

User Manual

Crane Scale

FJ3



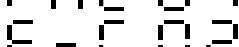

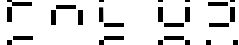




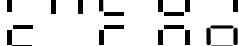





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Thank for your purchasing of our EXCELL High Resolution Crane Scale. Our product is used to weighing irregular large weight, with high resolution load cell and high technological micro-computer. To guide you to use our product correctly, please read this User Manual carefully to extend the life of machine and to avoid error.

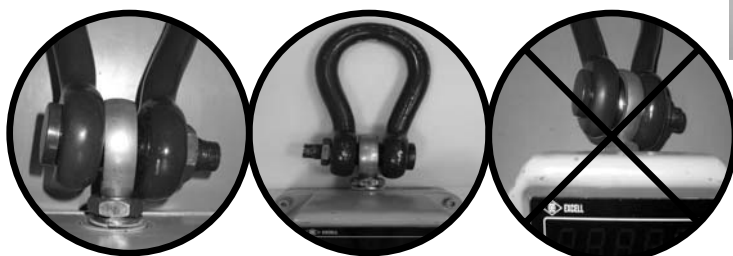
Safety and General Information

To extend the life of machine and for safety, please maintain the crane scale routinely as follows:

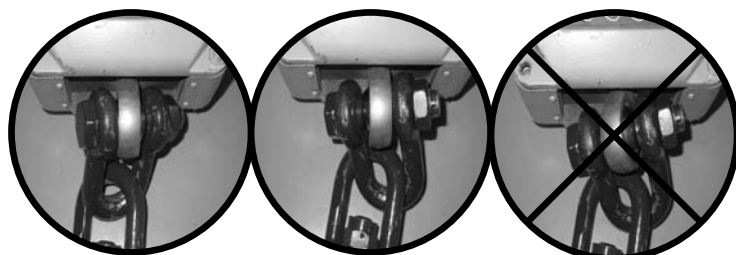
TOOL

Grease (semi-solid lubricants, for machine)

INSPECTION & MAINTAIN METHOD



The coupler must keep vertical with the body of crane scale.



Use grease to lubricate the parts of rotatable hook **every 3 months**.





SAFETY INFORMATION

1. **Do Not** attempt lifting loads in excess of the rated capacity of the scale. **Never** stand or position any person underneath a load suspended from the scale. **Must** lift up vertically to leave surface in loading, and then move horizontally. **EXCELL will assume no responsibility for the misuse or wrong application of the scale.**
2. The scale must be routinely checked for proper operation, calibration, condition of all shackles and links every three months. Application and usage will determine the frequency of calibration required for safe operation.
3. If the scale is not going to be used for some time, recharge the battery every three months to preserve the life-span of the battery and recharge it before operating the scale.
4. The battery charger is included in the scale package. It is normal to have the charger become warm while the scale is charging.
5. To avoid errors in reading the weight in use, **the remote control does not have the facility to change the weight units.** Please set weight units before using.
6. Please note when the low battery symbol flashes on the display, the battery needs to be recharged. The scale will power off automatically after 1 to 2 hours and enter battery protection mode if the battery is not charged. Fully recharge the battery before using the scale again.
7. **For multi-directional models: please do not rotate the hook while loading which might cause the hook/joint crack or permanent damaged to the load cell sensor.**
8. Operating temperature: -10°C ~ +40°C.
9. Any opinions and suggestions to this product are very welcome.
10. Introduction of Storage Battery

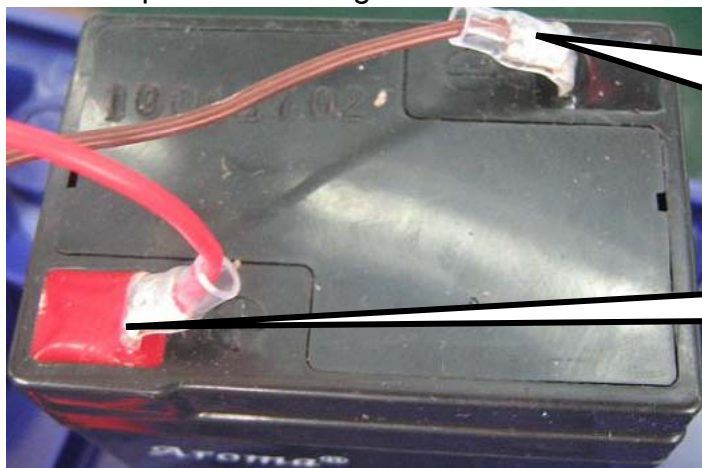
Due to the storage battery adopt the advanced free-maintaining technique, customers need not to replenish electrolyte.

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 Anode of
battery

Red cable connected with
Cathode 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



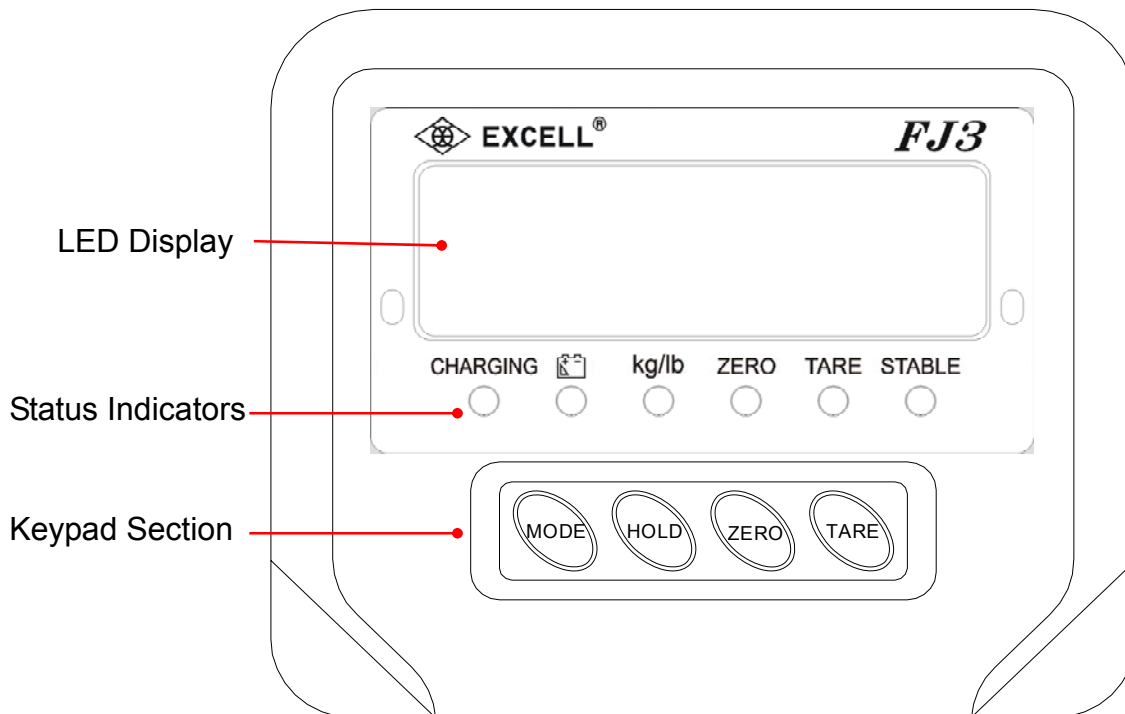
Warning explosion



Children faraway

Chapter 1 Introduction

1-1 Display



Keypad:



Shift weighing display unit.



Press this key to hold the display when the weighing flashes on the display.



Press this key to zero the scale whenever it is necessary.



Deduct gross weight. (Deduct the weight of container to get the net weight of the weighed object.)

Panel:

LED Display

- ① 5 digits, red 7-segment display, 25.4 mm height.
- ② Multi-display: Weighing mode / Partial External Calibration / Battery status display, Gross, Net, Hold, and Power-saving status display.

Status Indicators

CHARGING : “Charging” indication. The indicator shows “Red” while charging and shows “Green” after completing the charging cycle.

During charging: red light → red and green light → green light.




: “Low Battery” indication. When the indicator flashes, the battery needs to be recharged.





kg/lb : “Unit” indication. The first unit is active when the indicator is on. The second unit is enable when the indicator is off.


ZERO : “Zero” indication.

TARE : “Tare” indication.

STABLE : “Stable” indication.

 When the “-” symbol is displayed across all displayed digits, the scale is in its power-saving mode. Press any key or place an object on the hook to continue weighing.

 The crane supports three units including kg, lb and t . Use    to set according to demand.

 If the first unit and the second one are the same, the “unit” symbol won’t response.

Explanations above are EXCELL Standard Edition.

1-2 Power Source

Power Selection

Charging \Rightarrow 6 V / 10 Ah rechargeable battery
Socket \Rightarrow Input AC 220 V
 Output DC 10 V / 1000 mA adaptor


Power Consumption

Full load : DC 80 mA \pm 10% (System + Load Cell),
Power-saving mode : DC 40 mA \pm 10%.
The fully charged battery can be used up to around 120 hours.

Charge Voltage

AC 220 V -15%~+10%

Low Battery Indicator

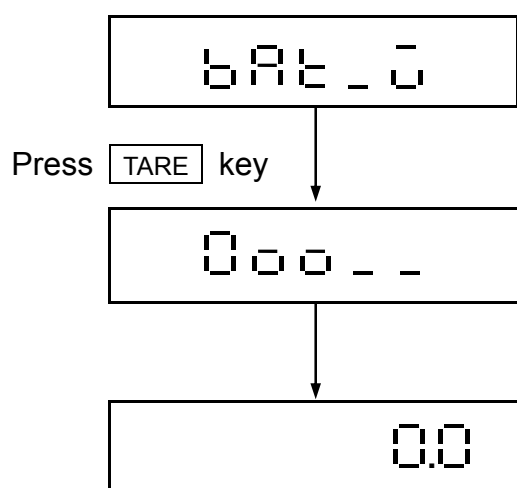
When the indicator  flashes, the battery needs to be recharged for more than 10 hours.



The scale will be power off automatically after 1 to 2 hours and enters into self-protection mode if the battery is not charged. Please fully recharge the battery before using the scale again.

Display Battery Capacity Mode

Under the weighing mode, press **HOLD** and **ZERO** to enter display battery capacity mode. Then the screen shows **bAt _ 0**.



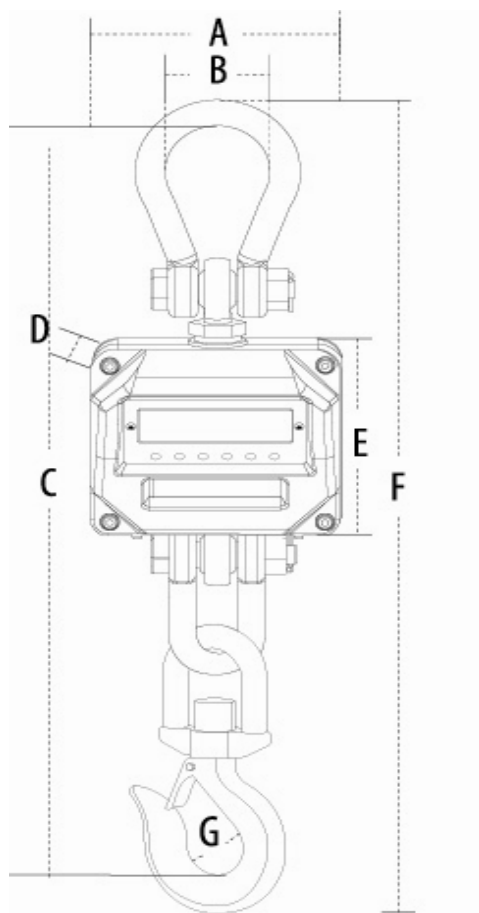
Display battery capacity

The screen returns to weighing mode after the screen displays battery capacity after 5 seconds.

Battery capacity display:

- “ 000 _ _ ” → battery capacity over 6.1 V.
- “ 00 _ _ ” → battery capacity around 5.9 V.
- “ 0 _ _ ” → battery capacity around 5.7 V.
- “ _ _ ” → battery capacity around 5.6 V.
- “ _ ” → battery capacity around 5.4 V.
- “ ” → battery capacity below 5.4 V and can be used for a little while. The scale will automatically turn off and enter battery self-protection mode.

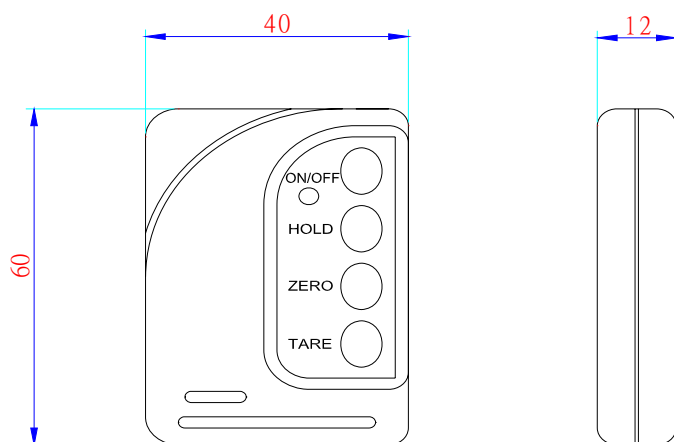
1-3 Appearance Illustration of Crane Scale



Size

	1T~3T	5T	7.5T	10T	15T
A	210	210	210	210	210
B	87	74	74	98	98
C	615	542	542	670	670
D	216	216	216	278	278
E	141	141	141	141	141
F	665	620	620	780	780
G	51	64	64	83	100

1-4 Remote Control



ON/OFF: Users can use the remote control to switch ON or OFF the scale when it is out of reach. It is recommended, however, to switch the power off on the crane scale itself, if possible, to maximize the battery life.

Please refer to “1-5 Keypad Operation” for **HOLD** , **ZERO** and **TARE** keys.

Power Selection



DC3 V

Operating Range

Reliable wireless performance is up to 30 meters when the crane scale is placed in an outdoor location.

1-5 Keypad Operation

Weight Unit Selection () ---- Unit Transformation


Press  key to select the desired weighing unit. The 1st unit is active when the indicator is on. The 2nd unit is active when the indicator is off. You can choose two from kg, lb or t. If factory sets in single unit, then  has no function.



 The crane will keep the weighing unit after its last power off.

Zero key () ---- Zero the weight value which is displayed on the screen.

During the usage, press this key to zero the scale when zero drift happens (That is, there is nothing on the hook but the display shows tiny weight value.). And the “Zero” light is on.


 The  key is active when weight value is less than 2% of the full capacity.


 The zero range can be set to conform to the related regulations in various nations.

- ◆ Non approval and OIML and NETP approval models: The  key is enable when weight value is less than 2% of the full capacity.
- ◆ SRI_LANKA approval models: The  key is enable when weight value ranges between -3% to +3% of the full capacity and never under tare.



Tare key ()---- Deduction of a container weight



Please cancel   auto hold function to avoid error.

- ❶ Place the container on the hook. When the weight indication is stable, press  key to deduct the weight value of the container, and the “Tare” indicator switches on.
- ❷ Place an object in the container, the scale will show the net weight value of the object.
- ❸ Remove the full container and the display shows the negative weight value of the container.

Press  key to clear the weight value of the container, and the “Tare” indicator is off.

 Continuous tare to tare value = maximum weighing capacity

 Continuous tare \Rightarrow Press  key to increase or decrease the container weight value subtracted from the weight on the hook.

-  The **TARE** key will NOT be functional when the weight value of the container is over the weighing capacity or the display shows a negative value when the scale is switched on. But the negative weight appears after tare can continuously tare.
-  Take off any objects from the hook before cancelling the tare mode.

Hold key () ---- Manual hold function

Press the **HOLD** key to hold and display the weight value. The “ZERO”, “MODE”, “TARE”, and “STABLE” indication lamps will be lightened on the display. Press any key to cancel hold function.

-  The hold function is available when the weight is negative.

1-6 Error Messages

Once the display shows **E 1**, **E 2**, **E 4**, **OL**, please contact the dealer.

OL ⇒ The weight value is over the capacity + 9d.

E 1 ⇒ Zero value is higher than 10% FS.

E 2 ⇒ Zero value is lower than 10% FS.

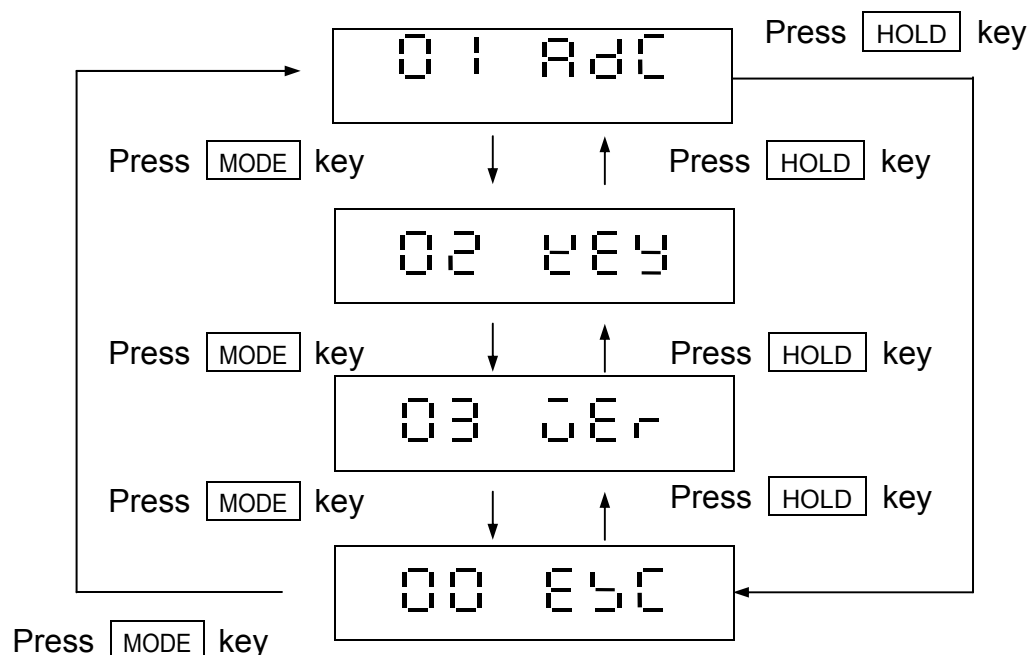
E 4 ⇒ ① Unstable condition when the scale counts back to zero.

② Unstable time is over 20 seconds after pressing **ZERO** or **TARE** key.

1-7 Self-Test Mode

Hold **ZERO** key and turn on the scale, SELF-TEST MODE is on when display shows

01 AdC.



01 AdC

Internal Value Mode (must hook up full-bridge Load Cell to test)

- ① Press **TARE** key, the display shows internal value,
- ② Please check the internal value is within normal range 130000 ~ 660000, error range $\pm 1d$.
- ③ Press **TARE** key to return, the display shows 01 AdC

02

EEY

Keypad Test Pattern

- ① Press **TARE** key, the display shows EEY 01
Keypad's Internal code:
TARE = 01, **MODE** = 02, **ZERO** = 04, **HOLD** = 08
- ② It will return automatically while there is no action within 5 seconds.

03

EEr

FIRMWARE VERSION DISPLAY MODE

- ① Press **TARE** key, the display shows the firmware version 45005 ,
- ② Press **TARE** key to return, the display shows 03 EEr

00

ESc

BACK TO THE LAST SCREEN

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

1-8 Units Available

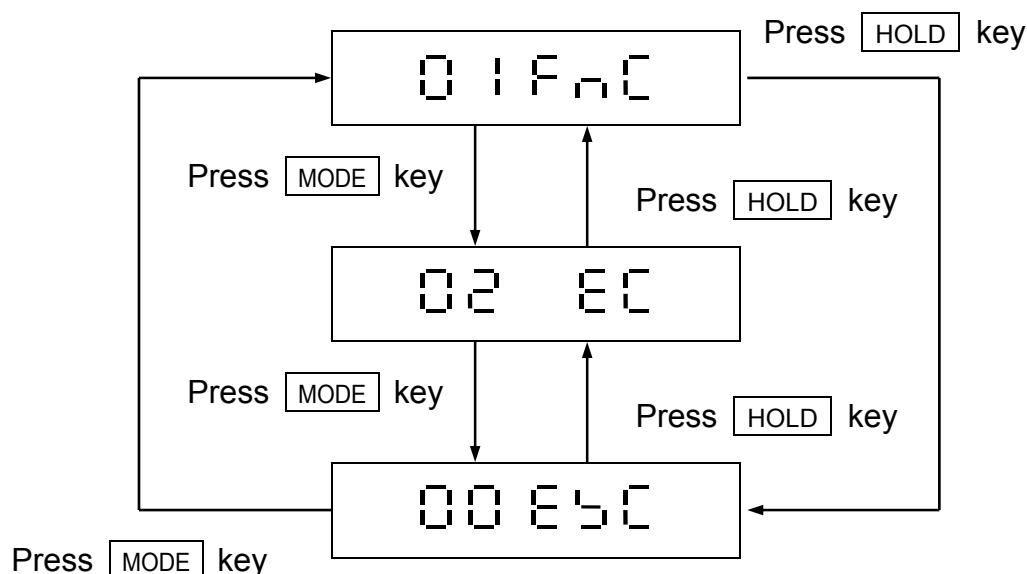
kilogram (kg)	1 kg = 1 kg
pound (lb)	1 kg = 2.204623 lb
ton (t)	1 kg = 0.001 t

Weight units are mainly in accordance with factory setting.

This product supports no RS-232 function.

Chapter 2 External Function Settings

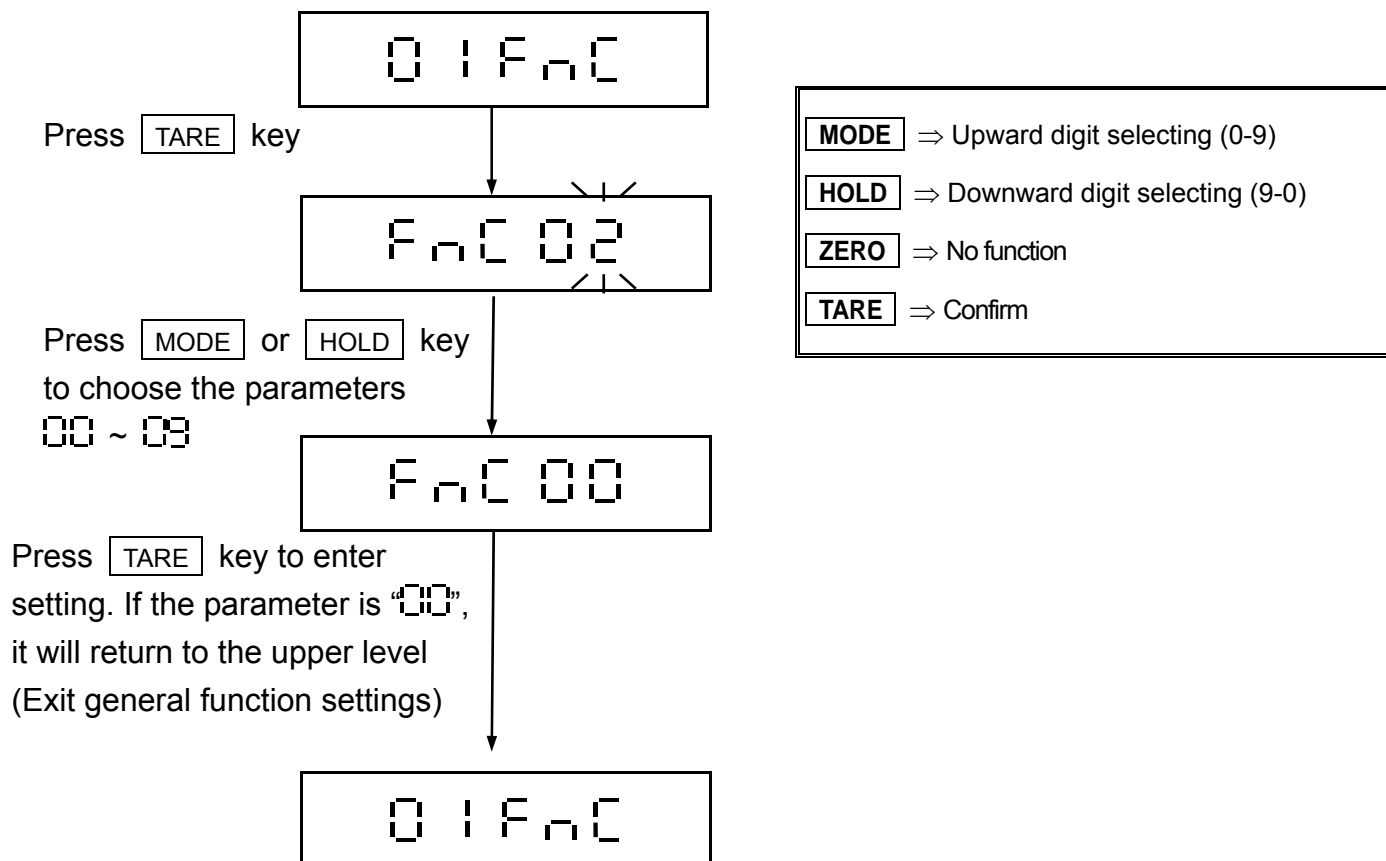
Press the **ZERO** and **TARE** keys together in the **WEIGHING MODE** to enter into the advanced functions settings and the display shows **0 1 F n C**



0 1 F n C	⇒	General Function Settings
0 2 E C	⇒	Weight Calibration Settings
0 0 E 5 C	⇒	Exit External Function Settings

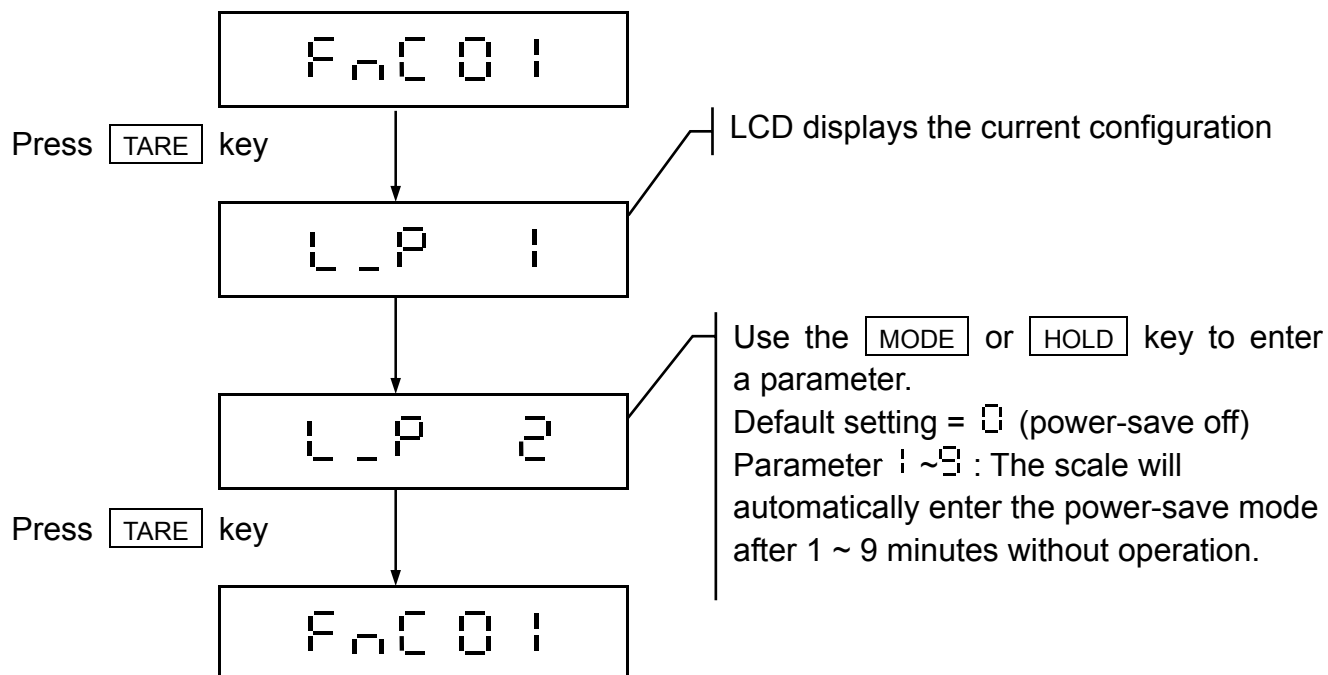
2-1 0 1 F n C General Function Settings

There are 9 functions in the General Function settings menu from F n C 0 1 ~ F n C 0 9



F n C 0 0	⇒	Return to the upper level
F n C 0 1	⇒	Power-save timer settings
F n C 0 2	⇒	Automatic power-off timer settings
F n C 0 3	⇒	Set point control settings
F n C 0 4	⇒	Hold function settings
F n C 0 5	⇒	Environment Parameter Settings
F n C 0 6	⇒	Zero point record settings
F n C 0 7	⇒	High and low resolution shift
F n C 0 8	⇒	Digital Filter Setting
F n C 0 9	⇒	Remote Control Configuration

2-1-1 F n C 0 1 Power-save Timer Settings

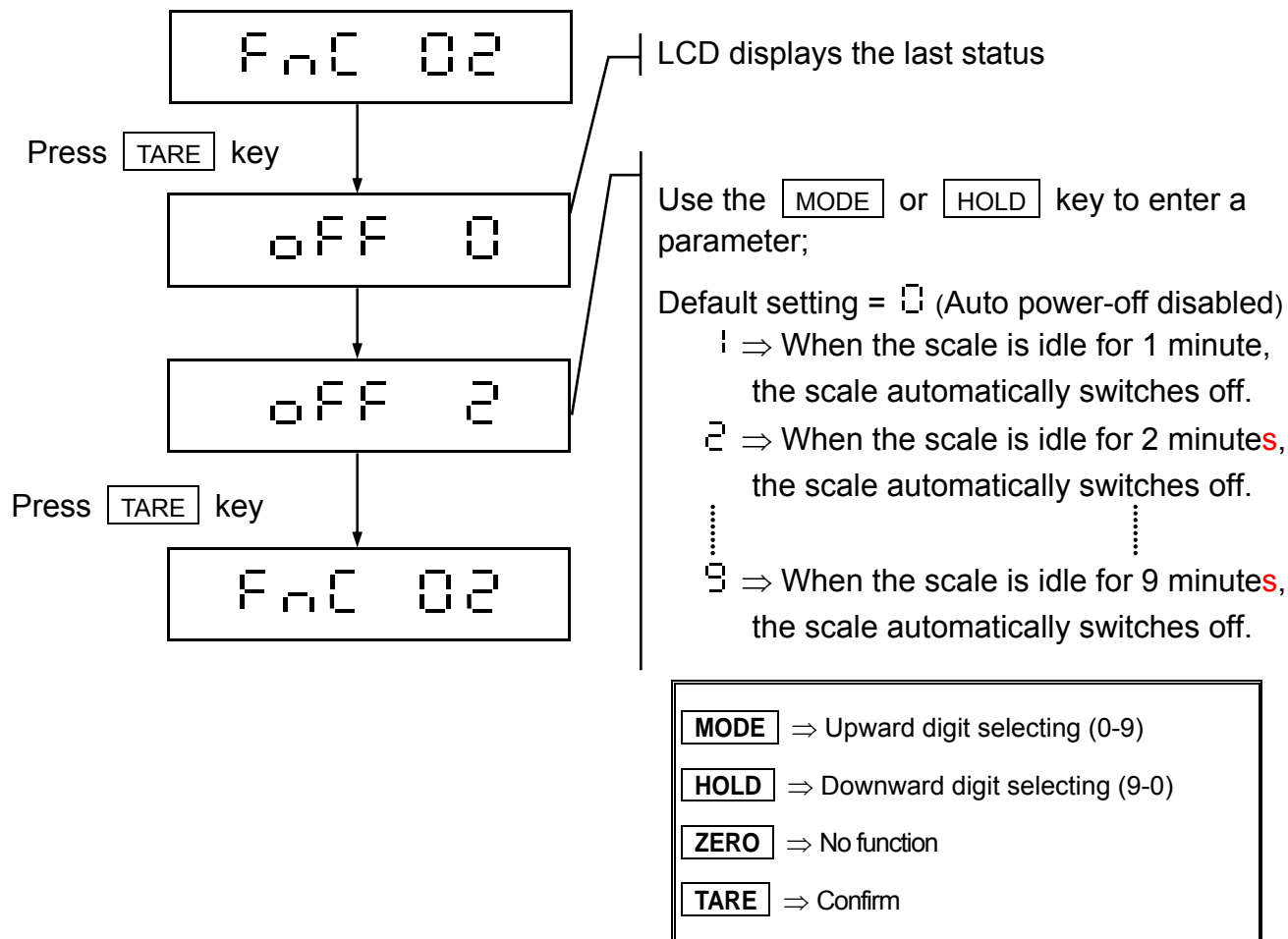


- MODE** ⇒ Upward digit selecting (0-9)
- HOLD** ⇒ Downward digit selecting (9-0)
- ZERO** ⇒ No function
- TARE** ⇒ Confirm

Under **WEIGHING MODE**, the crane will enter power-save mode if the weight on the hook is less than 10d external value or negative weight and the scale has no operation after 1 to 9 minutes.

After the crane enters power save mode, press any key or the weight is more than 10d external weight, the crane will return to previous mode.

2-1-2 F n C 02 Automatic Power-off Timer Settings



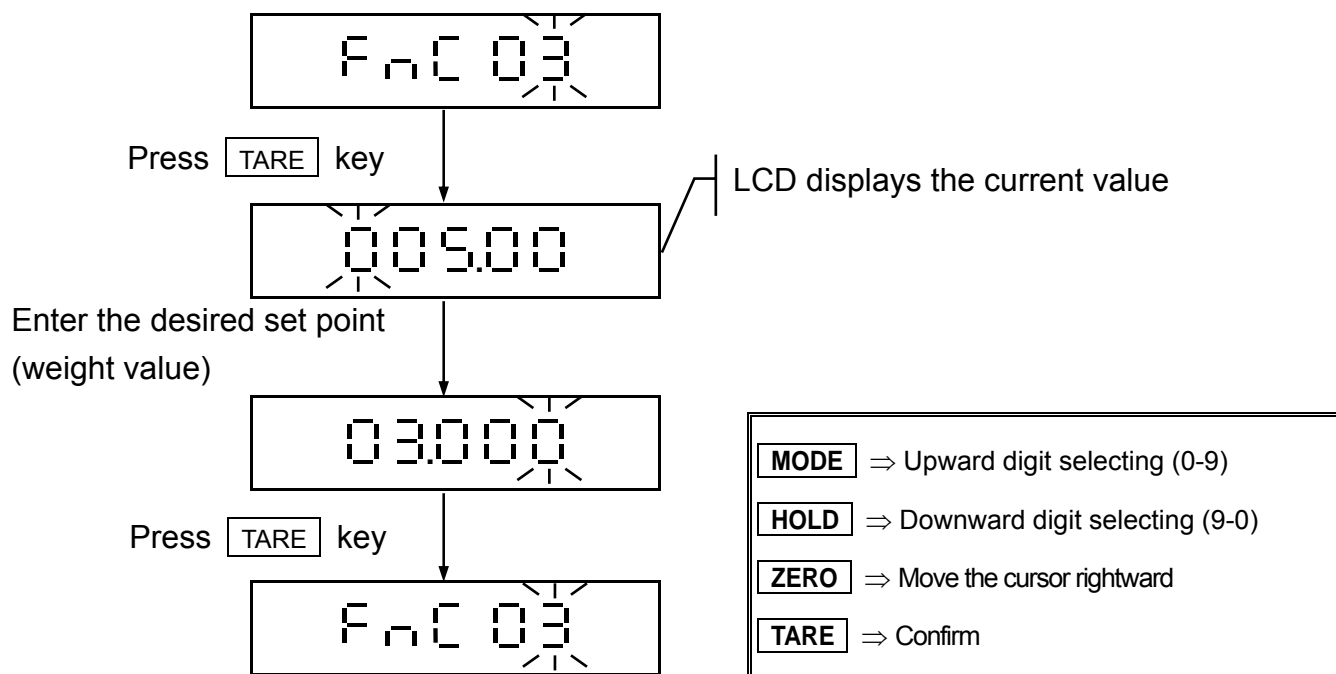
Definition of no operation

No key is pressed or the weight is less than 10d external weight.

Under weighing mode, the crane will be power-off automatically if the weight on the hook is less than 10d external value or negative weight and the scale has no operation after 1 to 9 minutes.

2-1-3 F n C 03 Set Point Control Settings

- ❖ The set point control function is disabled when the weight value is set to “0” in the set point control setting.



Default setting = 0

Attention note:

Set point control:

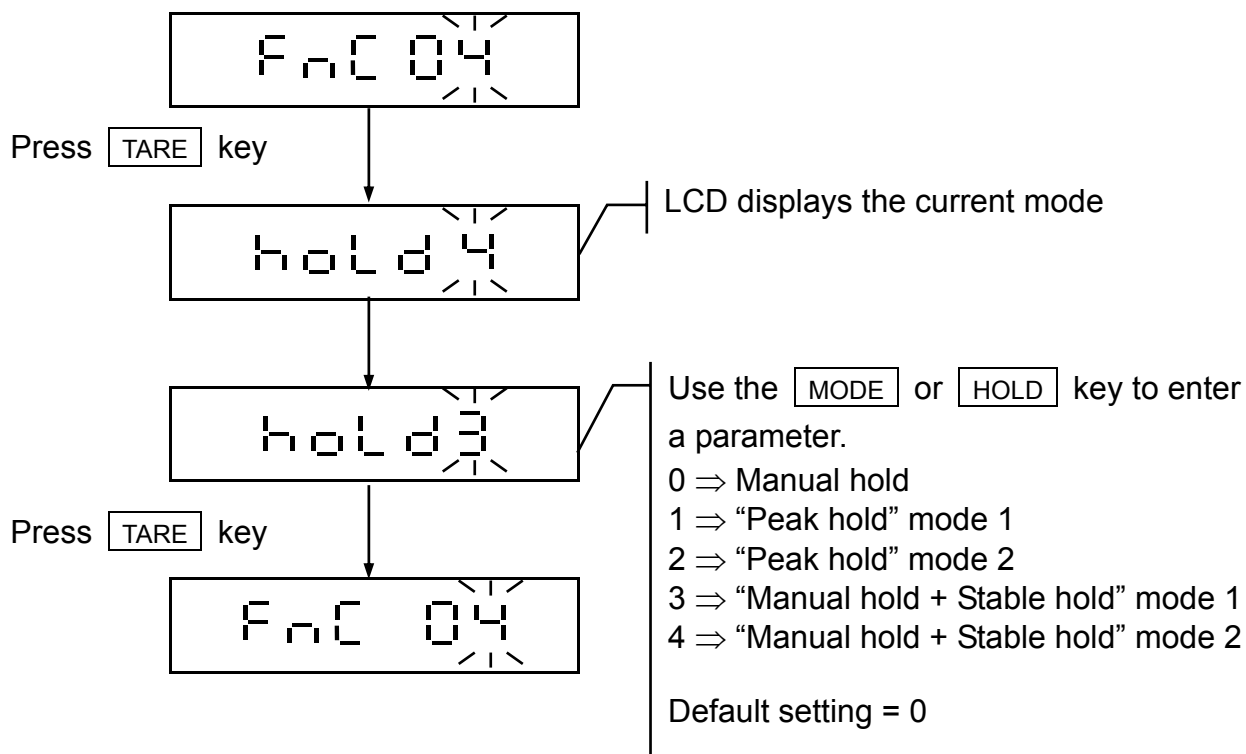
When the weighing value of an object exceeds the value of set point control, the crane will beep continuously.

When the value of set point control is set as 0, the function of set point control is disabled.

The value of set point control cannot exceed the maximum capacity of the crane scale.

When the weight of an object is lighter than set point control value, press **HOLD** key manually and the crane will be held in HOLD function. Under the HOLD function even if you add the additional weights to exceed the set point control value, the crane will not start set point control function.

2-1-4 F n C 04 Hold Function Settings



hold 0 = Manual hold

Press the **[HOLD]** key to hold the weight value, and press any key to exit the hold function.

hold 1 = “Peak hold” mode 1

The scale shows and holds the maximum weight value detected from the continuously changing weight. Press any key to exit the hold function.

hold 2 = “Peak hold” mode 2

The scale shows and holds the maximum weight value detected from the continuously changing weight. The scale exits the hold mode automatically after removing the weight or if reducing the weight value is less than 10d.

hold 3 = “Manual hold + Stable hold” mode 1

After the scale is stable, the display shows and holds the current weight value. Press any key to exit the hold function.

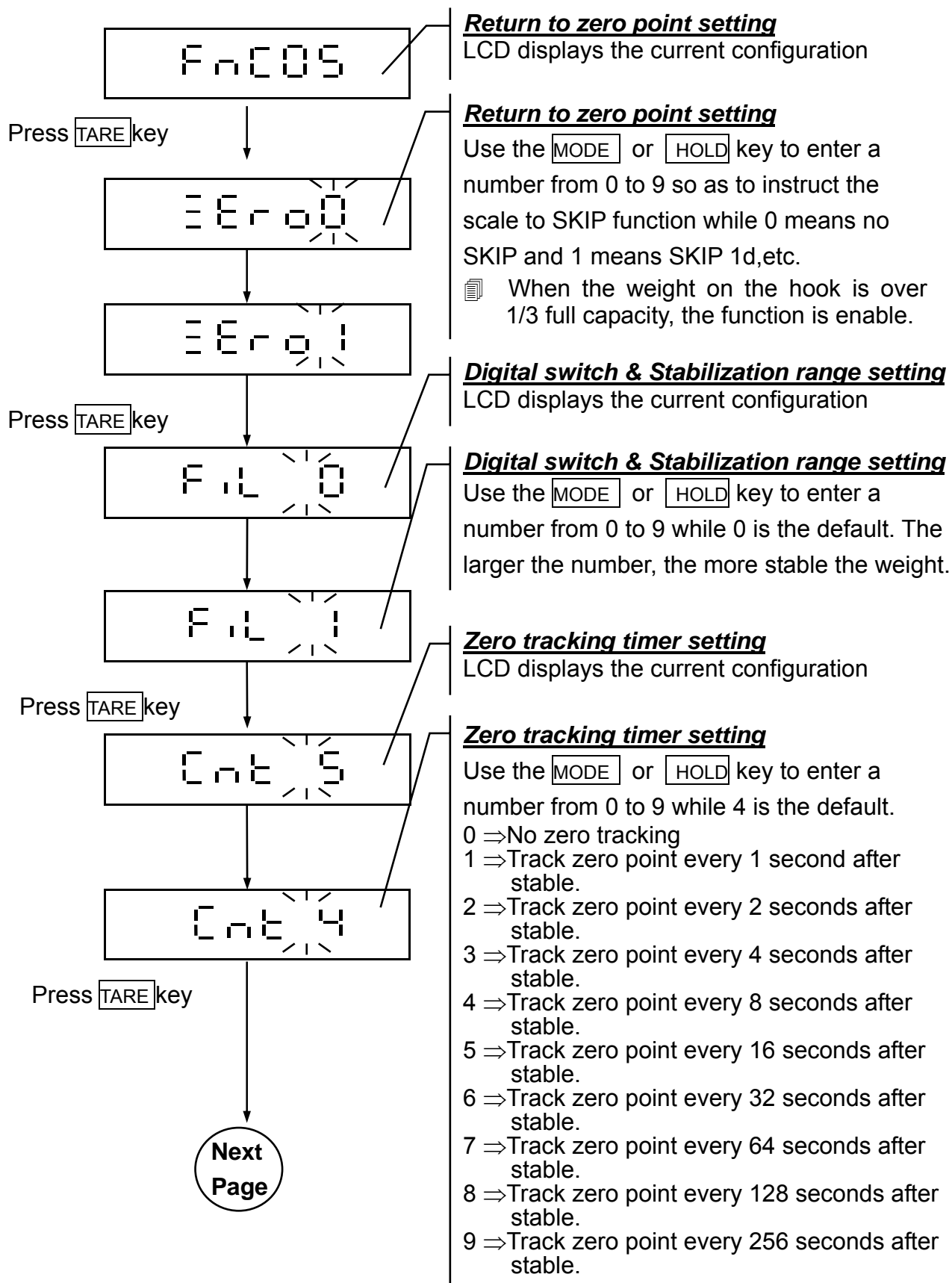
hold 4 = “Manual hold + Stable hold” mode 2

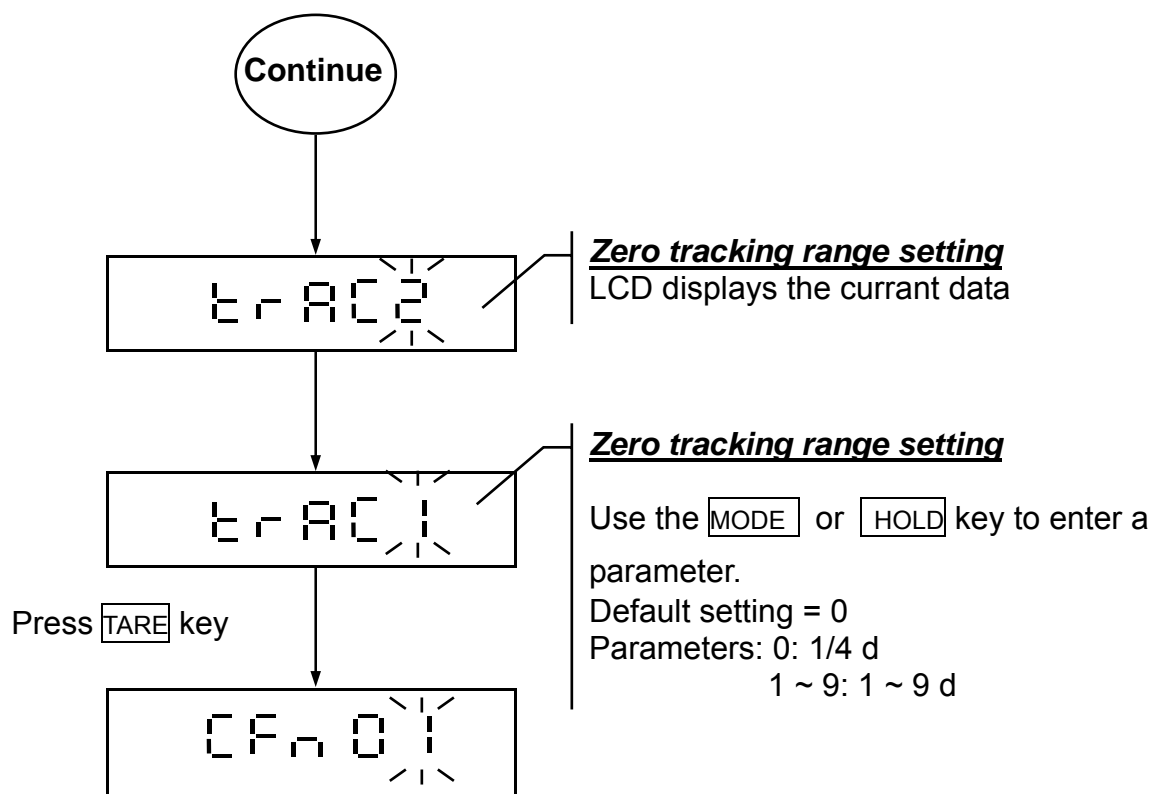
After the scale is stable, the display shows the current weight value. The scale exits the hold mode automatically after removing the weight or if the weight value is less than 10d.

HOLD MODE OPERATING DESCRIPTION

	General Situation		FNC03 Set Point Control is active	
	Hold Condition	Exit Condition	Hold Condition	Exit Condition
Hold 0	Press the HOLD key to hold the weight value when required.	Press any key to exit the hold mode.	Hold manually and FNC03 is inaccessible when Hold.	Press any key to exit the hold mode. After exit HOLD, FNC03 will restart if the weight value is more than set point control value.
Hold 1	No manual hold function. Under weighing mode, the weight value is not negative and exceeds 10d external value, the crane will hold the biggest weight automatically in the changing weight value.	Press any key to exist the hold mode.	After the weight is stable, manual hold will be accessible and FNC03 is inaccessible when hold. No auto hold function.	Press any key to cancel hold function. When add weight, the hold function will cancel automatically. After canceling the hold function, the FNC03 will restart if the weight value is more than set point control value.
Hold 2	No manual hold function. Under weighing mode, the weight value is not negative and exceeds 10d external value, the crane will hold the biggest weight automatically in the changing weight value.	The crane will cancel the hold function automatically if the weight value is less than 10d external weight value.	After the weight is stable and exceeds 10d, the manual hold function is available and the FNC03 will stop. No auto hold function.	The hold function will be cancelled if add the weight value or the weight is less than 10d external value. After canceling the hold function, the FNC03 will restart if the weight value is more than set point control value.
Hold 3	Under weighing mode, press hold key to choose manual hold or the weight value is not negative and exceeds 10d external value. After the crane is stable, the crane will hold the displayed weight value automatically in changing weight value.	Press any key to cancel hold function.	Manual hold function is available and FNC03 will stop. No auto hold function.	Press any key to cancel hold function. After canceling, the weight value is more than set point control value and FNC03 will restart.
Hold 4	Under weighing mode, press hold key to choose manual hold or weight value is not negative and exceeds 10d external value. After the crane is stable, it will hold the displayed weight value automatically in the changing weight value.	The crane will cancel the hold function automatically after the weight value is less than 10d external value.	Manual hold function is available if the weight value is more than 10d external value and FNC03 will stop. No auto hold function.	The hold function will cancel if the weight is less than 10d external value.

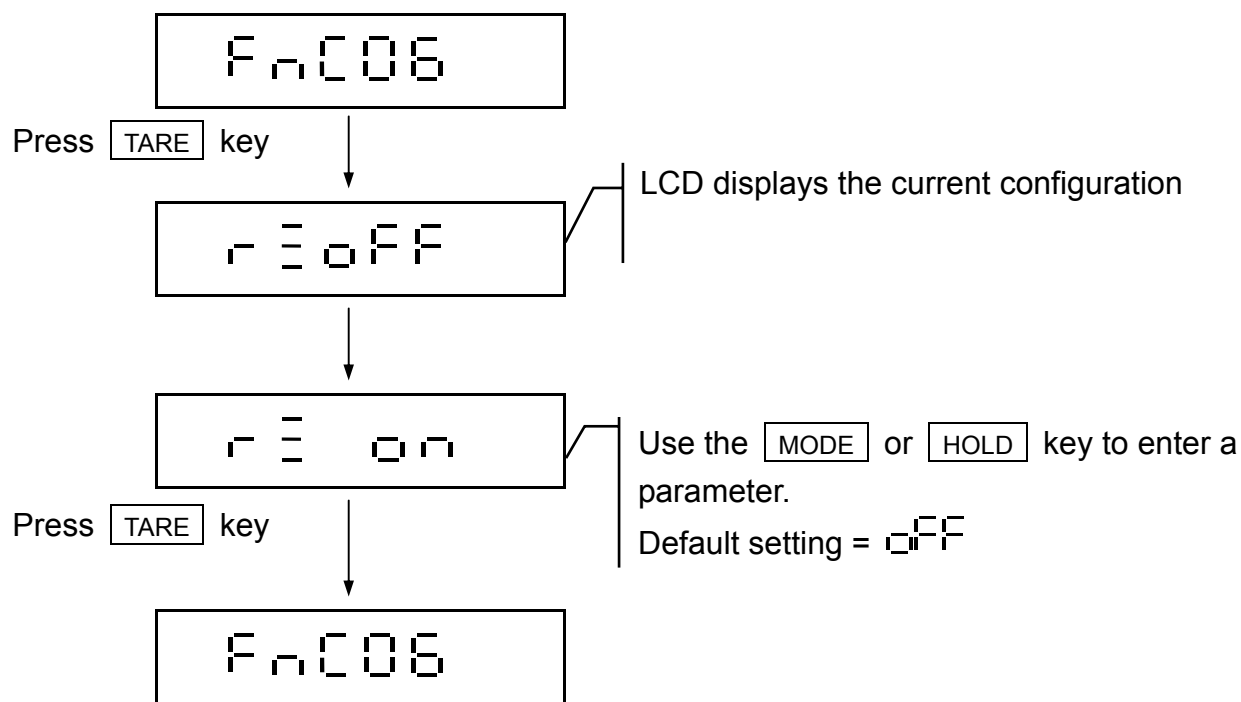
2-1-5 F n C O S Environment Parameter Settings





- MODE** ⇒ Upward digit selecting (0-9)
- HOLD** ⇒ Downward digit selecting (9-0)
- ZERO** ⇒ No function
- TARE** ⇒ Confirm

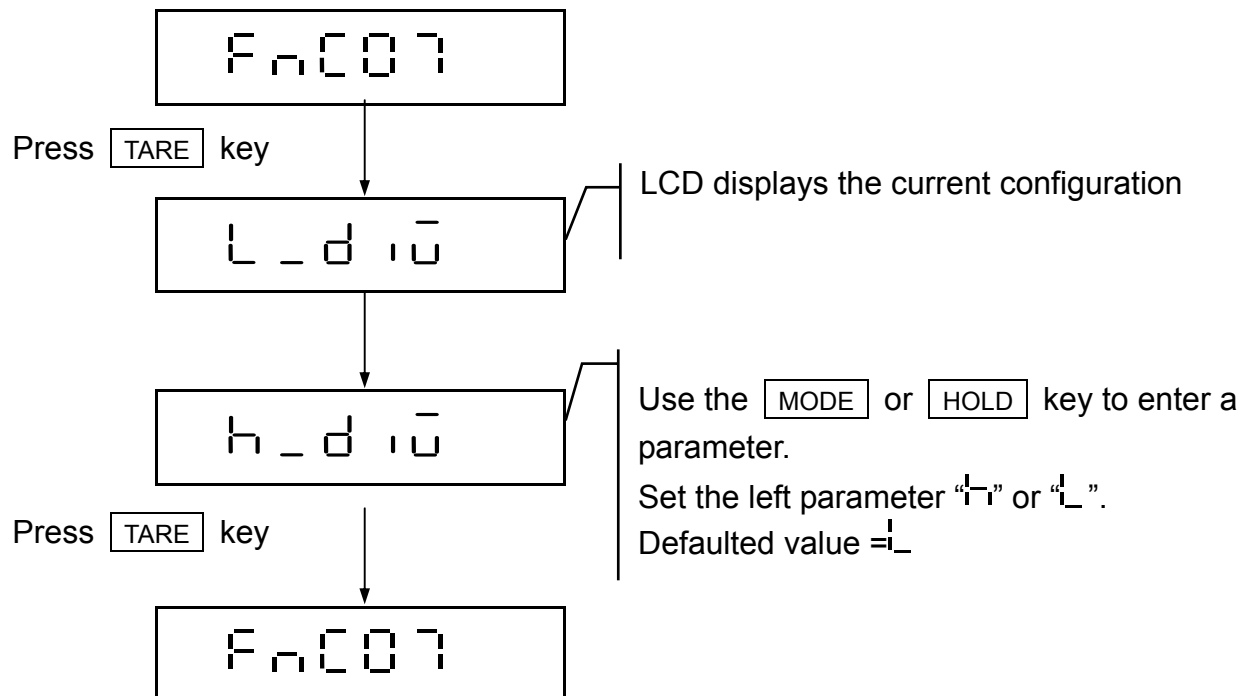
2-1-6 F n C 06 Zero Point Record Setting



- [MODE]** ⇒ Upward digit selecting (0-9)
- [HOLD]** ⇒ Downward digit selecting (9-0)
- [ZERO]** ⇒ No function
- [TARE]** ⇒ Confirm

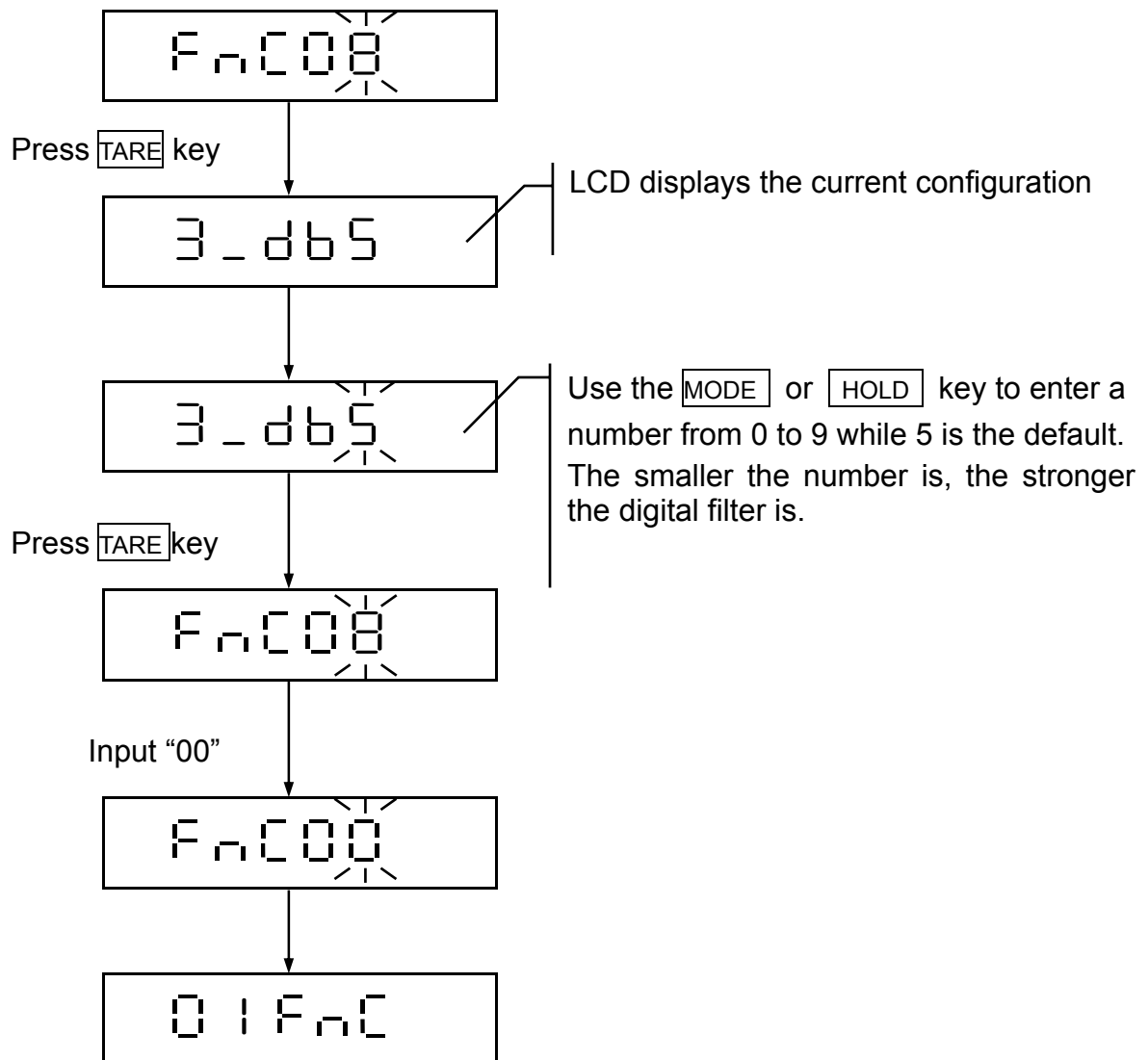
2-1-7 F_nC 07 High and Low Resolution Shift Setting

When modify F_nC 07 parameter, the resolution 1/3000 will turn into 1/6000 (kg).



- | | |
|--------|----------------------------------|
| [MODE] | ⇒ Upward digit selecting (0-9) |
| [HOLD] | ⇒ Downward digit selecting (9-0) |
| [ZERO] | ⇒ No function |
| [TARE] | ⇒ Confirm |

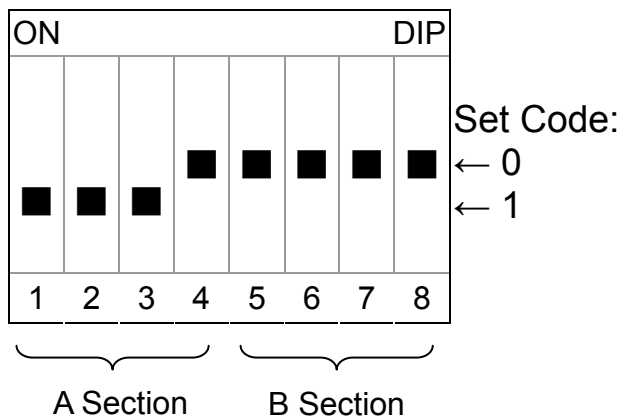
2-1-8 F n C 08 Digital Filter Setting



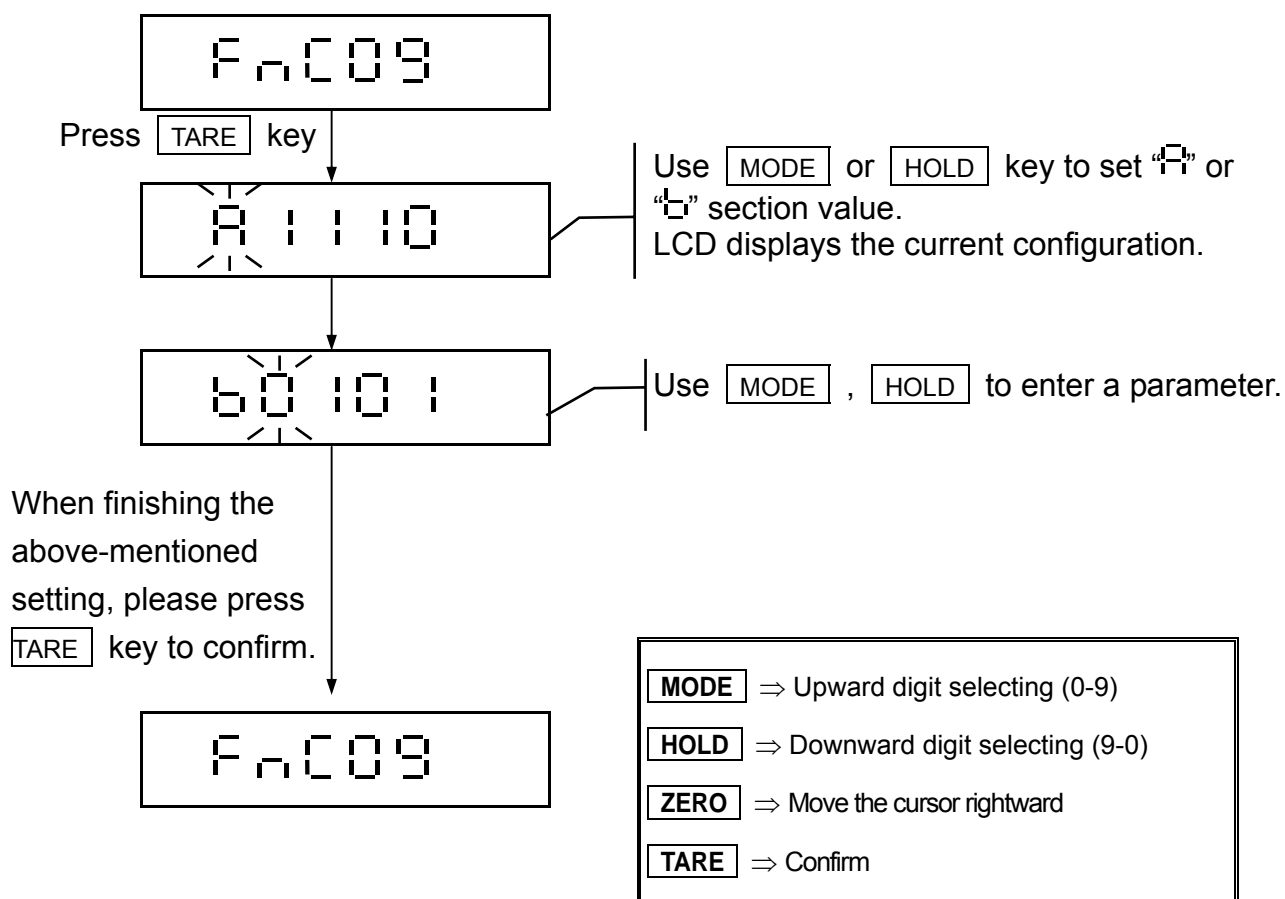
- MODE** ⇒ Upward digit selecting (0-9)
- HOLD** ⇒ Downward digit selecting (9-0)
- ZERO** ⇒ No function
- TARE** ⇒ Confirm

2-1-9 F n C 0 9 Remote Control Configuration

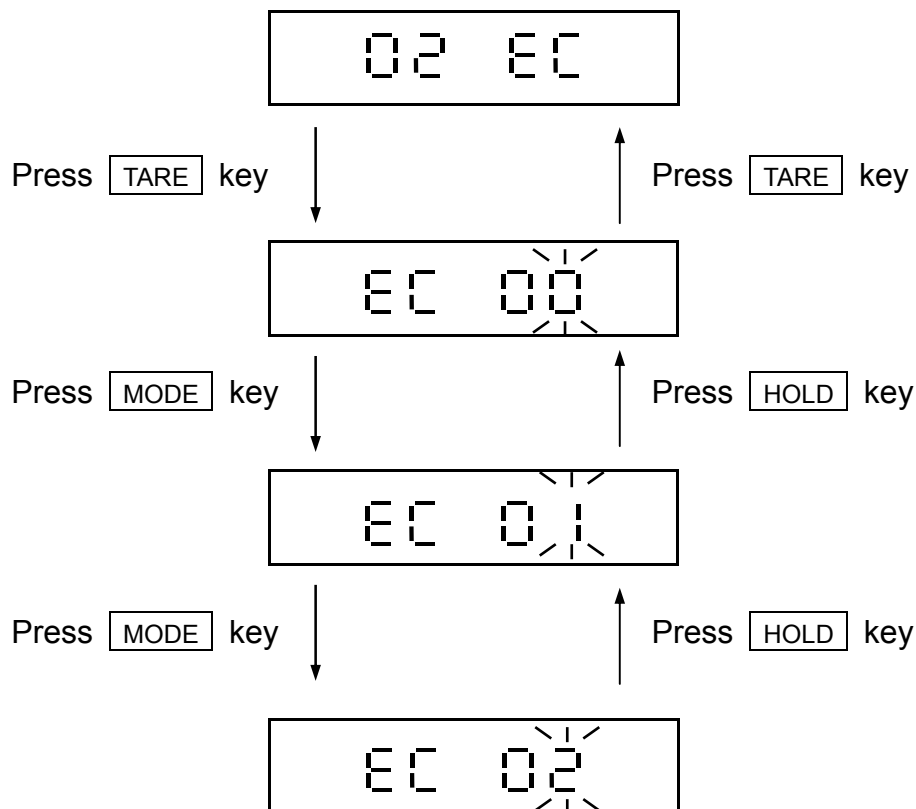
Code setting on remote control: (free form)



Input the remote control setting code(on scale):



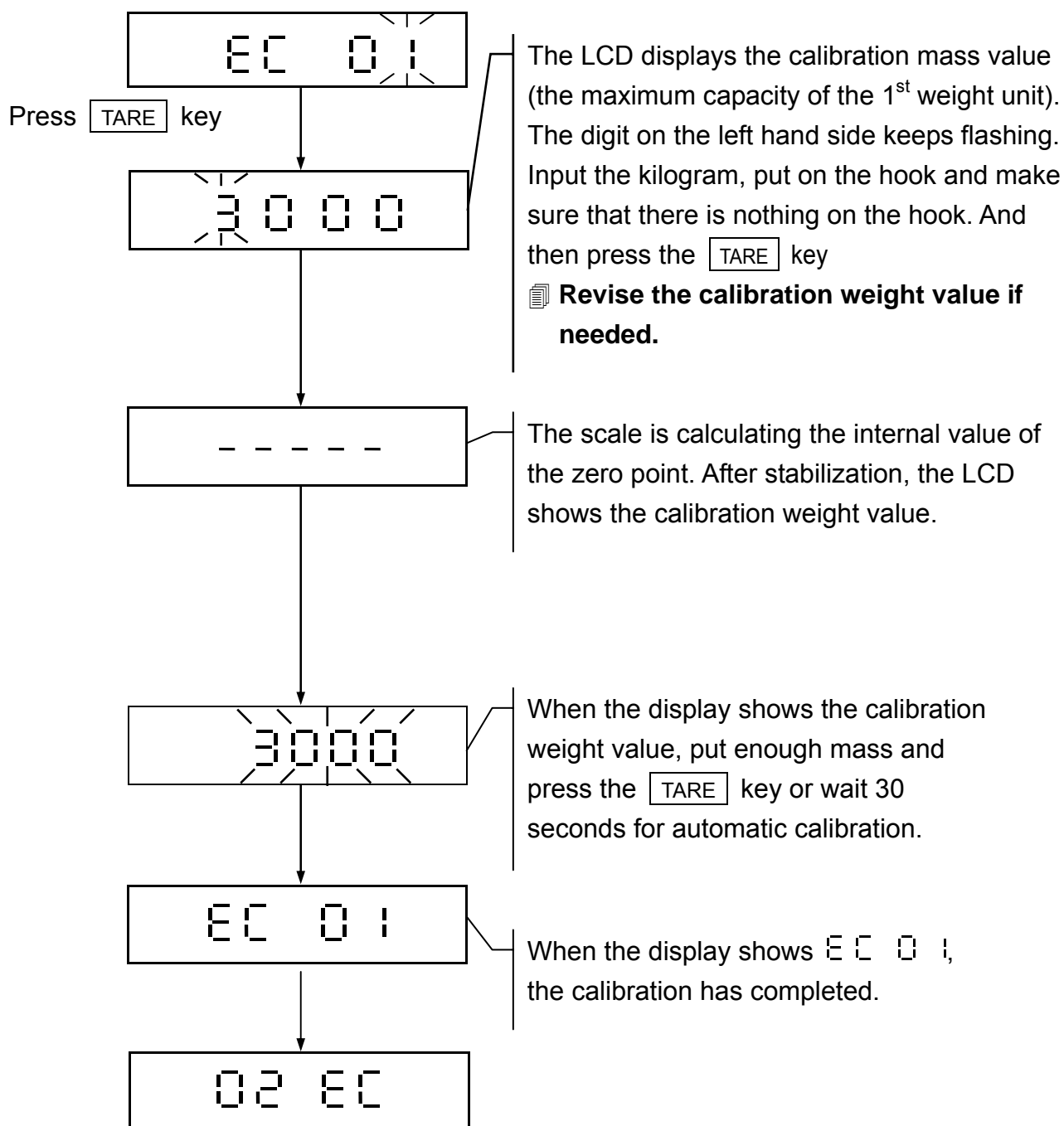
2-2 02 EC External Weight Calibration Mode



MODE	⇒ Upward digit selecting (0-9)
HOLD	⇒ Downward digit selecting (9-0)
ZERO	⇒ No function
TARE	⇒ Confirm to enter the setting

EC 00	⇒ Return to previous level
EC 01	⇒ Weight calibration
EC 02	⇒ Restore the default settings

2-2-1 EC 01 Weight Calibration



Conditions of external weight calibration:

Condition 1

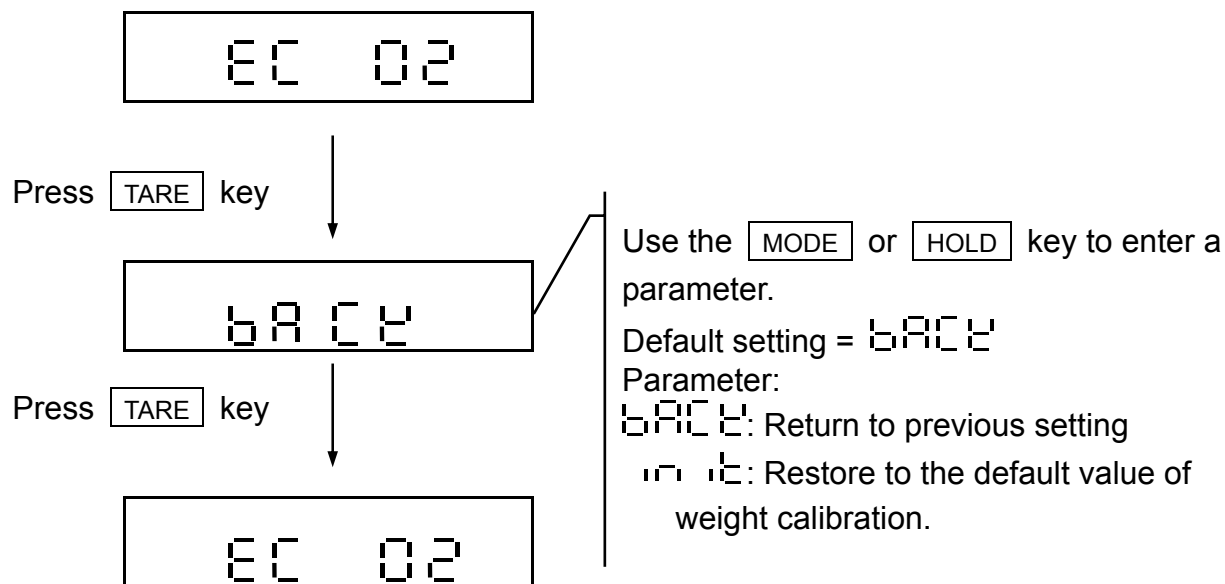
Put on the mass weight. The changing volume of LOAD CELL internal value must be more than 10e external value instead of negative value.

Condition 2


Put on the mass weight internal value. The calibration is available to 90% ~ 110% calibration mass values the user input.

During weight calibration, put on or take off the mass directly until calibration mass value confirms to the above conditions.


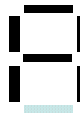






















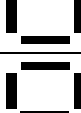










2-2-2 EC 02 Restore Default Setting



- | | |
|--------|----------------------------------|
| [MODE] | ⇒ Upward digit selecting (0-9) |
| [HOLD] | ⇒ Downward digit selecting (9-0) |
| [ZERO] | ⇒ No function |
| [TARE] | ⇒ Confirm |

 If EC 02 parameter is set as "00 00", the weight calibration value of crane will be restored to the default setting value.

Appendix 1 7-Segment Display Characters

Number	Display	Letter	Display	Letter	Display
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	