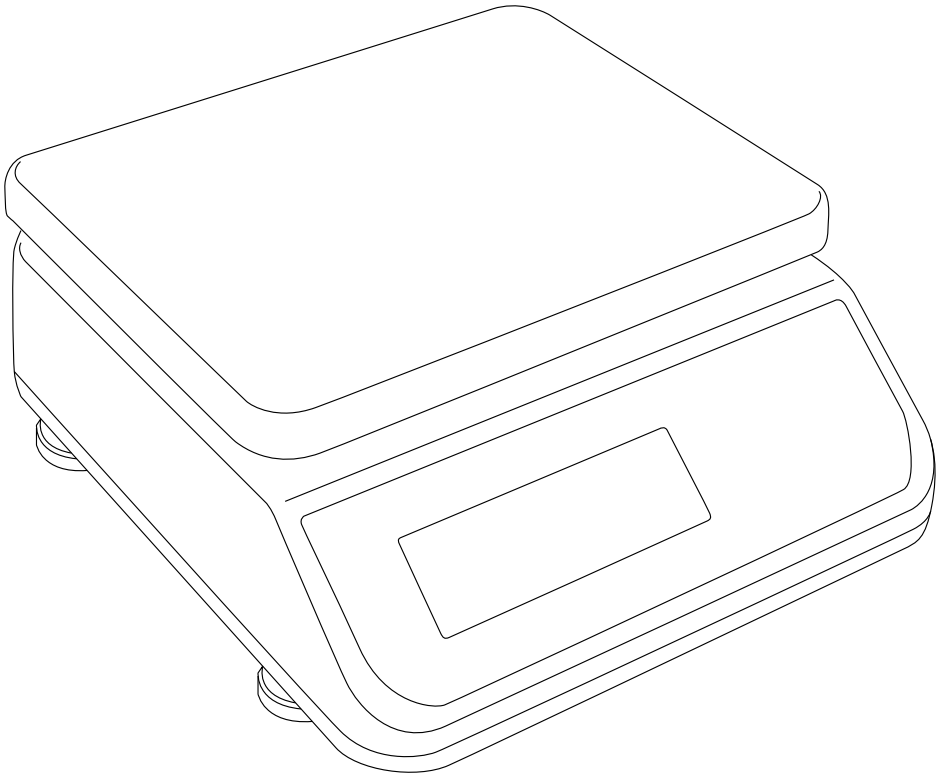
GRAM

SERIES

DX

3 / 6 / 15 / 30



EN

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USER MANUAL

Table of Content

Thank for your purchasing of our GRAM Weighing Scale. To guide you to use our product correctly, please read this Manual carefully to extend the life of machine and to avoid error.

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

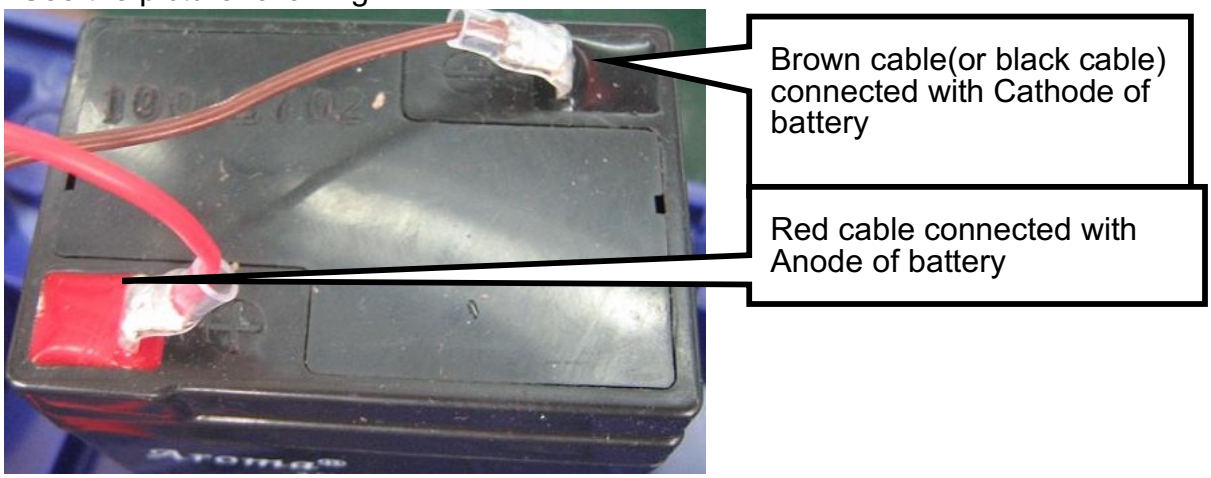
1. Adjust the four levelling feet (if fitted) to set the scale pan level using the spirit level bubble located at the front of the scale.
2. Avoid operating the scale in direct sunlight or drafts of any kind.
3. If possible avoid connecting the scale to ac power outlet sockets which are adjacent to other 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. Please note when the  symbol keeps flashing on the screen, the batteries need to be replaced.
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℃.

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



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.
- DX adopts stainless steel housing.
- High speed of 24bits AD fast reacts and shortens the weighing operation duration.
- Selectable units: Kilogram (kg), gram (g), and pound (lb) weighing units available.
- Built-in rechargeable battery can be easily replaced.
- Vertical placement design battery prevents from electrolyte leakage, and makes more safety and durable.
- Low power indication and auto power off.
- Well-designed protection point for transportation.
- Securable platter with screws at users' needs.

Specifications

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

Resolutions above 1/3,000 are only available for non-approval models.

1-2 Power Supply

Power Supply Selection for Standard Models

1. DC 6V / 4Ah rechargeable battery
2. AC 110V~240V (±10%) adapter

Power Supply Selection for Wireless Charging Models

1. Power Supply adapter 100V~240V(50~60Hz)
Output：＞5W (meets WPC1.12_Qi Wireless Power Supply's)
2. DC 6V / 4Ah rechargeable battery or 3.7V/4000mAh lithium battery is used

Power Consumption for Models with lead acid battery

About 120 mA (high brightness); 60 mA (normal brightness); 41.7 mA (low brightness)

Power Consumption for Models with lithium battery

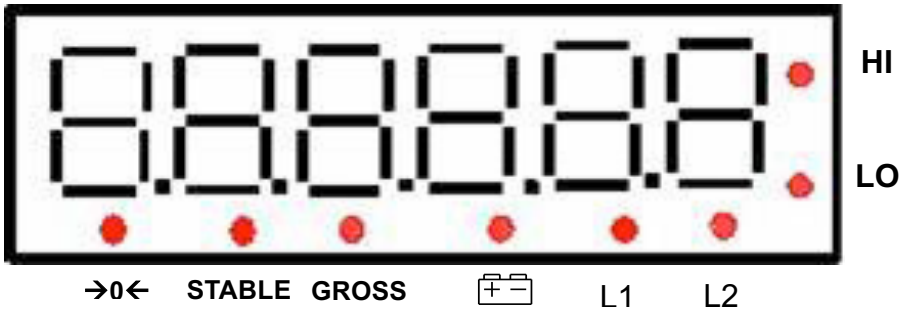
About 180 mA (high brightness); 90 mA (normal brightness); 62.6 mA (low brightness)

Low Battery Warning

Please note when the ( ) symbol keeps flashing on the display, the battery should be recharged right away.

The scale will turn off automatically after 1~2 hours, when the low battery warning symbol shows up. Then the scale must be fully charged, before operating again.

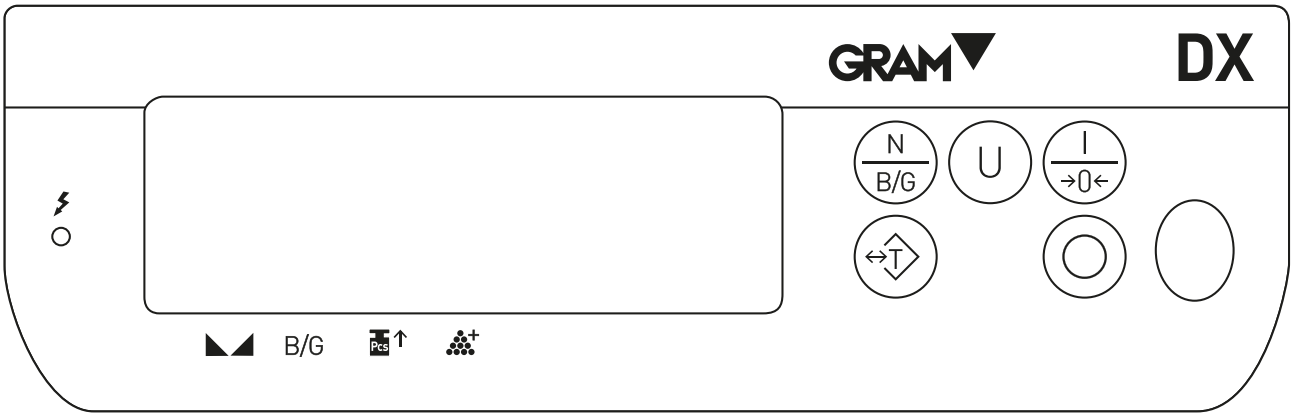
1-3 Display and Keypad Introduction



Icon Introduction

→0← : Zero point indication
STABLE : stable indication
GROSS : gross weight indication
: Low battery indication. When this symbol is flashing replace the batteries.
L1、L2 : only for multiple-unit models; units indications
HI : The weight on weigh pan is greater than the high limit
LO : The weight on weigh pan is lower than the check value

Keyboard Function



OFF: power off

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

❶ When the scale is off, press the ON|ZERO key, the scale will switch on.

❷ When the scale is on, the ON|ZERO key has zero function.

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.

UNITS: 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.

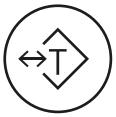
NET |GROSS: switch NET or GROSS key

NET|GROSS key is only used in Tare mode.

In the Tare mode, the screen displays the "Net" icon,

In tare mode, when the GROSS icon is on, the weight value on the display is the total amount of the tare value. When the GROSS icon is off, the weight value on the display is the net value. press the NET|GROSS key to switch between the "Net value" and the "Gross value".

At the Gross status, only OFF and NET|GROSS keys are functional.



TARE : tare / pre-tare key

The tare function will not operate during the following conditions:
When the scale powers on, the weight is still below zero after a container is placed on the weigh pan. Or the tare value is over the full scale capacity.

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 "→0←" "STABLE" 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 screen displays the "→0←" "STABLE" icon.

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.

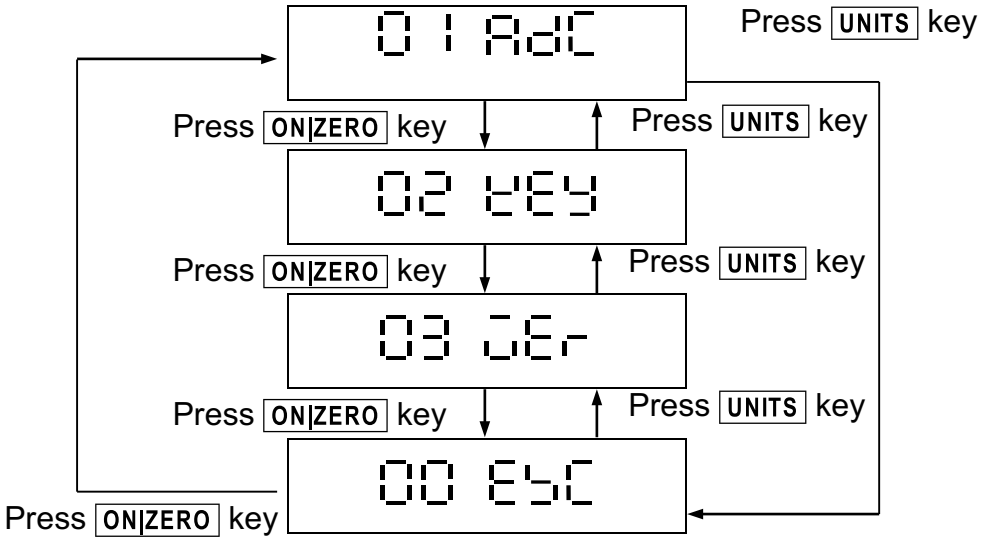
Power Saving Mode

To enable the power saving mode, please go to FnC 01 and set as "on".

When the scale is idle at zero without any key being pressed for 10 seconds, it will enter power saving mode. Only one "-" segment will be the display, and "-" will scrolling from left to right. To exit power saving mode, place weight over 10d or press any key.

1-4 Self-Test Mode

Set the switch SWA1 on the bottom of machine to the LOCK position.When the scale count down, press NET|GROSS and ON|ZERO keys together, 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 TARE 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 ON|ZERO key to back to the last screen , the display shows 01 AdC

02 KEY KEYPAD TEST MODE

① Press TARE to enter, display shows KEY 07
Keypad’s internal code: TARE key= 07, UNITS key= 06, NET|GROSS key=05
② Press ON|ZERO key to back to the last screen , the display shows 02 KEY

03 SEr FIRMWARE VERSION DISPLAY MODE

① Press TARE to enter, display shows the firmware version 02026,
② Press TARE key again, the display shows maintenance number 202 for 2 secs for lead acid battery model or “900” for Wipower models with lithium battery
③ Press ON|ZERO key to back to the last screen, display shows 03 SEr

00 ESC BACK TO THE LAST SCREEN

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

1-5 Error Messages

E 1 ⇒ Initial zero is higher than the zero range when switching the scale on.

E2 ⇒ Initial zero is lower than the zero range when switching the scale on.

E4 ⇒ Internal value is unstable. (Continuous unstable occurred over 20 secs when switching the scale on, or after pressing ON|ZERO or TARE key.)

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

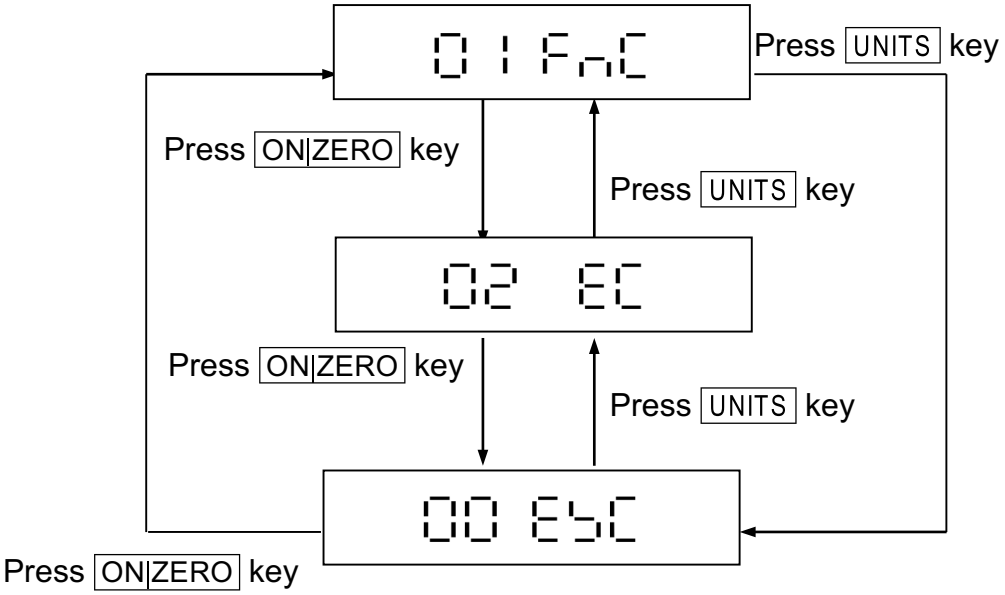
-------- ⇒ For weight < -20d without tare or pretare device in operation.

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 External Function Setting

In the weighing mode, press NET|GROSS and ON|ZERO keys at the same time to enter the External Function setting mode. The LCD shows 01 FnC.



01 FnC ⇒ General Function setting mode

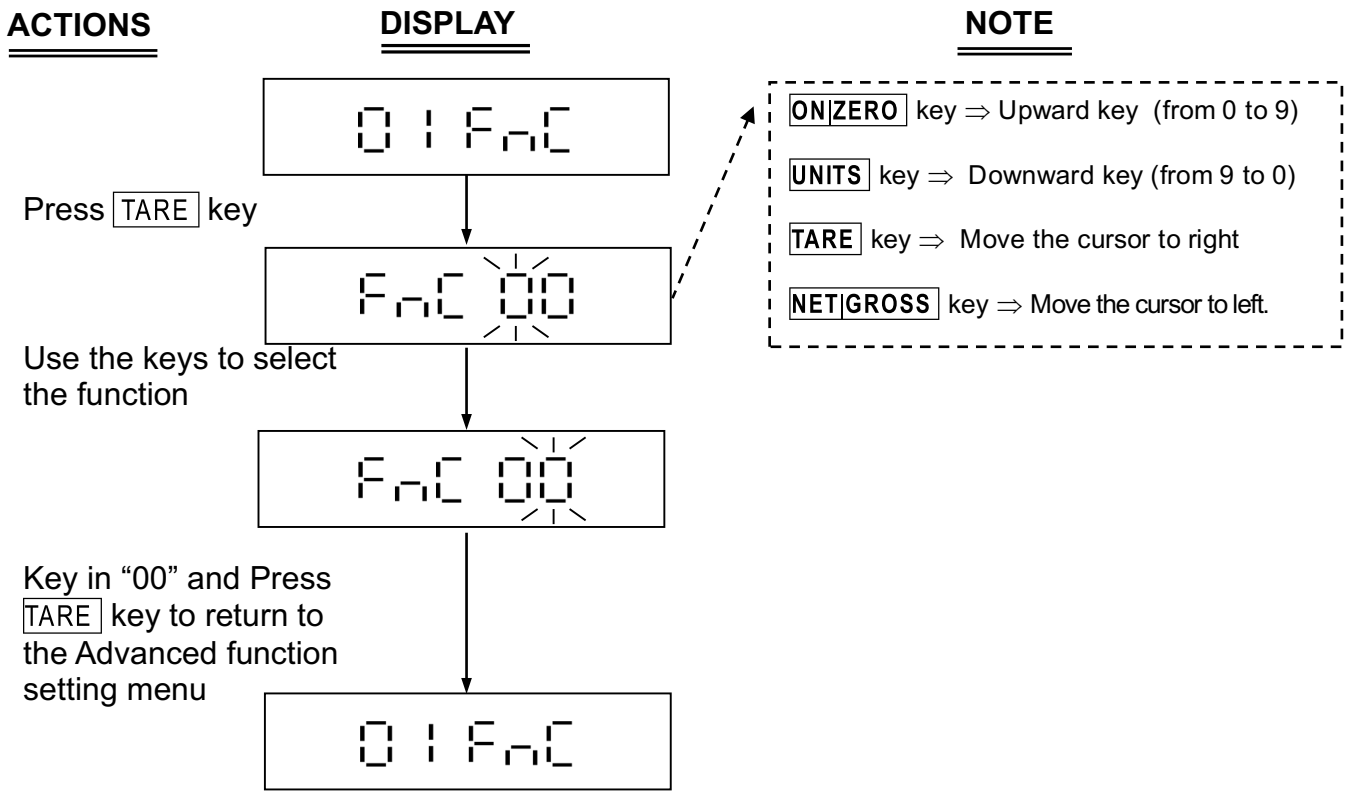
02 EC ⇒ External Weight Calibration

00 EsC ⇒ Exit the Advanced Function setting mode

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

2-1 General Function Setting 0 1 FnC

Workflow of the General Function setting:



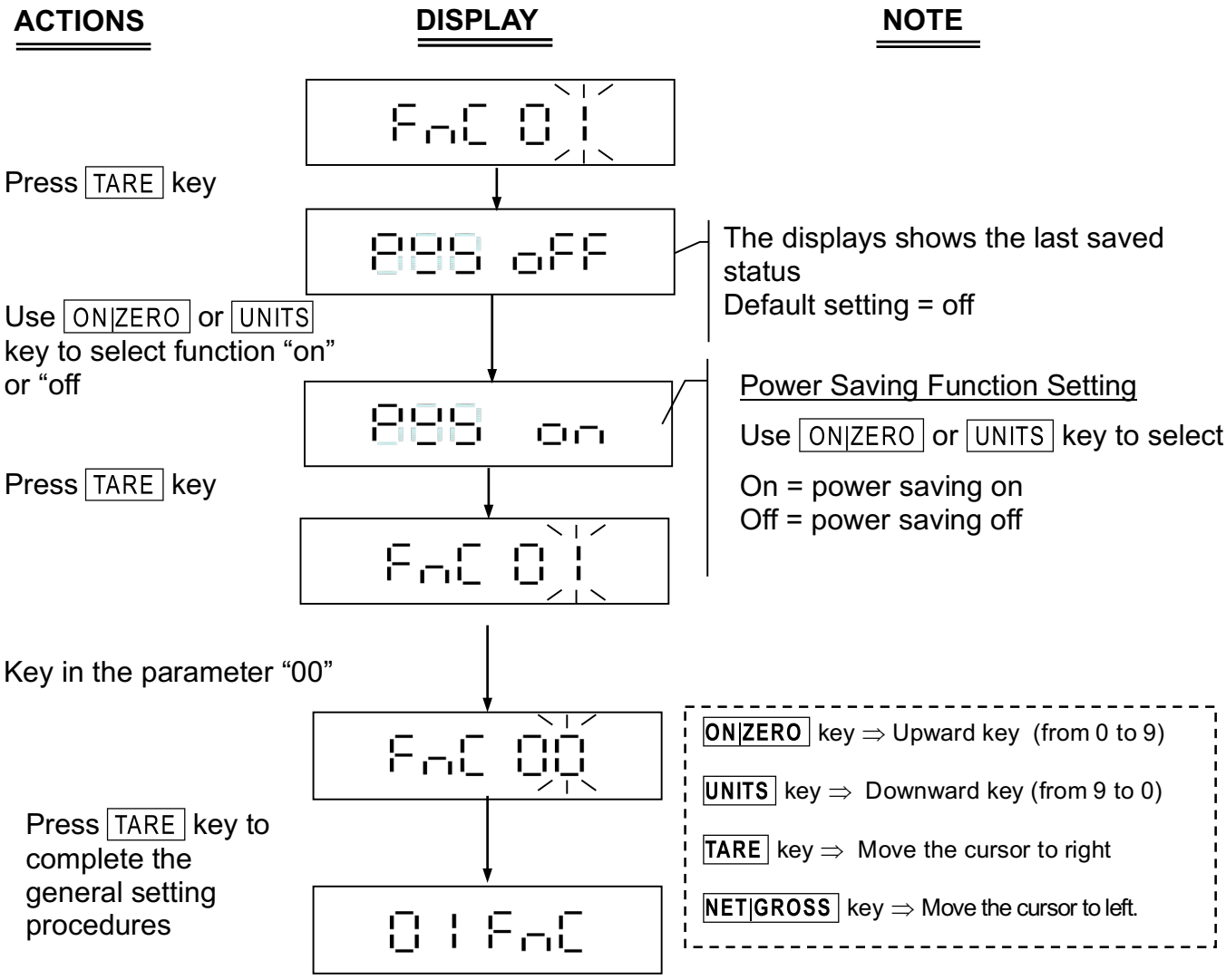
FnC 00	⇒ Return to the Advanced Function Setting Mode Menu
FnC 01	⇒ Power saving Function Setting
FnC 02	⇒ Automatic Power-off Timer Setting
FnC 03	⇒ Hi/Lo/OK Setting
FnC 04	⇒ Restore the Default Setting
FnC 05	⇒ Noise Filter Setting
FnC 08	⇒ Two Weighing Units Setting
FnC 09	⇒ Unstable Tare
FnC 10	⇒ LED Brightness Setting

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

FnC 04, FnC 05, FnC 09 are only available for non-approval models.

2-1-1 Power Saving Function Setting FnC 01

Select FnC 01 in the General Function setting mode 01 FnC to change power saving function setting.

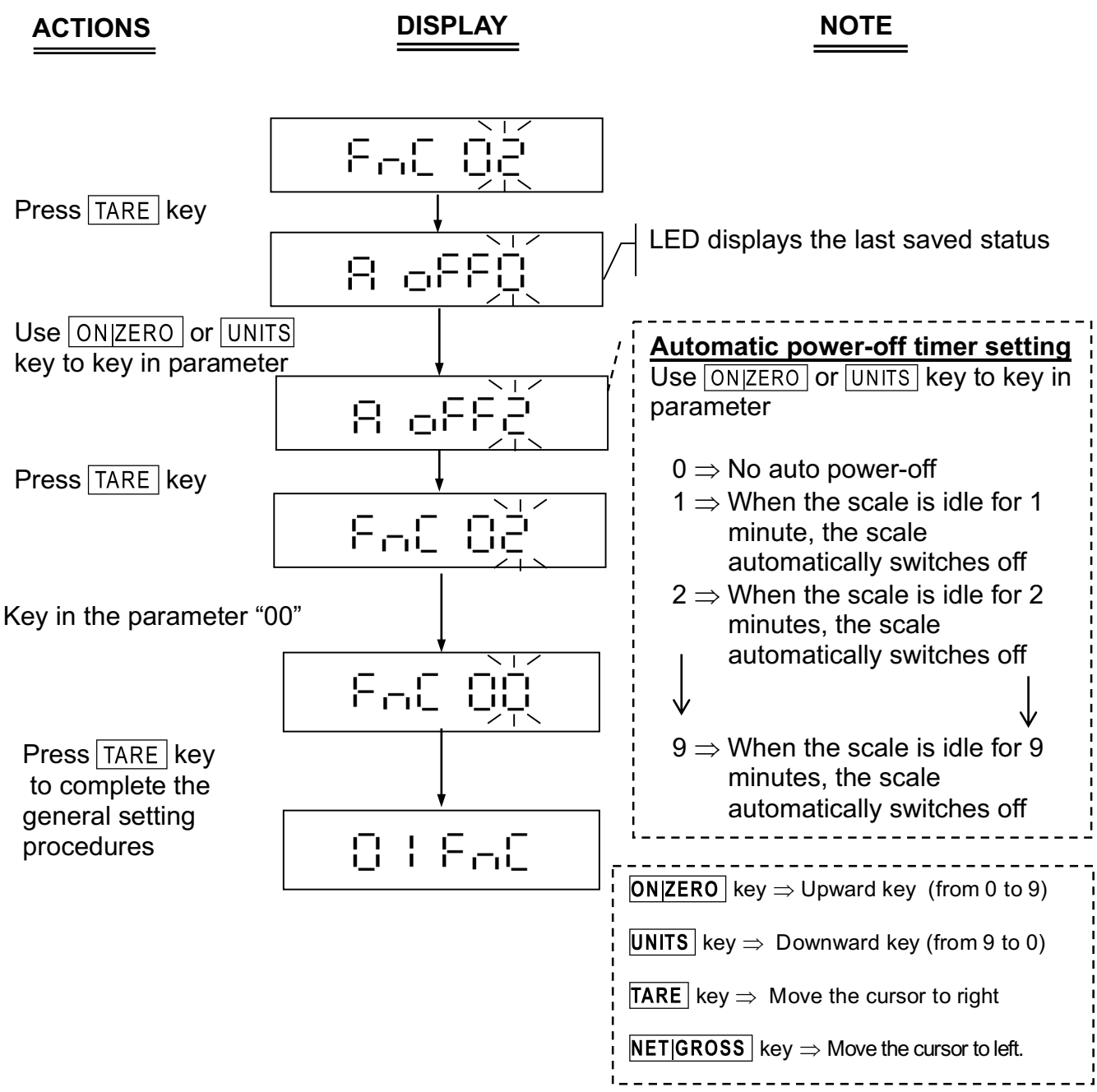


Power saving function

When the scale is idle at zero without any key being pressed for 10 seconds, it will enter power saving mode. To exit power saving mode, place weight over 10d or press any key.

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

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



Automatic power-off function

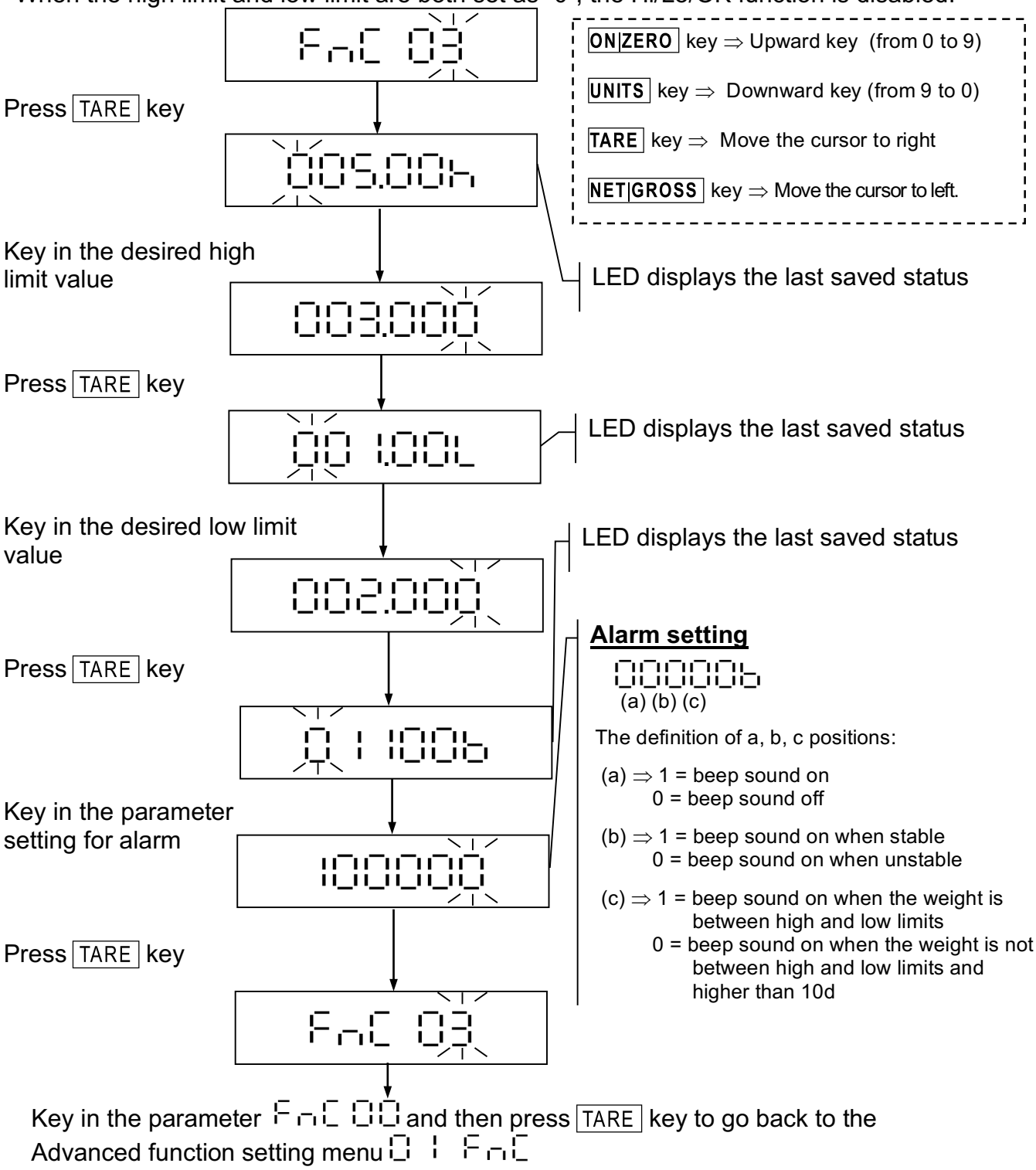
When the weight on weigh pan is less than 10d or keeps idle for the set time, the scale will automatically switch off.

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

Select FnC 03 in the General Function setting mode 01 FnC to set the Hi/Lo/OK function. This function is available in all unit modes. In one specific unit mode, enter FnC 03 to set the Hi/Lo/OK values.

ACTIONS **DISPLAY** **NOTE**

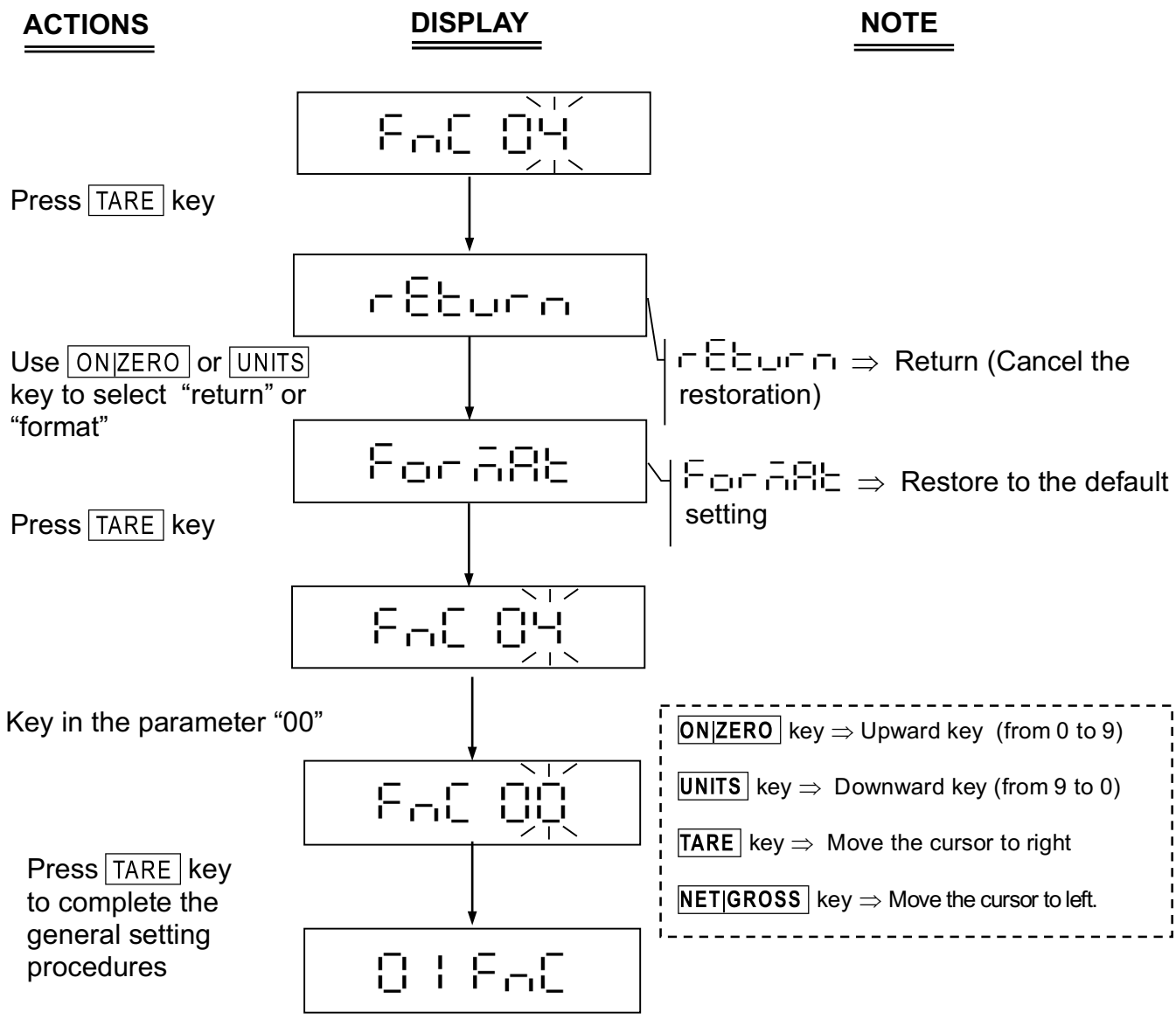
When the high limit and low limit are both set as “0”, the Hi/Lo/OK function is disabled.



Key in the parameter FnC 00 and then press TARE key to go back to the Advanced function setting menu 01 FnC

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

Select FnC 04 in the General Function setting mode 01 FnC 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)

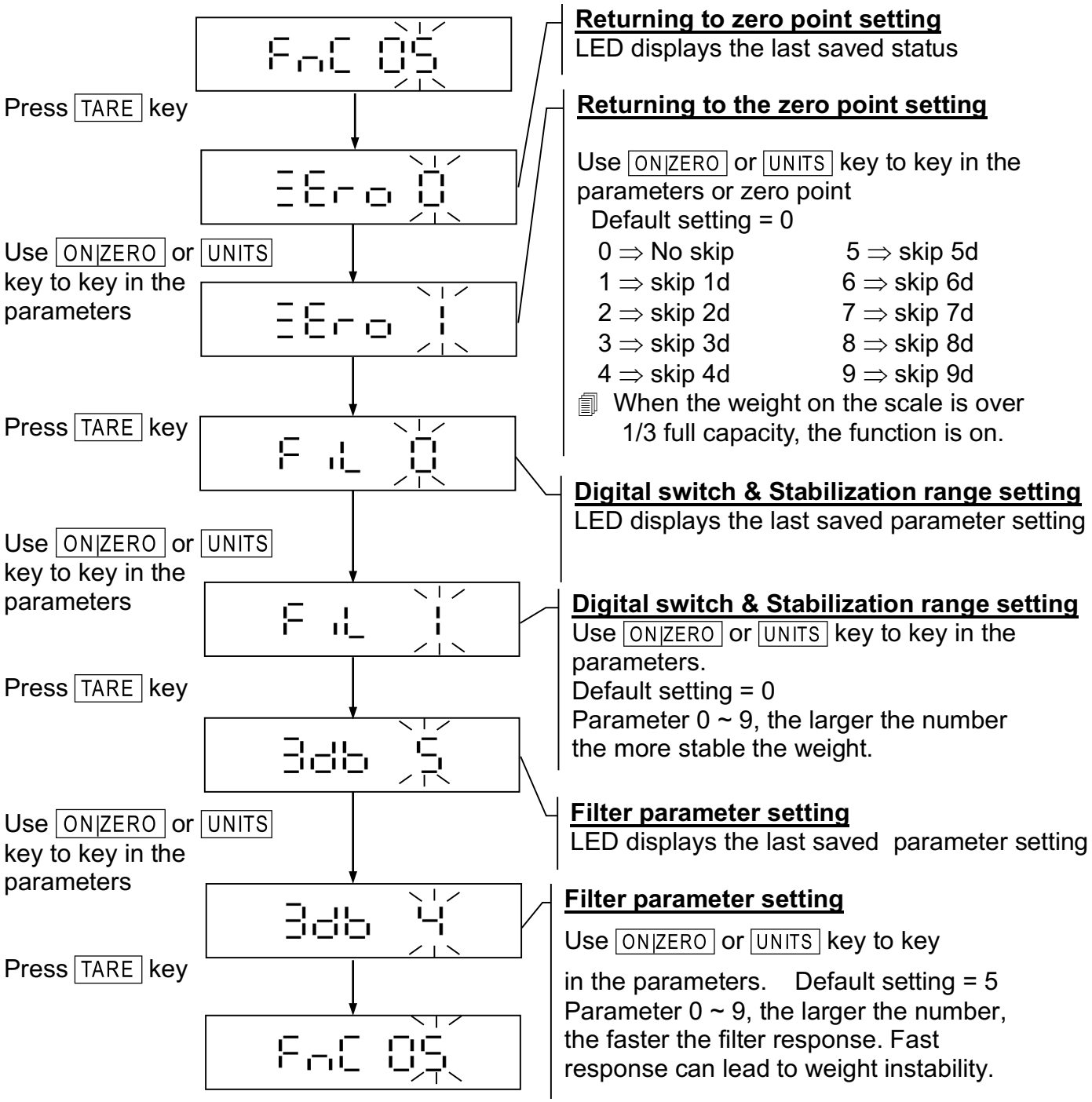
- In approved models, FnC 04 setting is not available.
- If FnC 04 is set to FormAt, and the scale has not been restarted automatically. Please ensure to restart the scale manually.

2-1-5 Noise Filter Setting FnC 05

Select FnC 05 in the General Function setting mode 01 FnC to set the noise filter setting.

ACTIONS **DISPLAY** **NOTE**

When modifying FnC 05, the parameters of CFn 01 remain un-altered.

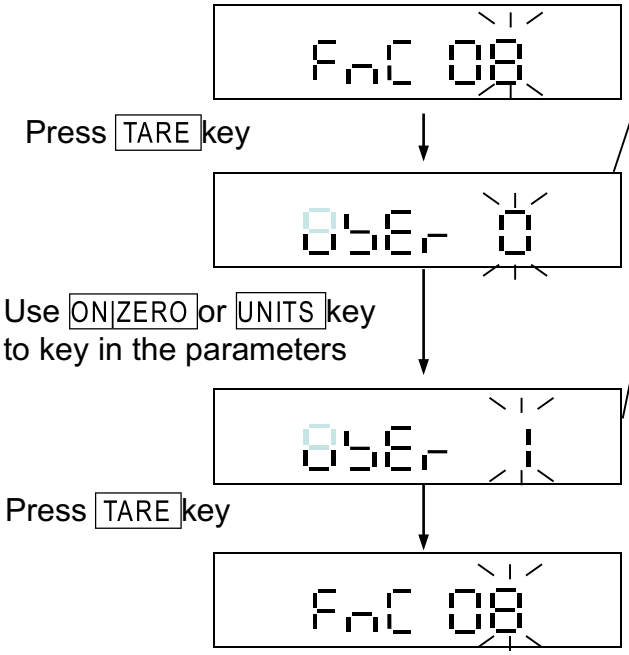


Key in the parameter FnC 00 and then press TARE key to go back to the Advanced function setting menu 01 FnC

In approved models, FnC 05 setting is not available.

2-1-6 Two Weighing Units Setting FnC 08

Select FnC 08 in the General Function setting mode 01 FnC to set the two weighing units Setting.



Two weighing units setting

LCD displays the last saved parameter setting

Two weighing units setting

Use ON|ZERO or UNITS key to key in the parameters for two weighing units

Default setting = 1

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

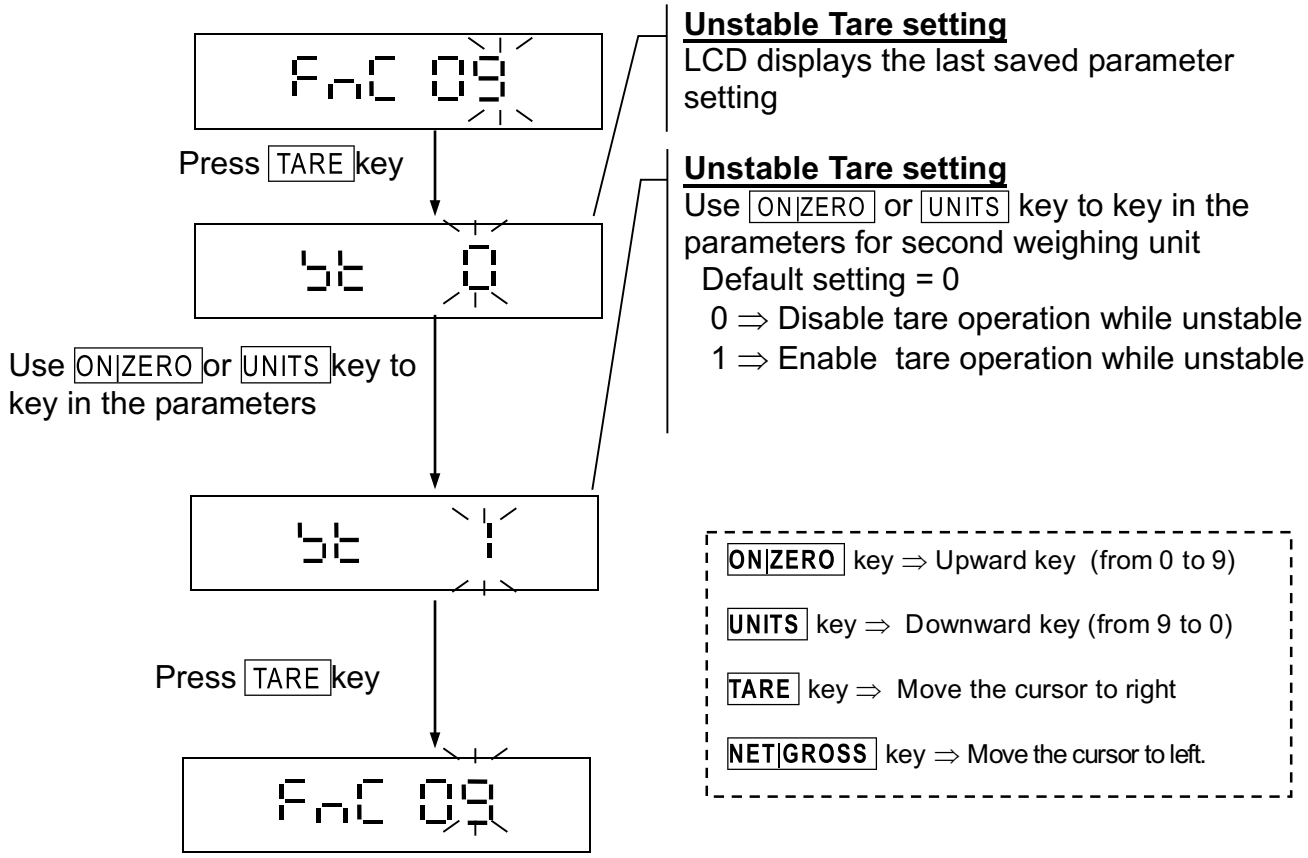
ON|ZERO key ⇒ Upward key (from 0 to 9)

UNITS key ⇒ Downward key (from 9 to 0)

TARE key ⇒ Move the cursor to right

NET|GROSS key ⇒ Move the cursor to left.

2-1-7 Unstable Tare FnC 09



Unstable Tare setting
LCD displays the last saved parameter setting

Unstable Tare setting
Use ON|ZERO or UNITS 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

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

UNITS key ⇒ Downward key (from 9 to 0)

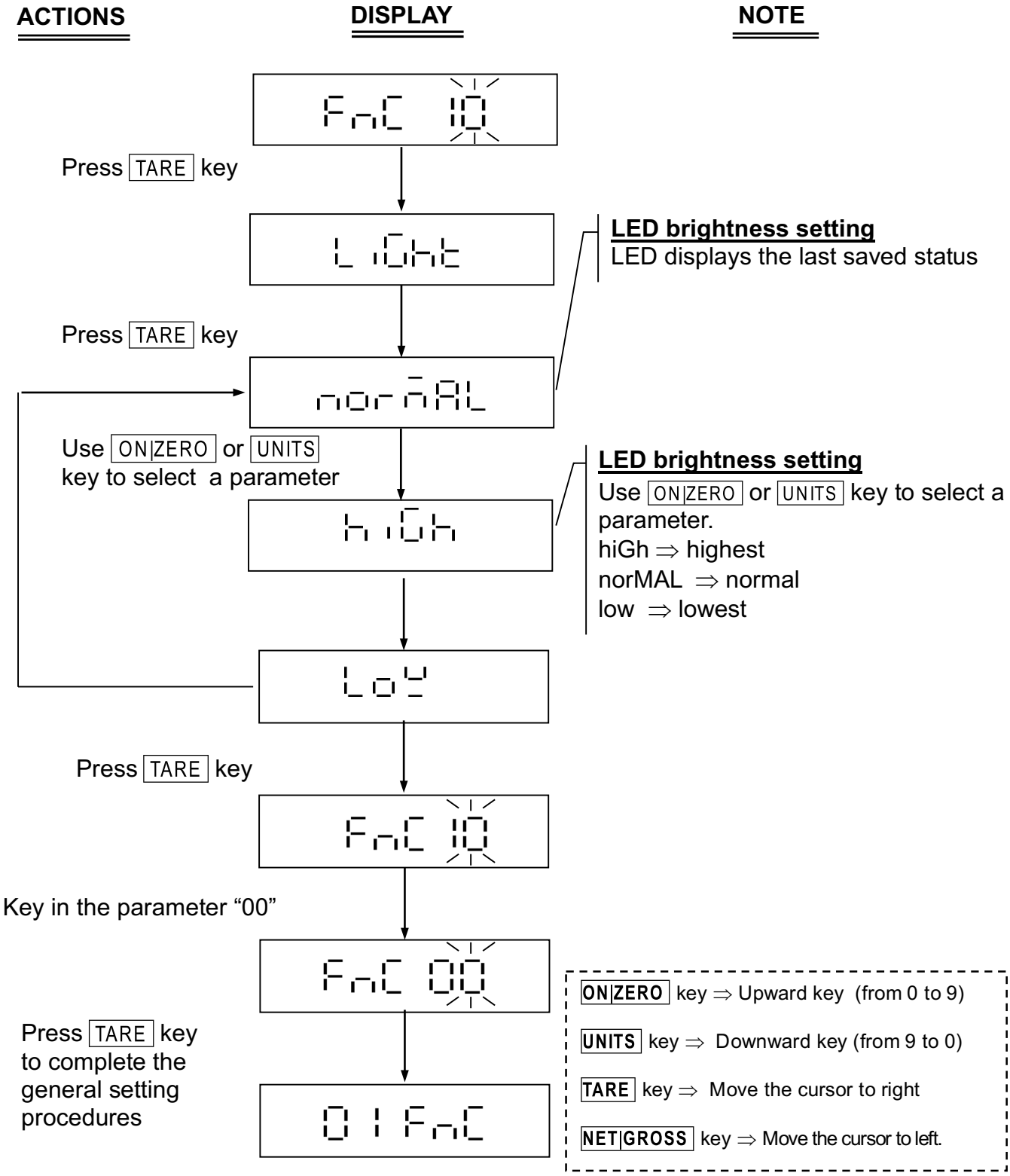
TARE key ⇒ Move the cursor to right

NET|GROSS key ⇒ Move the cursor to left.

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

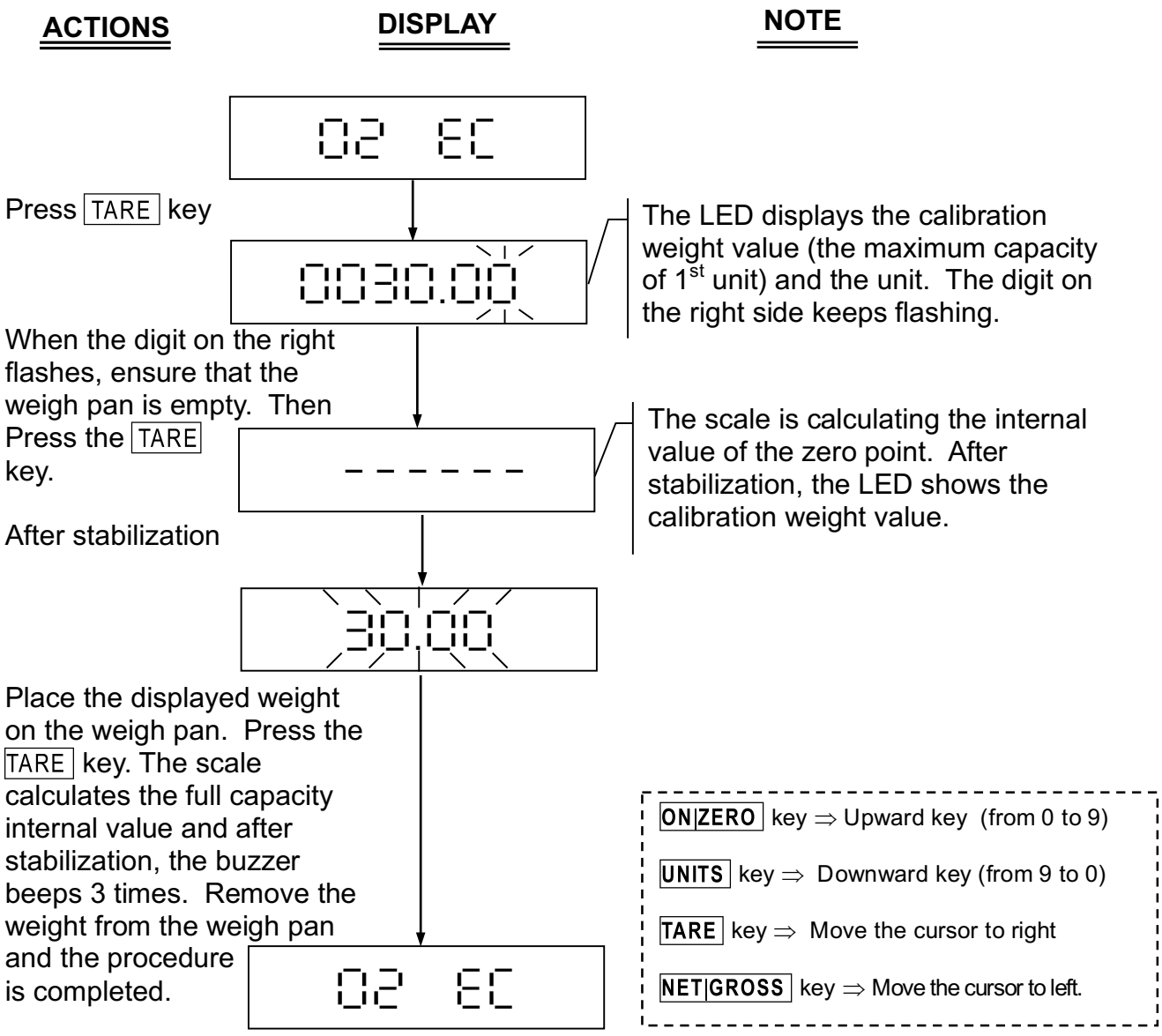
2-1-8 LED Brightness Setting FnC 10

Select FnC 10 in the General Function setting mode 01 FnC to restore to the default setting.



2-2 Weight Calibration 02 EC

In the weighing mode, press [NET|GROSS] and [ON|ZERO] keys at the same time to enter the External Function setting mode. The LED shows 01 FnC and uses [ON|ZERO] or [UNITS] key to select 02 EC to enter the weight calibration mode.



- For approved models, 02 EC is disabled.

- Weight calibration conditions:
  The calibration weight value placed on the weight pan must be over e100, and the standard deviation of the weight must be within 10%.

Appendix 1 Command Mode &Output data format

only work with models have WIFI card or BLE card installed inside

Command Mode

Command Format A

Host | Command |

Slave | Command |

MZ	Zero	UA	Switch to the first weighing unit
MT	Tare	UB	Switch to the second weighing unit
MG	Gross weight		
MN	Net weight		
CT	Clear TARE value		

Note: UB depends on the setting in FnC08

Command Format B

Host | Command |

Slave | Data |

RG	Read Gross weight
RN	Read Net weight
RT	Read TARE

Note: add % before the command to read continuously

Read HIGH/LOW values in FnC 03 RS○○□□

○○: Weighing unit (00 ~ 09) □□: Setting Items

HI	**HIGH value**
LO	**LOW value**

Note : ○○(weighing unit) is various depended on models

00 ⇒ The first weighing unit

EX: RS02LO＜CR＞＜LF＞ Read LOW values

ANS: RS02LOXXXXXX＜CR＞＜LF＞

Command Format C

Host | Command+ Data |

Slave | Command+ Data |

Write HIGH/LOW values in FnC 03 WS○○□□XXXXXX

○○: Weighing unit (00 ~ 09) □□: Setting Items XXXXXX: Setting Value

HI	**HIGH value**
LO	**LOW value**

Note : ○○ (Weighing unit) is various depended on models

00 ⇒ The first weighing unit

EX: WS00HI001000＜CR＞＜LF＞ Write HIGH values

ANS: WS00HI001000＜CR＞＜LF＞

Command Format D

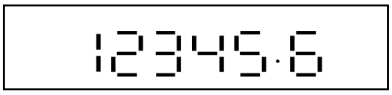
Host | Data

Slave

Value (e.g. Price)						Position of decimal point	CR	LF
1	2	3	4	5	6	1		

When the Slave receives this data format, it will transfer the data and display it on its LCD.

⇩



Only effective when the weight value is over 10d.

The above 4 (ABCD) command formats are RS232 bi-directional. The following error messages might be received by Slave terminal (scale).

Error messages:

E1: Wrong command

E2: Command format error (Wrong parameters)

E3: Do not match with the executing conditions for Command

Output Data Format

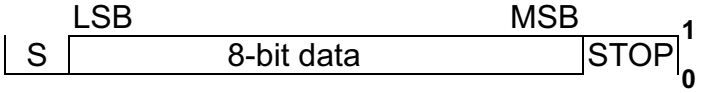
6 places (first decimal place not included)

Weight format

Gross	S	T	,	G	S	,	+	1	2	3	4	5	6	7	SP	SP	o	z	CR	LF
Net	S	T	,	N	T	,	+	.	2	3	.	4	5	6	t	l	.	g		
Tare	S	T	,	T	R	,	+	1	2	.	3	4	5	6	SP	SP	k	g		
Plus OL	O	L	,	G	S	,	+	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		
Minus OL	O	L	,	G	S	,	-	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		
Unstable	U	S	,	G	S	,	+	1	2	3	4	.	5	6	SP	SP	l	b		

Serial Data Transfer/Receive Format

n , 8 , 1



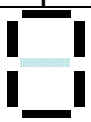
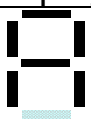
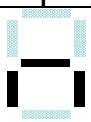
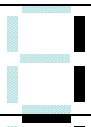
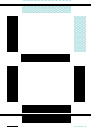
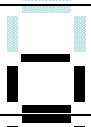
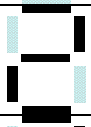
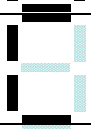
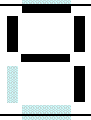
Note:

S : Start bit

STOP : Stop bit

P : Parity bit

Appendix 2 7-Segment Display Characters

Number	Display	Letter	Display	Letter	Display
0		A		N	
1		B		O	
2		C		P	
3		D		Q	
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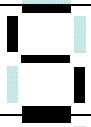
5		F		S	
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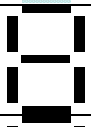
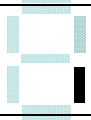
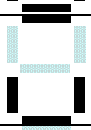
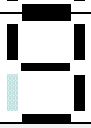
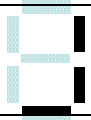
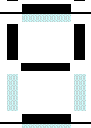
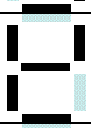
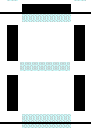
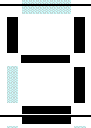
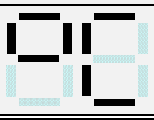
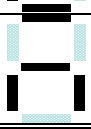
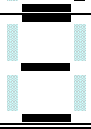
8		I		V	
9		J		W	
		K		X	
		L		Y	
℃		M		Z	

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