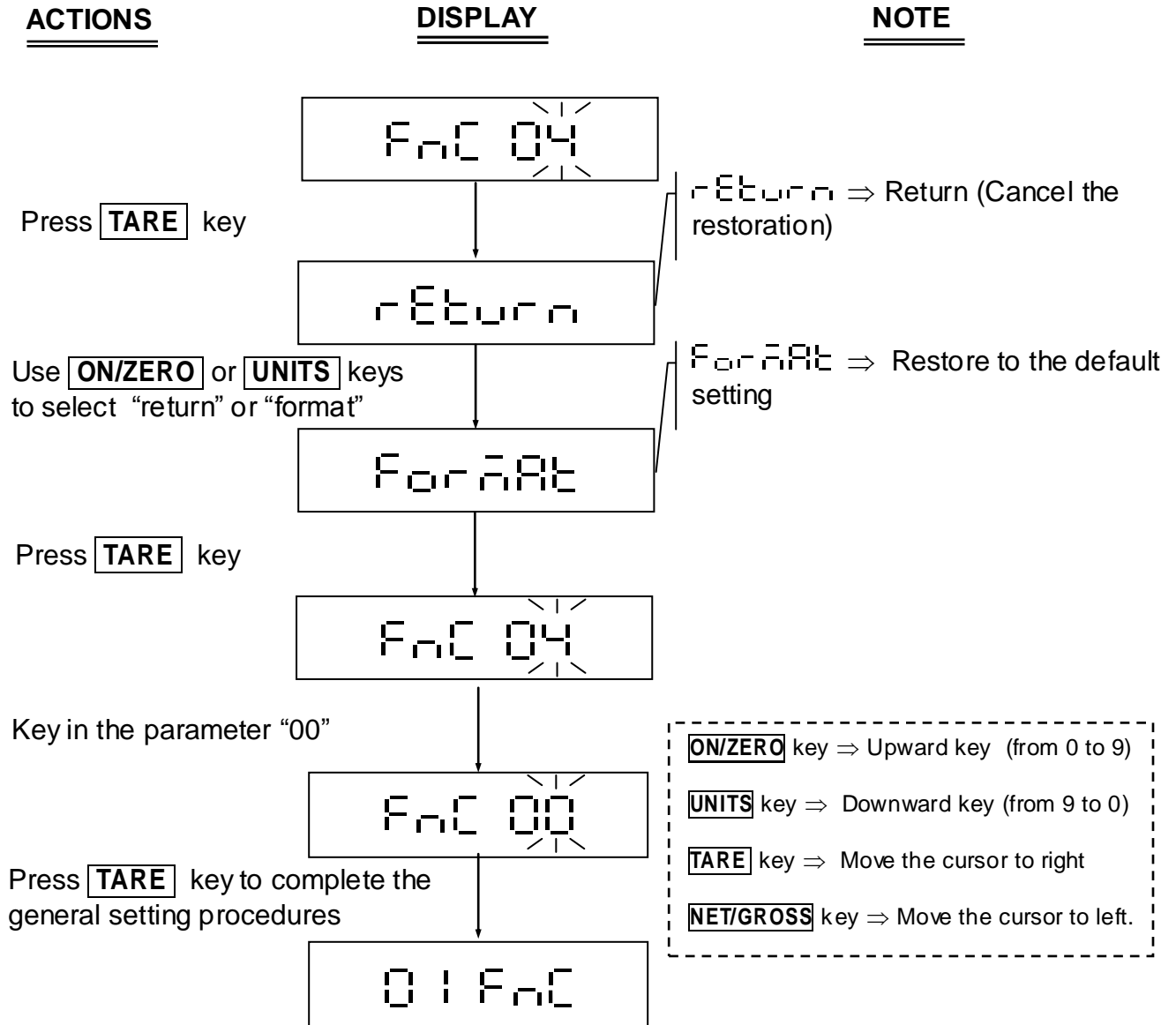
NOTE





2-3-4 Restore to the Default Setting F_nC 04

Select F_nC 04 in the General Function setting mode 01 F_nC to restore to the default setting.



☰ The default setting includes the following:

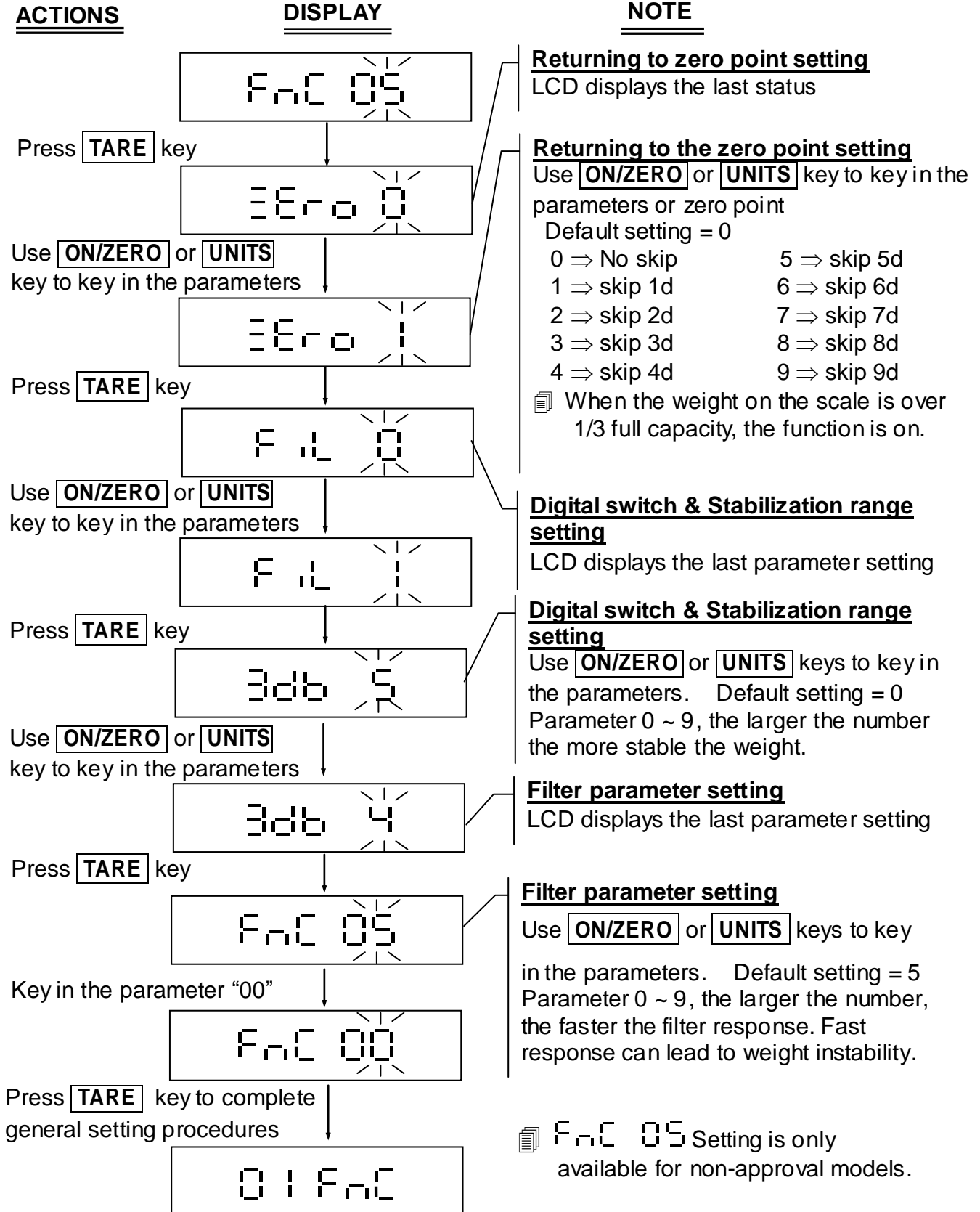
- 1) External weight calibration
- 2) HI/LO/OK setting value
- 3) Noise filter setting (External)
- 4) Sampling setting for the counting function

☰ F_nC 04 Setting is only available for non-approval models.



2-3-5 Noise Filter Setting F_nC 05

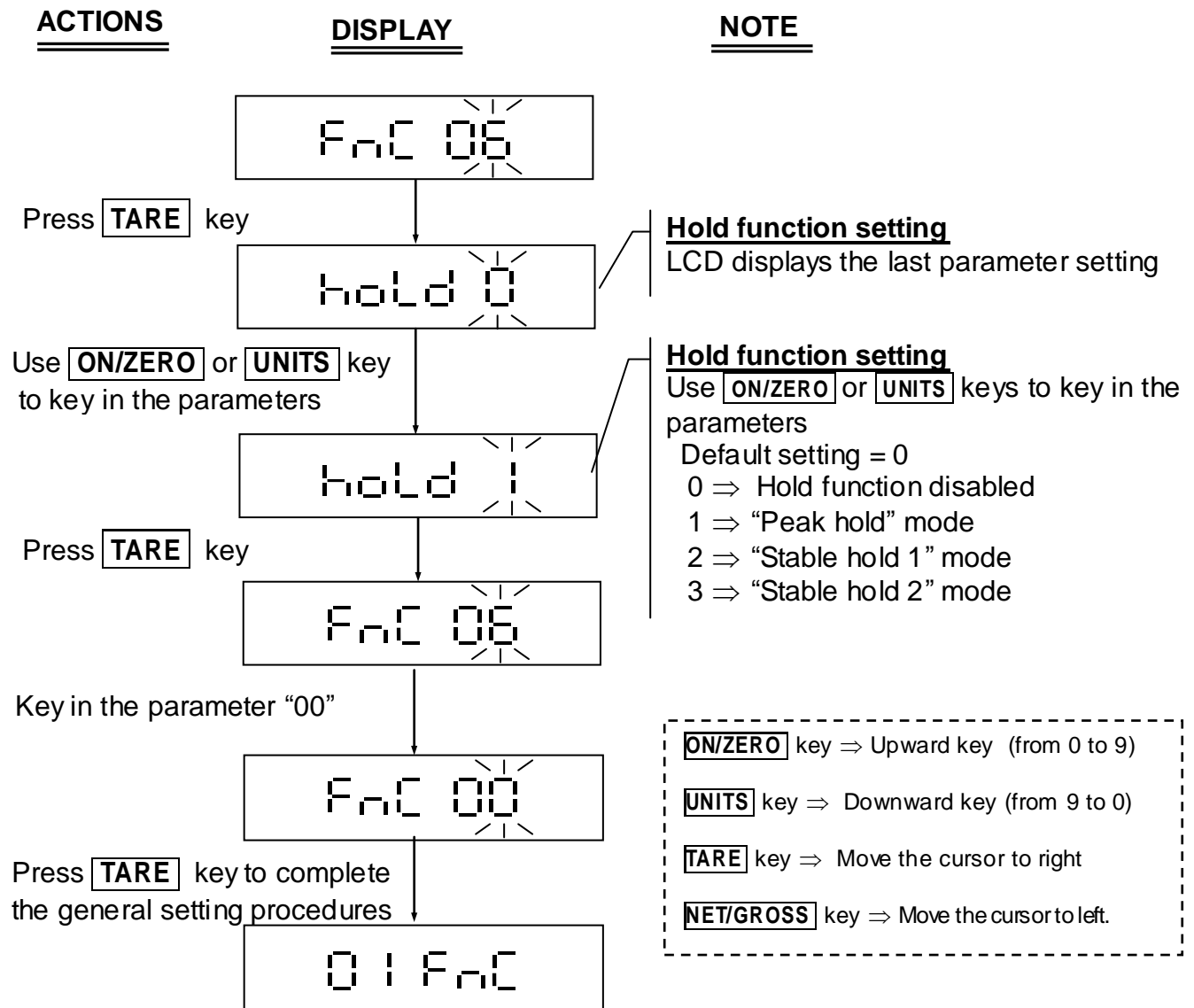
Select F_nC 05 in the General Function setting mode 0 | F_nC to set the noise filter setting.





2-3-6 Hold Function Setting F_nC 06

Select F_nC 06 in the General Function setting mode 0: F_nC to set the hold function.



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.

F_nC 06 Setting is unavailable for Brazil models.



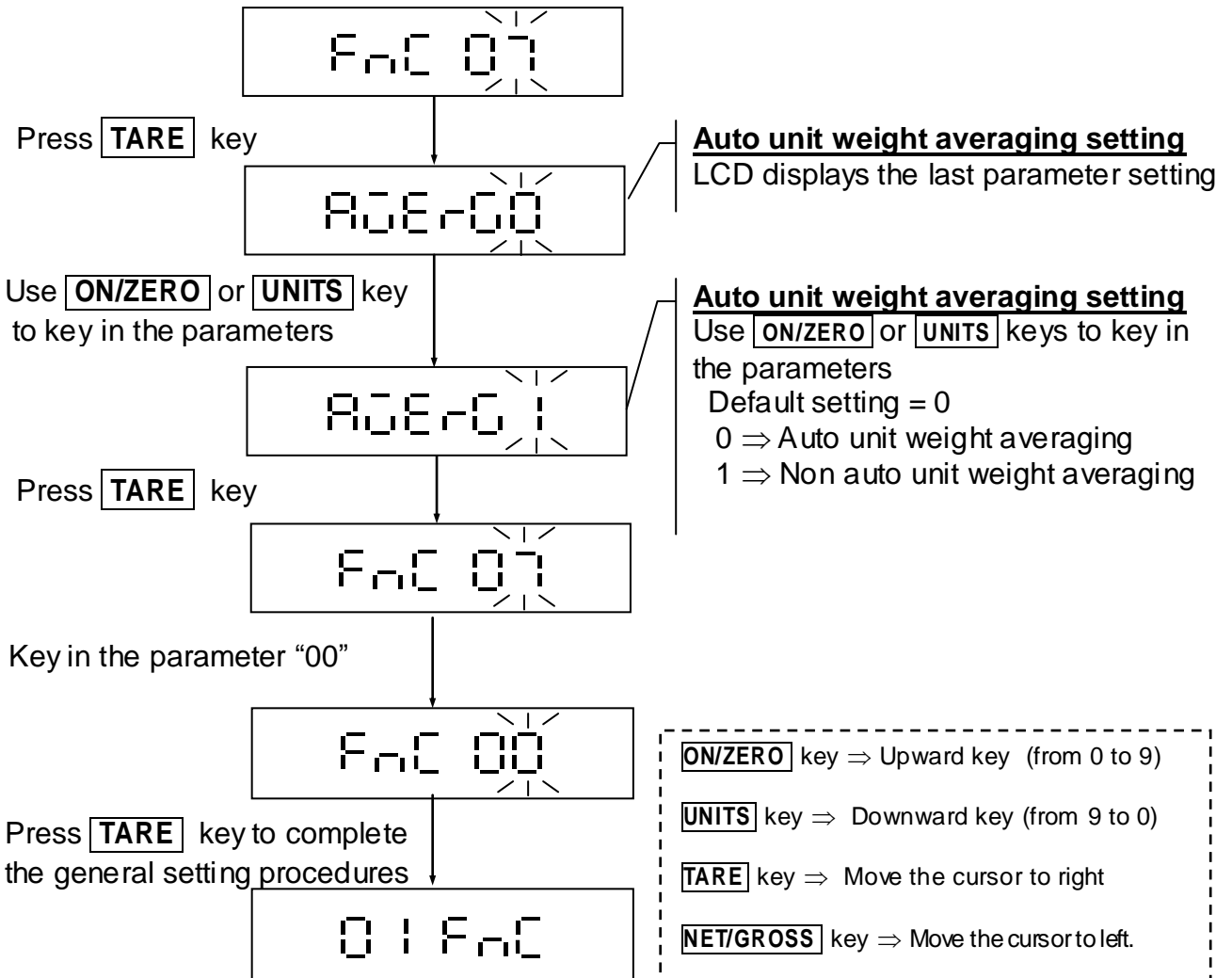
2-3-7 Auto Unit Weight Averaging Setting F_nC 07

Select F_nC 07 in the General Function setting mode 0: F_nC to set Auto Unit Weight Averaging.

ACTIONS

DISPLAY

NOTE

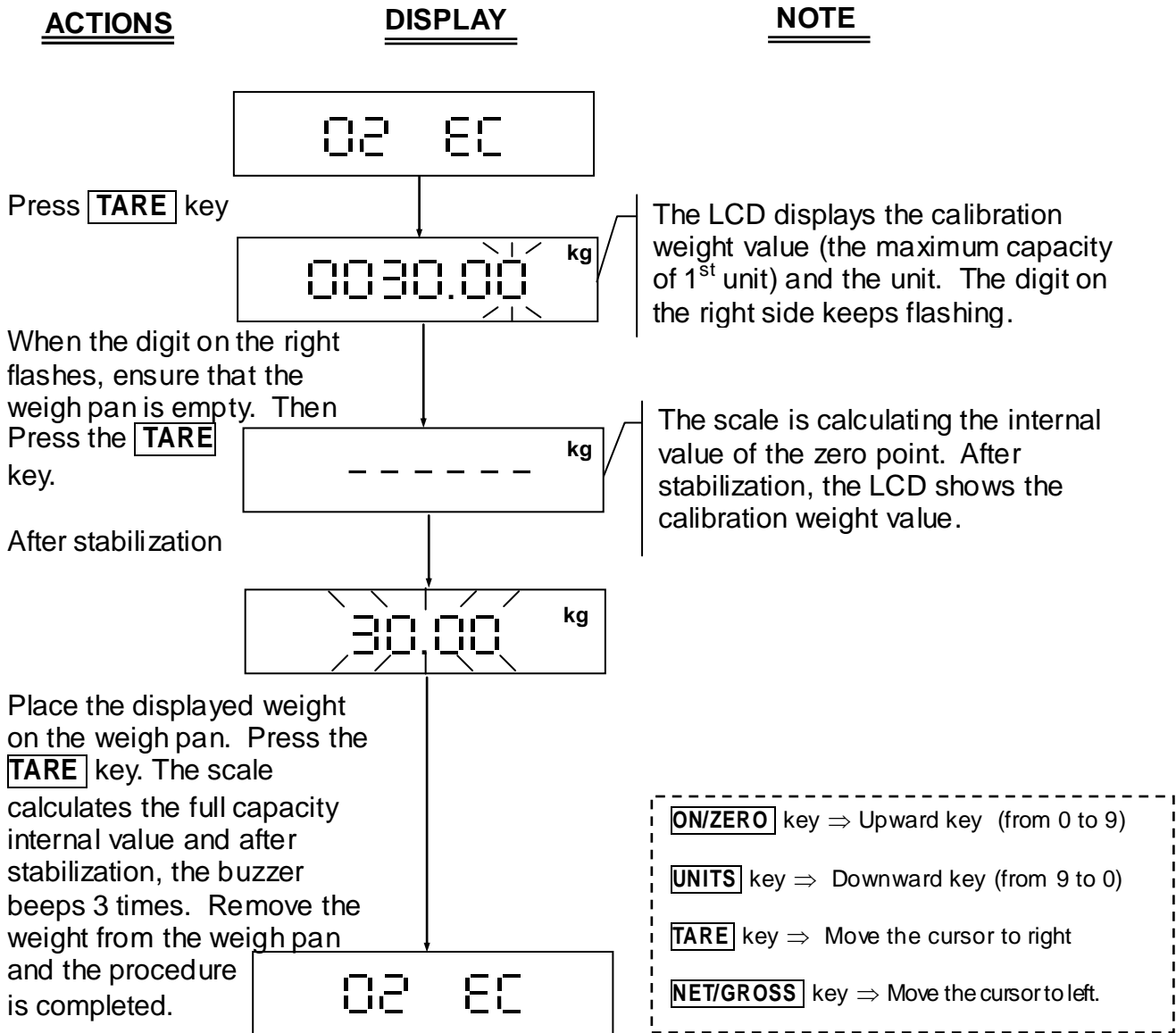


F_nC 07 Setting is unavailable for Brazil models.



2-4 Weight Calibration 02 EC

In the weighing mode, press the **NET/GROSS** and **ON/ZERO** keys at the same time to enter the **Advanced Function** setting mode. The LCD shows 01 Fnc and use the **NET/GROSS** or **UNITS** key to select 02 EC to enter the weight calibration mode.



☞ Unavailable for approval models

☞ 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

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