

H3 Series Counting Scale User Manual

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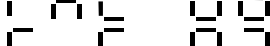
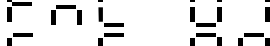







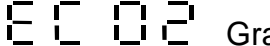
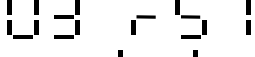



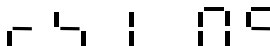
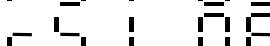
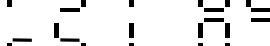
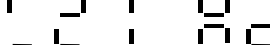
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Thank you for purchasing EXCELL counting scale. In order to operate smoothly, to last the durability and to reduce chance of breakdown for this product, please read this manual carefully.

Instruction For Use

1. The scale should not be drenched by rain or water. (If it gets wet carelessly, please wipe it dry with a cloth. If its operation is abnormal, please send it to our distributor for service.)
2. Please keep the scale in a cool and dry place. Do not store at high temperature or damp places.
3. Please keep the scale clean and free from insect infestation.
4. To avoid impact and it is to be used under designated pressure (the weight put on the platter can not exceed the maximum capacity of the scale)
5. If the scale is not going to be used for some time, please clean in and store it in a plastic bag with desiccative. The internal rechargeable battery should be recharged every three months. (If using dry batteries, take the dry batteries out before storing)
6. The commodity should be placed in the center of platter for accurate weighing. The dimension of the weighted commodity should not exceed the dimension of platter.
7. Any suggestion for the product is warmly welcome.
8. In order to maintain the re-chargeable battery in good condition it should be kept fully charged whenever possible. If the scale is to be stored, the battery should be fully charged before storage, and then re-charged at 3 month intervals. The number of times that the battery can be recharged will vary according to the conditions of use. However it can be maximized by re-charging the battery frequently and by avoiding conditions of total discharge. The battery cannot be overcharged.

Preparations Before Using

1. Put the scale on a firm and flat surface for accurate weighing reading. Adjust the four leveling feet to get the leveling bubble at the center of the circle.
2. Scale must be used under a stable temperature and stable air flow. Avoid direct sunlight onto the scale or near the air-conditioning outlet.
3. Scale must be used under individual socket to avoid the interference of other electric appliances.
4. Remove any weight that might be on the platter before the scale is switched on.
5. The scale requires 15 ~ 20 minutes warm up before operation to ensure best accuracy.
6. Please note when  symbol appears on the screen, the internal battery needs to be replaced.

Chapter 1 Display and Keypad Descriptions

1-1 Display Descriptions



Display Column

1. WEIGHT

Total 6 digits. To display the weight on platter or the total accumulation weight; the left digit is able to display the negative symbol.










2. UNIT WEIGHT

Total 6 digits. To display the unit weight of objects on the platter or total accumulation counts.

3. QUANTITY

Total 6 digits. To display the quantity of the objects on platter or the accumulation.


1-2 Symbol Icons “ ◀ ”

1.  : “Tare” indication
2.  : “Zero” indication
3.  : “Accumulation” indication
4. Stable : “Stable” indication
5.  : If the weight of the sample is less than the weight of the minimum sample, this symbol will display. Please add the number of sample then sampling.
Minimum unit weight is 0.1d with resolution equal to 1/3000.
Minimum unit weight is 0.2d with resolution range from 1/6000 to 1/30000.
 If  symbol displays, scale may cause some counting error even if the scale can still be used.
6.  : If the unit weight of the object on the platter is less than “Minimum Unit Weight”, this symbol will display. The scale can still count the quantity even though the unit weight is too small; however, this may affect the counting inaccuracy. Please use the scale which the division and specification are both subject to.
 If symbol  displays, scale may cause some counting error even if the scale can still be used.

Normal models

Minimum unit weight is 0.1d with resolution equal to 1/3000. (d=division)

Minimum unit weight is 0.2d with resolution range from 1/6000 to 1/30000.

7.  : When the symbol displays, the battery need to be recharged for safe use.

1-3 Keypad Descriptions

Double weighing units keypad _ double units conversion

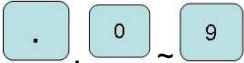











7 ┌	8 ABC	9 DEF	SAMPL	Q'TY PST
4 GHI	5 JKL	6 MNO	UNIT W.T	kg/lb
1 PQRS	2 TUV	3 WXYZ	Z	M+
0	.	CE	T	MC

10 sets of preset unit weight keypad _ preset unit weight function

7 ┌	8 ABC	9 DEF	SAMPL	Q'TY PST
4 GHI	5 JKL	6 MNO	UNIT W.T	U.W. PST
1 PQRS	2 TUV	3 WXYZ	Z	M+
0	.	CE	T	MC

Standard keypad _ preset clear function

7 ┌	8 ABC	9 DEF	SAMPL	Q'TY PST
4 GHI	5 JKL	6 MNO	UNIT W.T	PST CE
1 PQRS	2 TUV	3 WXYZ	Z	M+
0	.	CE	T	MC

	<p>Number key for setting the unit weight, quantity and etc.</p>
	<p>Clear key to clear the digits on the display.</p>
	<p>Sampling key to set the sample count.</p>
	<p>Unit weight key for setting the unit weight of sample.</p>
	<p>Press this key, the display will return to 0.</p>
	<p>Pre-setting the upper limit of count. If the calculated count is larger than the limit, the scale will send a warning sound. Or use this key to confirm the setting.</p>
	<p>Totalizing the quantity or weight.</p>
	<p>Clearing the stored totalizing memory. Or shift the digit pointer to right.</p>
	<p>Press this key to deduct the weight of container. Or shift the digit pointer to left.</p>
	<p>Press this key to clear preset</p>
	<p>Press this key to preset the unit weight of sample. Or use this key to enter the setting mode.</p>
	<p>Press this key switch the unit : kg or lb</p>

1-4 Error Messages

E 1 ⇒ Zero value is too high (OIML or NTEP > 10% full scale)

E 2 ⇒ Zero value is low (OIML or NTEP < -10% full scale)

E 6 ⇒ Internal value is more than 700000(use in factory calibration)

E 7 ⇒ Internal value is lower than 100000(use in factory calibration)

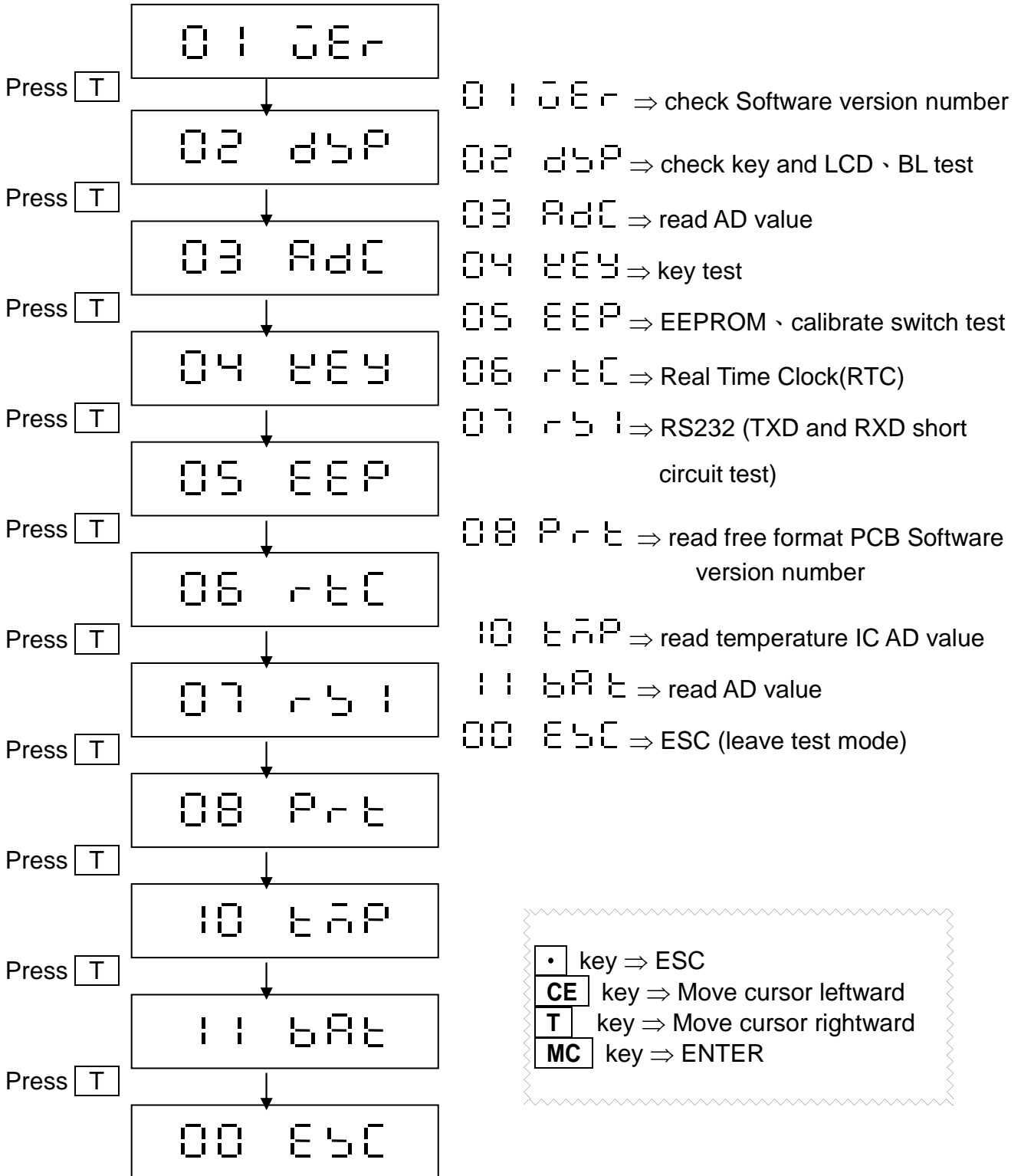
oL ⇒ The weight value is over 9d of the maximum capacity. (d=division)

uNStAbLE ⇒ Internal value is unstable

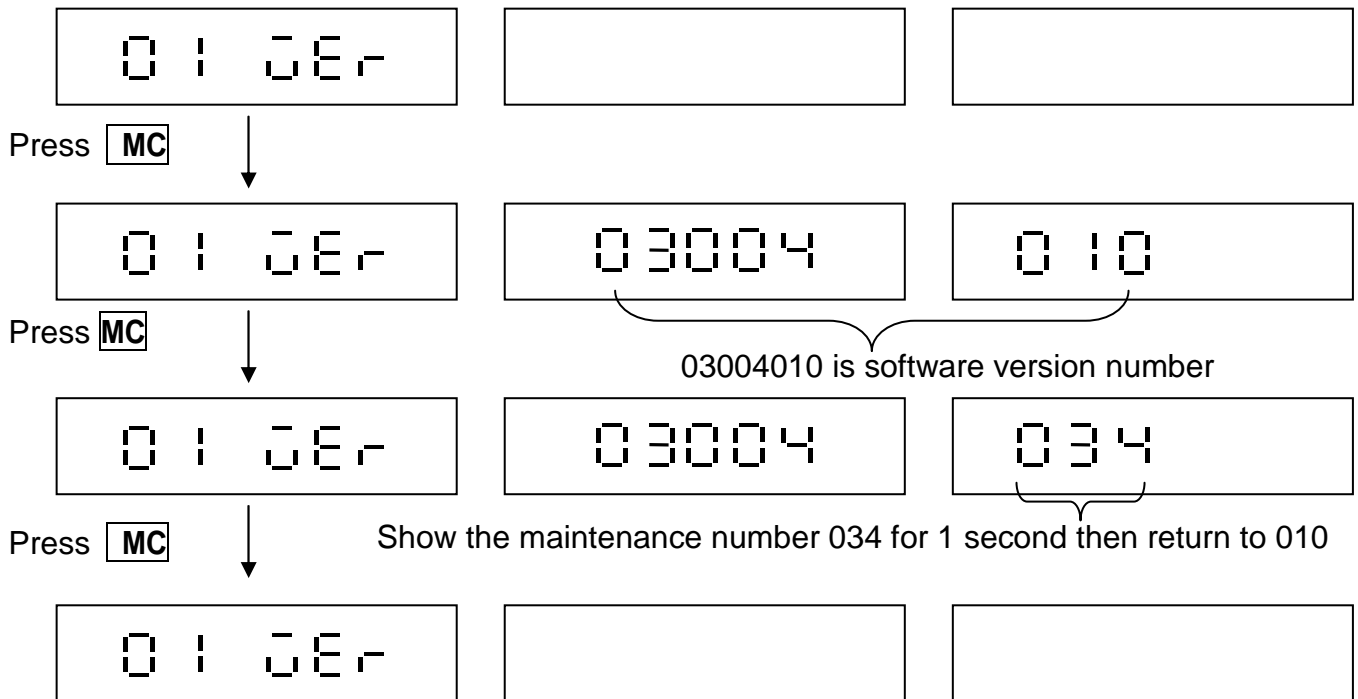
Unstable time is over 10 seconds after pressing **ZERO** or **TARE** key

1-5 Self-Test Mode

Hold **[Z]** key to open the scale until the display show **SELF TEST**. Wait till display shows **01 0Er** to enter "Self-Test Mode".



1-5-1 Check Software Version Number 0 1 0Er



• key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

1-5-2 Check key and LCD、BL test 02 d5P

02 d5P

press **MC** key ↓

8888888

8888888

8888888

press **.** key ↓ The number of LCD is count backward as 9~0 pattern The symbol and backlight of LCD is on when it is odd number, conversly it is off.

02 d5P

- .** key ⇒ ESC
- CE** key ⇒ Move cursor leftward
- T** key ⇒ Move cursor rightward
- MC** key ⇒ ENTER

1-5-3 Read AD Value 03 AdC

03 AdC

press **MC** key ↓

03 AdC

X

XXXXXXXX

press **.** key ↓

03 AdC

Show the internal value

.	key ⇒ ESC
CE	key ⇒ Move cursor leftward
T	key ⇒ Move cursor rightward
MC	key ⇒ ENTER

☞ check whether the internal value is within its normal range (range of carrying idler :100,000 ~ 700,000)

E 6 ⇒ Internal value above 700000

E 7 ⇒ Internal value under 100000

1-5-4 Keypad Test Code

04 2EY

04 2EY

press **MC** key ↓

04 2EY

2EY **XX**

press **·** key ↓

04 2EY

Keypad test code

- key ⇒ ESC
- CE** key ⇒ Move cursor leftward
- T** key ⇒ Move cursor rightward
- MC** key ⇒ ENTER

Keypad ⇒ Keypad internal test code

7	8 ABC	9 DEF	SMPL	Q'TY PST
4 GHI	5 GKL	6 MNO	UNIT W.T.	PST CE
1 PQRS	2 TUV	3 WXYZ	Z	M+
0	.	CE	T	MC

⇒

00	10	20	30	40
03	13	23	33	43
01	11	21	31	41
02	ESC	22	32	42

7	8 ABC	9 DEF	SMPL	Q'TY PST
4 GHI	5 GKL	6 MNO	UNIT W.T.	U.W PST
1 PQRS	2 TUV	3 WXYZ	Z	M+
0	.	CE	T	MC

⇒

00	10	20	30	40
03	13	23	33	43
01	11	21	31	41
02	ESC	22	32	42

7	8 ABC	9 DEF	SMPL	Q'TY PST
4 GHI	5 GKL	6 MNO	UNIT W.T.	kg/lb
1 PQRS	2 TUV	3 WXYZ	Z	M+
0	.	CE	T	MC

⇒

00	10	20	30	40
03	13	23	33	43
01	11	21	31	41
02	ESC	22	32	42

1-5-5 EEPROM 、 Switch Calibration Test 05 EEP

05 EEP

press **MC** key ↓

05 EEP

0 P I

press **.** key ↓

05 EEP

. key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

EEPORM switch test

0 P I

SWA1 switch test
 !: LOCK
 0: ADJ

EEPROM reading and writing test

- P** ! EEPROM reading and writing is successful
- F** ! EEPROM reading and writing fail (eeprom is uninstalled or damaged)

1-5-6 Real Time Clock(RTC) read

06 r t c

06 r t c

press **MC** key ↓

06 r t c

0508 18

083850

2005/08/18

08:38:50

press **.** key ↓

06 r t c

. key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

- ☞ 12 code numbers standard for: year, month, day, hour, minute, second
- ☞ If the display shows 12 zeros and not flicker, it shows that free format PCB is not been connected to the main board or free format PCB RTC has not been installed.
- ☞ To use number key to set the date and time of RTC, then press **.** to finish setting.

1-5-7 RS232 (TXD and RXD short circuit test) 07 r51

07 r51

Press **MC** key ↓


07 r51

PASS

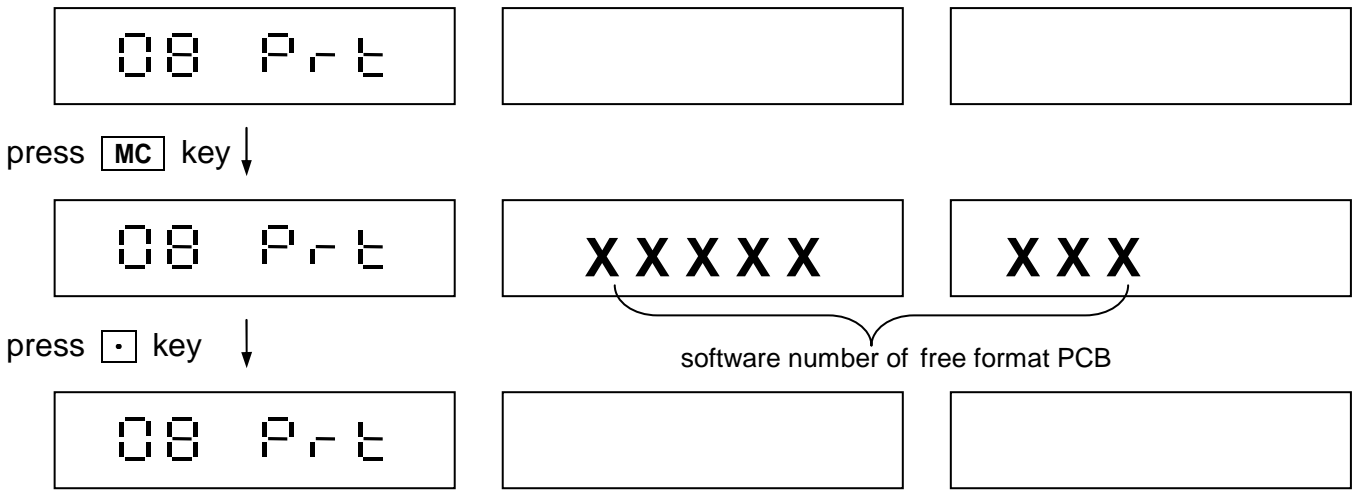
Press **.** key ↓PASS RS232 the operation of internal board is correct
FAIL RS232 the operation of internal board fail or is not circuit

07 r51

. key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

 The test can only test whether the transmission and reception operates regularly in internal software.

1-5-8 Read the Software Number of Free Format PCB 08 Part



•	key ⇒ ESC
CE	key ⇒ Move cursor leftward
T	key ⇒ Move cursor rightward
MC	key ⇒ ENTER

- ☐ The main board transmit "T"+0DH+0AH (ASCII) 3 byte to free format card to read the version number of free format PCB shows on LCD
- ☐ If free format PCB is not been connected or there is something with free format PCB, it will show **FA IL**

1-5-9 Read IC AD Value of Temperature 10 t ā P

10 t ā P

press **MC** key ↓

10 t ā P

620

press **.** key ↓

10 t ā P

Show IC AD value of temperature
If shows "NOTMP" ⇒ no temperature IC

. key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

☰ If there is no IC temperature, the display of unit weight shows n o t ā P

1-5-10 Read AD Value of Battery Cell Volt | | bAt

| | bAt

press **MC** key ↓

| | bAt


420

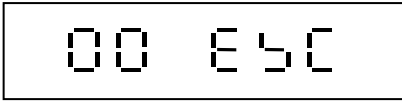
press **.** key ↓

| | bAt

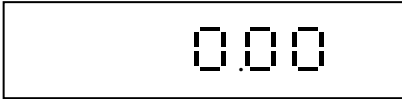
AD value of volt

• key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

☰ If AD value of volt is less than 398, it will show  (about 5.8V)

1-5-11 Leave Test Mode 00 ESC

Press **MC** key
Restart the scale

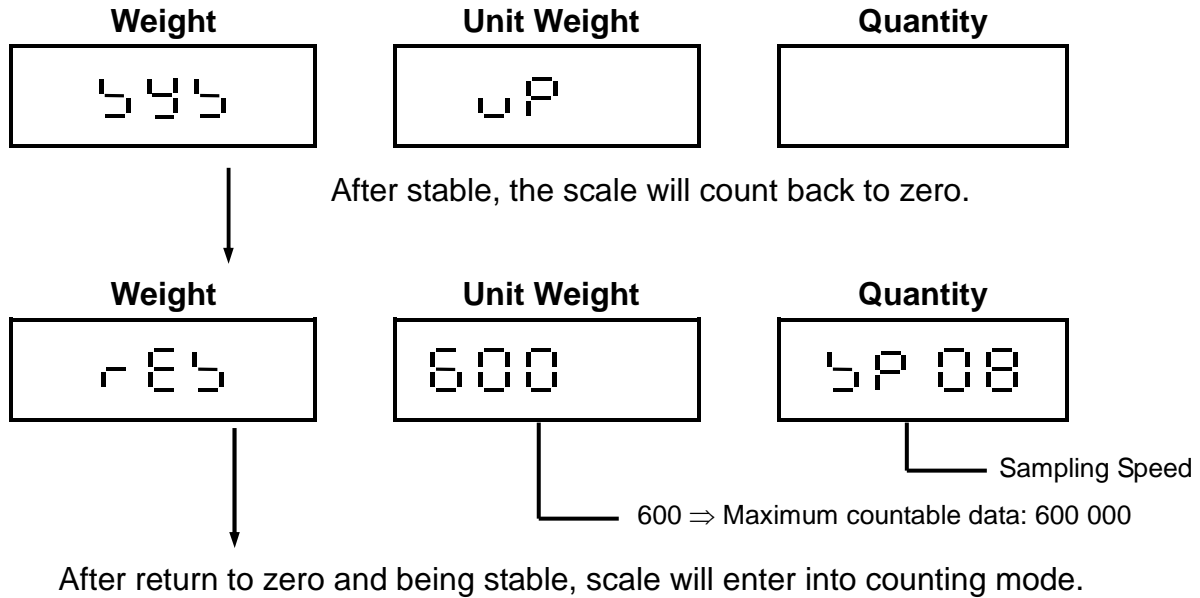


• key ⇒ ESC
CE key ⇒ Move cursor leftward
T key ⇒ Move cursor rightward
MC key ⇒ ENTER

Chapter 2 Operation

2-1 Power On

SW Switch On (Press SW to location “|”)



2-2 Relatively Internal Value Display

After press **ZERO** key, screen will show “-----”. Press **CE** key.



Press **0** key to return to the counting mode.

2-3 Zero Function

While operating the scale, zero may sometimes fluctuate. (Slight weight changes happen in weight column.) Press **ZERO** key to return to zero.

2-4 Sampling Function

2-4-1 Unknown Unit Weight of a Weighed Object

1. Place the sampling object on platter:

1 18.3

Weight on platter

0

0

2. Enter the quantity of the sample on platter:

1 18.3

Weight on platter

100

Enter the sampling quantity

≥ 1 ≤

NOTE:

The number of quantity column will flash 6 seconds. If the user doesn't press the **SAMPLE** key before flashing is over, the scale will complete the unit weight setting procedure automatically after flashing. The scale will also take the number that inputted in unit weight column as the unit weight of object to calculate the quantity of object shown in quantity column.

3. Press **SAMPLE** key while total column number is flashing:

1 18.3

Weight on platter

SAMPLE

4. After stable, the scale finishes sampling and enters into counting mode.

1 18.3

Weight on platter

1.1833

Unit weight of object

Stable

100

Enter sampling quantity

2-4-2 Known Unit Weight of a Weighed Object

1. Enter known unit weight of object intended to weigh:

→0← 0.0

1.833

Unit weight of object intended to weigh

Stable

≥ 0 ≤

2. Press **UNIT WEIGHT** key to complete unit weight setting and enter into counting mode:

→0← 0.0

1.833

Unit weight of object intended to weigh

Stable

0

2-4-3 Under Tare Status

1. Take the sample off the platter.

-59.8

The weight of the object on the platter

0

0

2. Input the quantity of the sample on the platter.

-59.8

The weight of the object on the platter

10

Input the quantity of sample

6

NOTE:

The number of quantity column will flash 6 seconds. If the user doesn't press the **SAMPLE** key before flashing is over, the scale will complete the unit weight setting procedure automatically after flashing. The scale will also take the number that inputted in unit weight column as the unit weight of object to calculate the quantity of object shown in quantity column.

3. Press the **SAMPLE** key when the number of quantity column is flashing.

-59.8

The weight of the object on the platter

SAMPLE

4. After being stable, the scale will finish the sampling and enter into counting mode.

-59.8

The weight of the object on the platter

5.98500

The unit weight of object

Stable

10

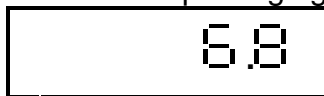
The quantity of sample that inputted

NOTES:

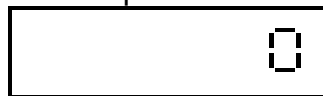
- ☞ The larger quantity of sampling, the more precise unit weight counted out.
- ☞ When unit weight column and total quantity column both indicate 0, please press **SAMPLE** key, and the previous unit weight value will come out.
- ☞ Use **ZERO** and **7** to open or shut display.

2-5 Tare Function Operation

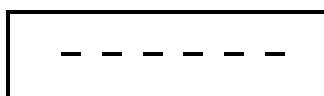
1. Place the packaging container on platter:



Weight of packaging container



2. Press **TARE** key



3. The scale will enter into counting mode after stable:



Clear off the Tare Value

Mode 1

After removing the object together with packaging container, weight column will display the negative weight value of the packaging container. Press **TARE** key again to cancel the tare, and return to zero. The tare symbol “◀” will disappear.


Mode 2

After removing the object together with packaging container, weight column will display the negative weight value of the packaging container. Press **ZERO** key again to cancel the tare, and return to zero. The tare symbol “◀” will disappear.

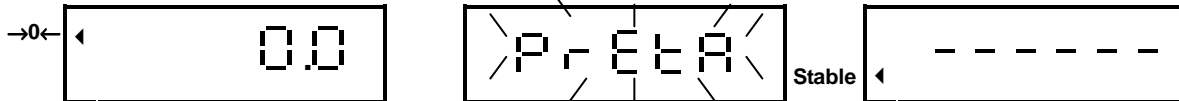
2-6 Pre-Tare Function Operation

F n C 09 (Pre-Tare setting) is set up as 00. (no weight on platter)

1. No object on platter

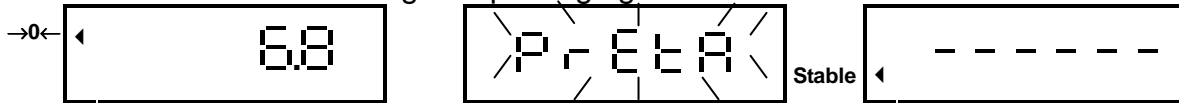


2. Press **TARE** key




3. Enter the known weight of packaging container:

Weight of packaging container entered



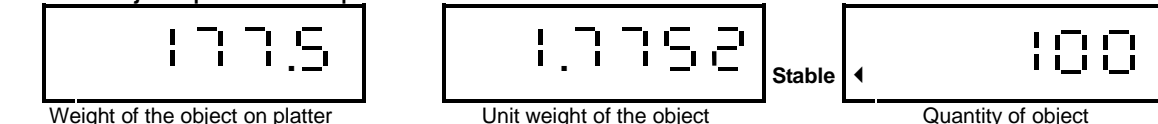
4. Press **TARE** key



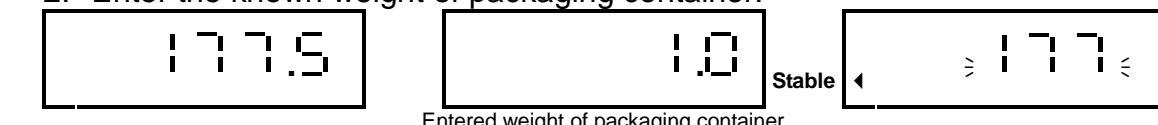
F n C 09 (Pre-Tare setting) is set up as 0 i. (weight on platter)

☰ Operation for non-approval model.


1. Object placed on platter:



2. Enter the known weight of packaging container:



3. Press **TARE** key



NOTES:

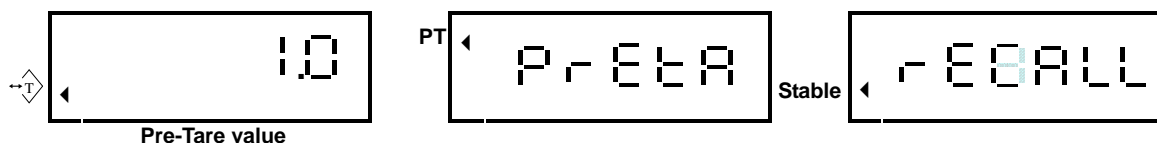
- ☰ Pre-Tare function is also available if the object has been tarred.
- ☰ If the net weight on platter is more than zero weight, the tare function is available. Otherwise, it's not capable of tare function.

2-7 Clear Off Pre-Tare Value

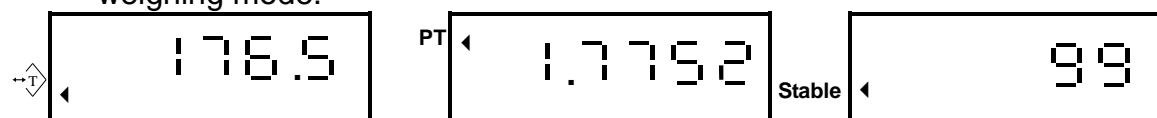
After removing the object together with packaging container, weight column will display the negative weight value of the packaging container. Press **TARE** key once again to cancel the Pre-Tare value and return to zero. Then the tare and Pre-Tare symbol “◀” will disappear.

Pre-Tare Value Recall

1. Press **QTY PRESET** key, and then press **TARE** key:



2. After screen displays Pre-Tare value about 5 seconds, it will automatically return to the weighing mode.



2-8 Accumulation

- ☞ The accumulation counts are up to 99 counts, but the total quantity column is at most 6 digits.
- ☞ You can not do positive accumulation and negative accumulation at the same time.

2-8-1 Quantity Accumulation

1. Place an object on platter:

1 18.3	1.1833	100
Weight of the object on platter	Unit weight of the object	Quantity of the object on platter

2. Press **M+** key

-----	Add	-----
-------	-----	-------

3. After scale is stable:

1 18.3	≡ 1≡	+ 100
Accumulated total weight	Accumulated total counts	Accumulated total quantity

4. After about 3 seconds, scale returns to counting mode:

1 18.3	1.1833	+ 100
Weight of the object on platter	Unit weight of the object	Quantity of the object on platter

Quantity Accumulation Recall

While weight column displays 0, press **M+** key to recall the accumulated data:

→0← 1 18.3	≡ 1≡	+ 100
Accumulated total weight	Accumulated total counts	Accumulated total quantity

Clear off the Accumulated Quantity Value

Press **MC** key to clear off the accumulated value in the memory, and accumulation symbol “+” will disappear.

2-8-2 Weight Accumulation

1. Place an object on platter when unit weight display is 0:

118.3	0	Stable	◀ 0
Weight of the object on platter			

2. Press **M+** key:

- - - - -	Add	- - - - -
-----------	-----	-----------

3. After scale is stable:

118.3	≡ 1≡	+	◀ 0
Accumulated total weight	Accumulated total counts	Stable	

4. After 3 seconds, scale returns to weighing mode.

118.3	0	+	◀ 0
Weight of the object on platter		Stable	

Weight Accumulation Value Recall

Press **M+** key to recall the accumulated weight value when weight display is 0:

→◀	◀ 118.3	≡ 1≡	+	◀ 0
	Accumulated total weight	Accumulated total counts	Stable	

Clear off Accumulated Weight Value

Press **MC** key to clear off the accumulated weight value in the memory, and then the accumulation symbol “◀” will disappear.

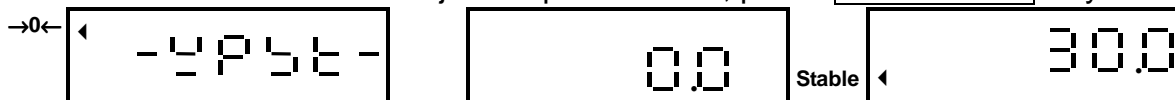
2-9 Quantity Preset

It's available to pre-set the upper limit of quantity under counting mode. If the counts are over the limit, the beeper makes warning sounds, and the weight column displays flashing

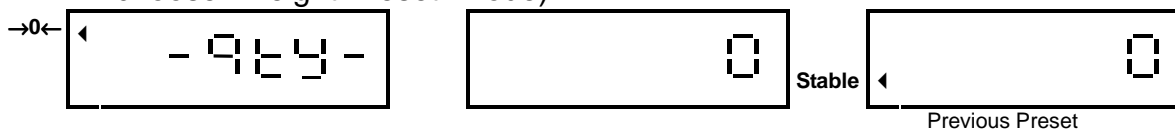
-9E4-

2-9-1 Upper Limit of Preset Quantity

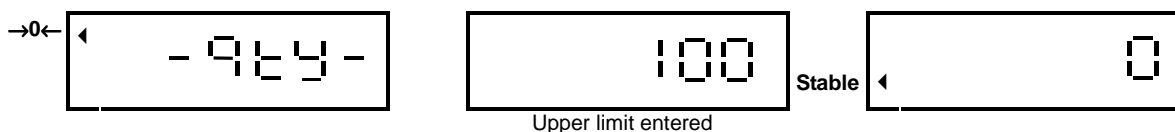
1. Whether there is an object on platter or not, press **QTY PRESET** key.



2. Press **SAMPLE** key, choose "Quantity Preset" mode (press **UNIT WEIGHT** key to choose "Weight Preset" mode)



3. Enter the upper limit intended: (press **CE** key to modify the value entered)



4. Press **SAMPLE** key: (press **CE** key to modify the value entered)



5. Press **QTY PRESET** key, and the scale will be back to the counting mode:



2-9-2 Clear Upper Limit of Preset Quantity

To clear the pre-set upper limit of quantity or weight, please follow the above-mentioned operation steps. When entering the pre-set value, please input "0" instead.

📖 When switching to "Weight Preset" mode or "Quantity Preset" mode, previous Preset value will be deleted automatically.

2-10 Weight Preset

It's available to pre-set the upper limit of weight. If the weights are over the limit, the beeper makes warning sounds, and the weight column displays flashing

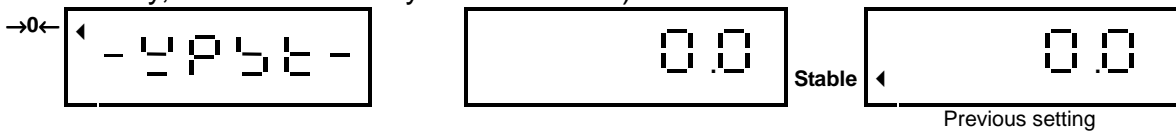
-UPSt-

2-10-1 Upper Limit of Preset Weight

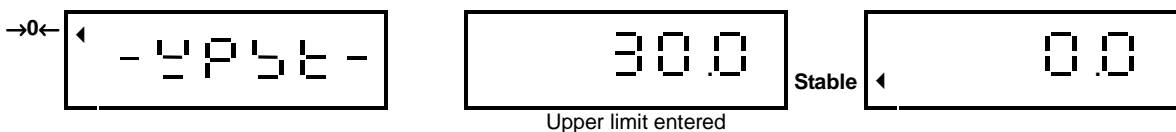
1. Whether there is an object on platter or not, press **QTY PRESET** key.



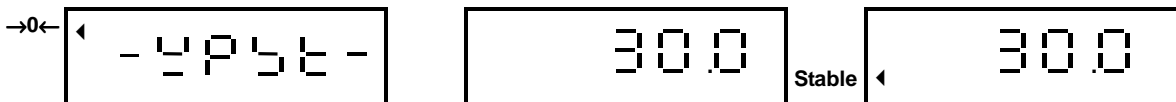
2. Press **UNIT WEIGHT** key to choose "Weight Preset" mode. (Press **SAMPLE** key, choose "Quantity Preset" mode)



3. Enter the upper limit intended: (press **CE** key to modify the data entered)



4. Press **UNIT WEIGHT** key: (press **CE** key to modify the data entered)



5. Press **QTY PRESET** key, and the scale will be back to counting mode.



2-10-2 Clear Upper Limit of Preset Weight

- ✧ To clear the pre-set upper limit of quantity or weight, please follow the above-mentioned operation steps. When entering the pre-set value, please input "0" in stead.
- 📖 When switching to "Weight Preset" mode or "Quantity Preset" mode, previous Preset value will be deleted automatically.

2-11 ID Input

Press **ZERO** key, and the screen displays “ - - - - - ”. Press **0** key before it disappears.



Input ID with number keys.

ID could be set up to 12 digits. They can be numbers (0 ~ 9), English letters (A ~ Z), or space (_).



Press **MC** key to confirm the data entered.

Press **.** key to quit setting.



2-12 ITEM Input

Press **ZERO** key, and the screen displays “ - - - - - ”. Press **2** key before it disappears.



Input ITEM with number keys.

ITEM could be set as 12 digits at most. They can be set as numbers (0 ~ 9), English letters (A ~ Z), or space (_).



Press **MC** to confirm.

Press **.** key to quit setting.



- ☞ Input of ID & ITEM is applied in PRINTER printing output. (FIX FORMAT or FREE FORMAT)
- ☞ ID & ITEM could be set as 12 digits at most. They can be set as numbers (0 ~ 9), English letters (A ~ Z), or space (_).
- ☞ Numbers/English letters inputted operation: Press number key and the digit will be flashing. Press the same key , and the display will show the number/English letter in cycle. When the entered number/English flashed for 2 seconds, the setting will be confirmed and moved to the right place by 1 digit. Example: Press **1** key continuously, and the screen will display 1,P,Q,R,S flashing in cycle.
- ☞ If the entered data for ID & ITEM is not saved in the location of unit weight pre-set, the data will be cleared after power off.

. key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

2-13 Unit Weight Preset

- The preset data could be save in up to 10 addresses
- Each address contains ①unit weight, ②pre-tare, ③ID and ④ITEM.

2-13-1 Pre-set Unit Weight Saving Operation (read-in)

- Use number key to input the unit weight. (The value is 0 or blank if not being set.)

Press **U.W.PST** key:

Pr5Et

Press **U.W.PST** key again:

Pr5Et

5Et

Press number key **0** ~ **9** to select one for saving the data.

2-13-2 Pre-set Unit Weight Operation (read-out)

Press **U.W.PST** key:

Pr5Et

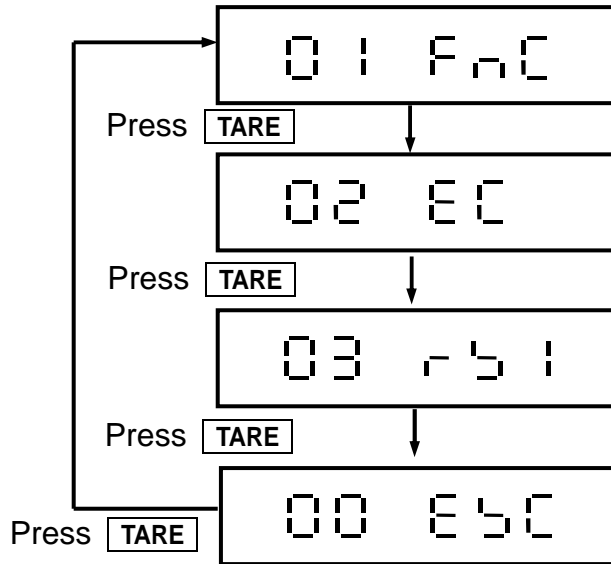
Press number key **0** ~ **9** to select one for call out the data.

NOTE: While reading or saving, if the waiting time is over 10 seconds, the scale will be back to weighing mode automatically. Press **CE** key to cancel the read-in and read-out.

Chapter 3 External Calibration Setting Mode

After starting machine, and the scale returns to zero, press **ZERO** key and the screen will display "-----". Then, press **.** key to enter external calibration function setting mode.

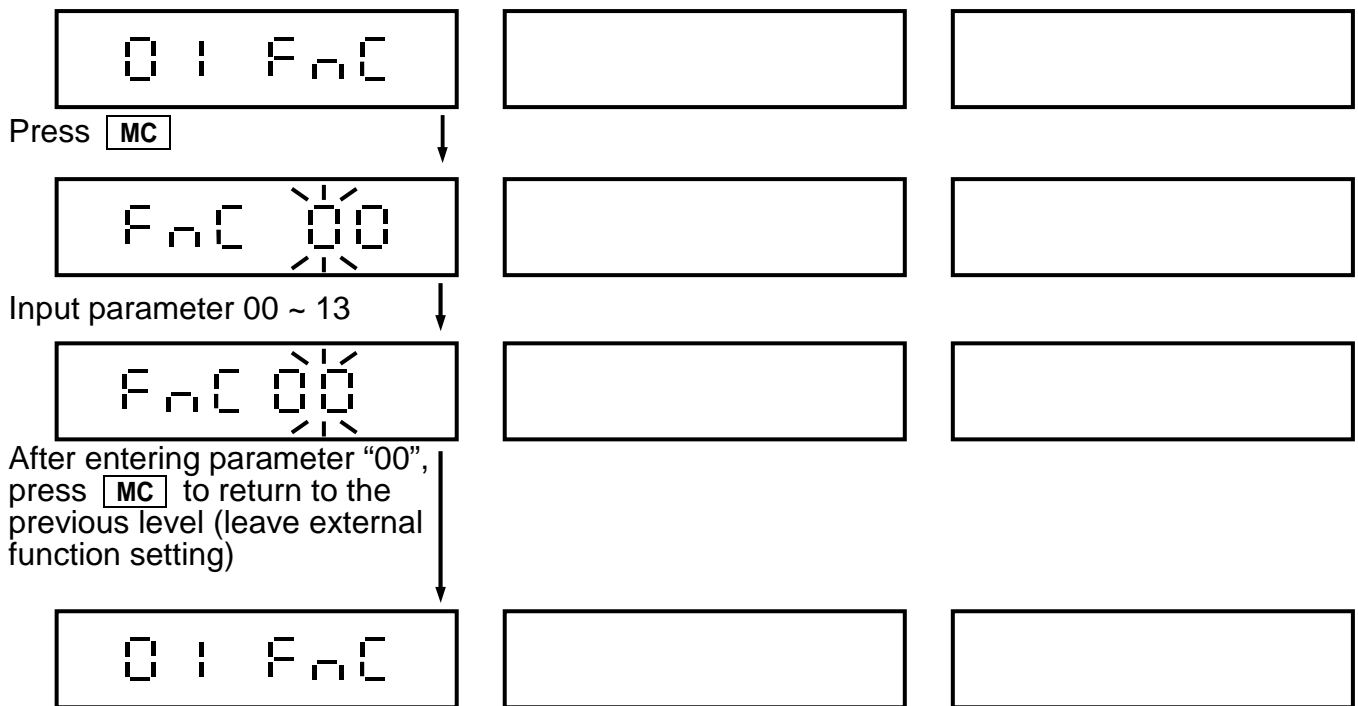
The weight column will display **01 Fnc**.



01 Fnc	⇒	External Function Setting
02 EC	⇒	External Weight Calibration and Gravity Calibration
03 r51	⇒	RS-232 and Serial Printer Setting
00 E5C	⇒	Exit the setting

. key	⇒	Exit
CE key	⇒	Move the cursor leftward
TARE key	⇒	Move the cursor rightward
MC key	⇒	Enter

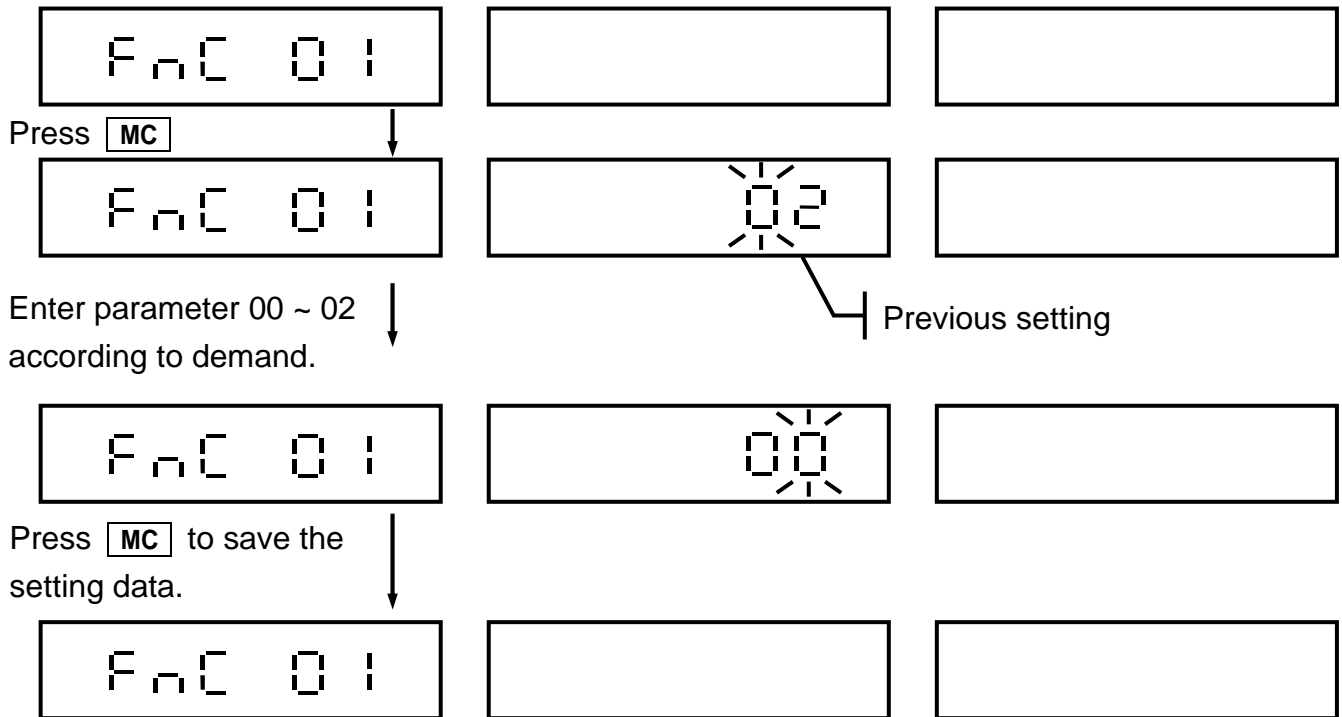
3-1 0 1 F n C External Function Setting



- key ⇒ Exit
- CE** key ⇒ Move the cursor leftward
- TARE** key ⇒ Move the cursor rightward
- MC** key ⇒ Enter

- F n C 0 0 ⇒ Return to previous level
- F n C 0 1 ⇒ Backlight mode setting
- F n C 0 2 ⇒ Automatic power off setting
- F n C 0 3 ⇒ Stable range setting for quantity sampling
- F n C 0 4 ⇒ Automatic unit weight average setting
- F n C 0 5 ⇒ A/D sampling speed setting
- F n C 0 6 ⇒ "Zero" display range setting
- F n C 0 7 ⇒ "Zero" track range setting
- F n C 0 8 ⇒ Accumulation ending mode setting
- F n C 0 9 ⇒ Pre-Tare mode setting.
- F n C 1 0 ⇒ "Beeper" output setting for quantity limit.
- F n C 1 1 ⇒ Accumulation acceptable condition setting 1.
- F n C 1 2 ⇒ Accumulation acceptable condition setting 2.
- F n C 1 3 ⇒ Combination key setting

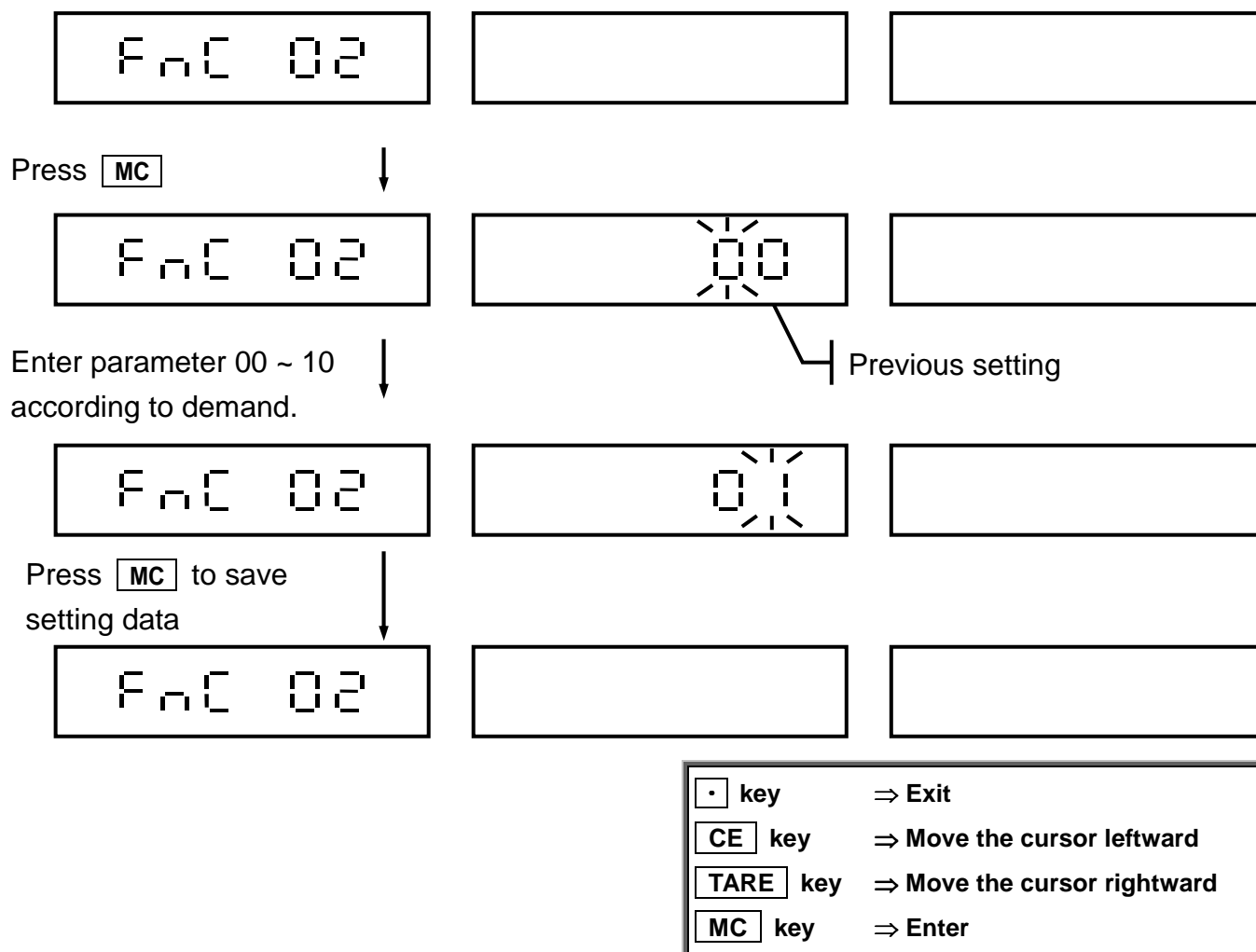
3-1-1 F n C 0 1 Backlight Mode Setting



· key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

- ☰ **Default Setting:** 0 2 (No backlight)
- 0 0 ⇒ Backlight is always on.
- 0 1 ⇒ While weighing (weight is higher than 10d) or pressing any key, backlight be turned on automatically. The backlight is turned off automatically when the scale is idle for 10 minutes. (d=division)
- 0 2 ⇒ No backlight.
- ☰ When turning on, the backlight mode is the same as previous setting.

3-1-2 F n C 02 Automatic Power-off Setting



☰ **Default setting: 00**

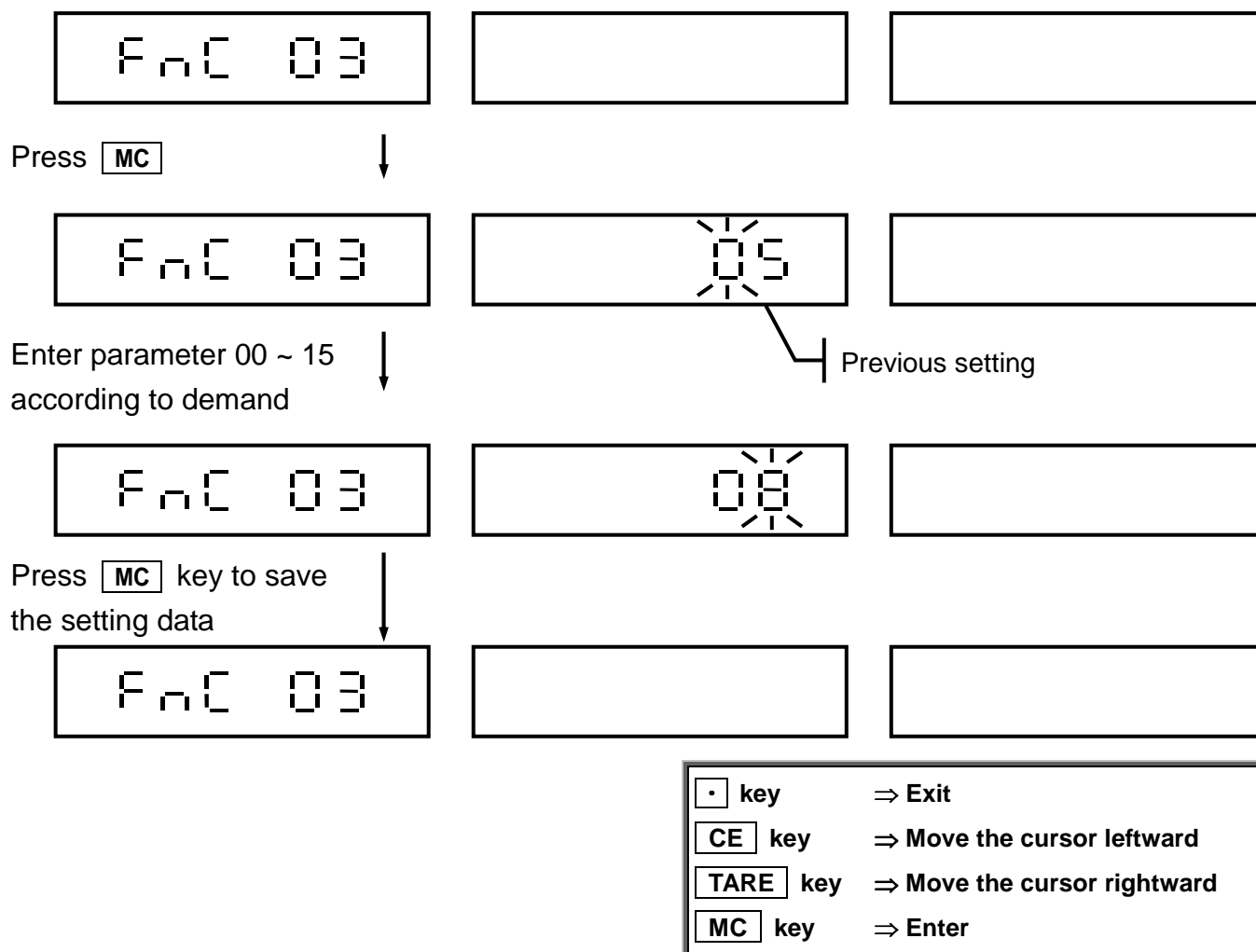
00 ⇒ the auto power-off function is disable.

01 ~ 10 ⇒ the scale to be automatically power off after the scale is not in use for 1 to 10 minutes.

(If intended to operate continuously, please restart the scale again.)

☰ It can be set up to 10 minutes at most.

3-1-3 F n C 03 Stable Range Setting for Quantity Sampling



Press **[MC]**

Enter parameter 00 ~ 15 according to demand

Press **[MC]** key to save the setting data

[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

Default setting: 08

While quantity sampling, the scale will indicate a stable reading and error is within $\pm 8d$ internal value. (d=division)

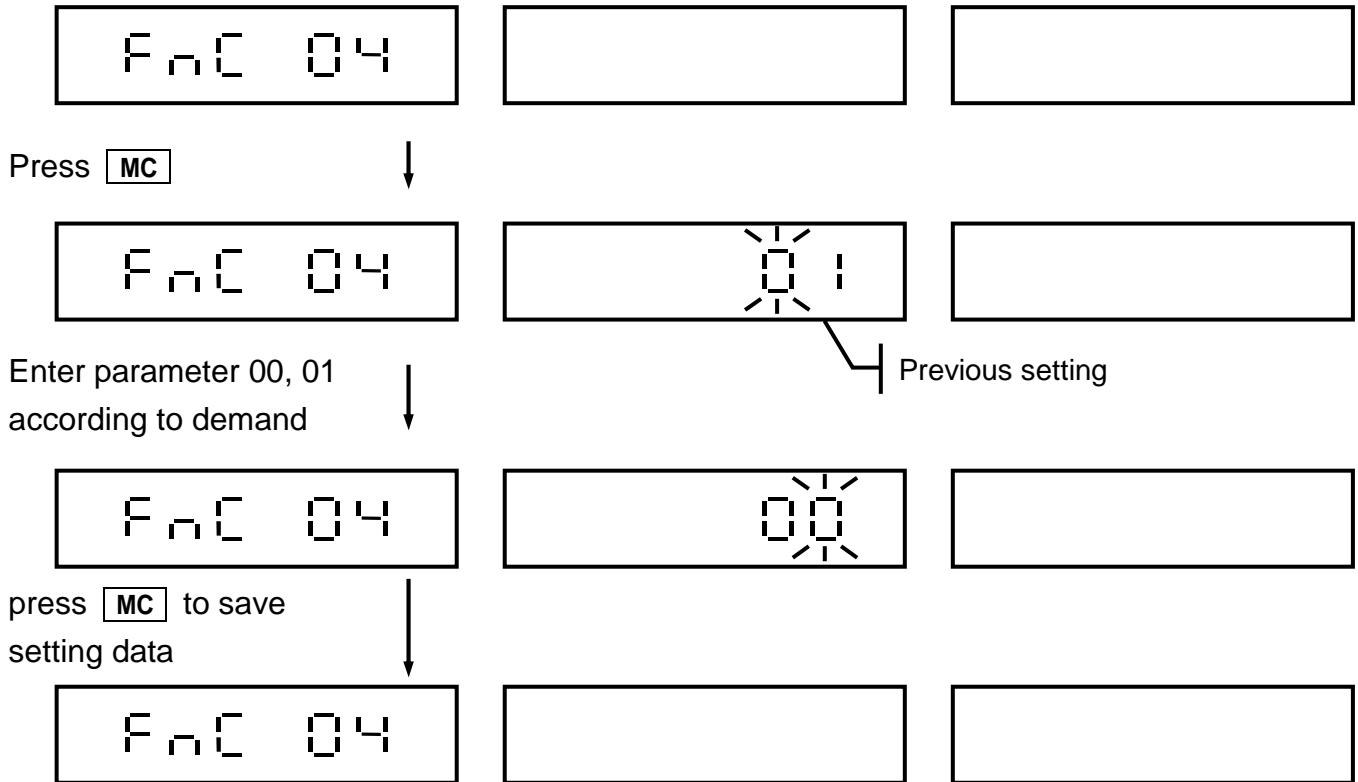
Parameters 00 ~ 15

The higher value makes the sampling faster, but less accurate.

The smaller value makes the sampling slower, but more accurate.

 It can't be shifted after sampling, only when the unit weight is cleared in Brazil version.

3-1-4 F n C 04 Automatic Average Unit Weight Setting



• key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

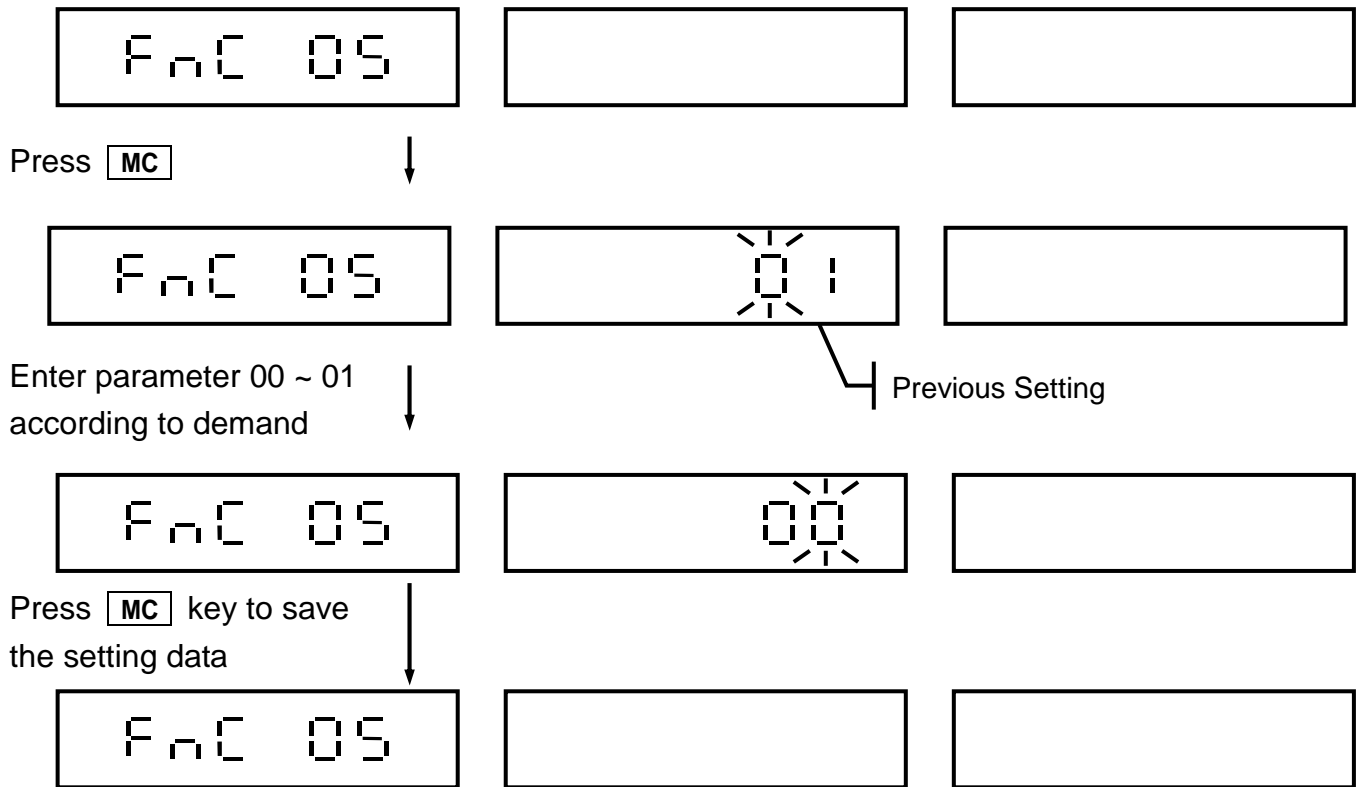
☰ **Default setting:** 0 1

0 0 ⇒ No automatic average unit weight function (press **SAMPLE** key for manual unit weight calibration)

0 1 ⇒ Automatic average unit weight function

Condition: Automatic unit weight calibration will perform when the measured sampling number increase greater than 10% but less than 100% of previous sampling number.

3-1-5 F n C 05 A/D Sampling Speed Setting



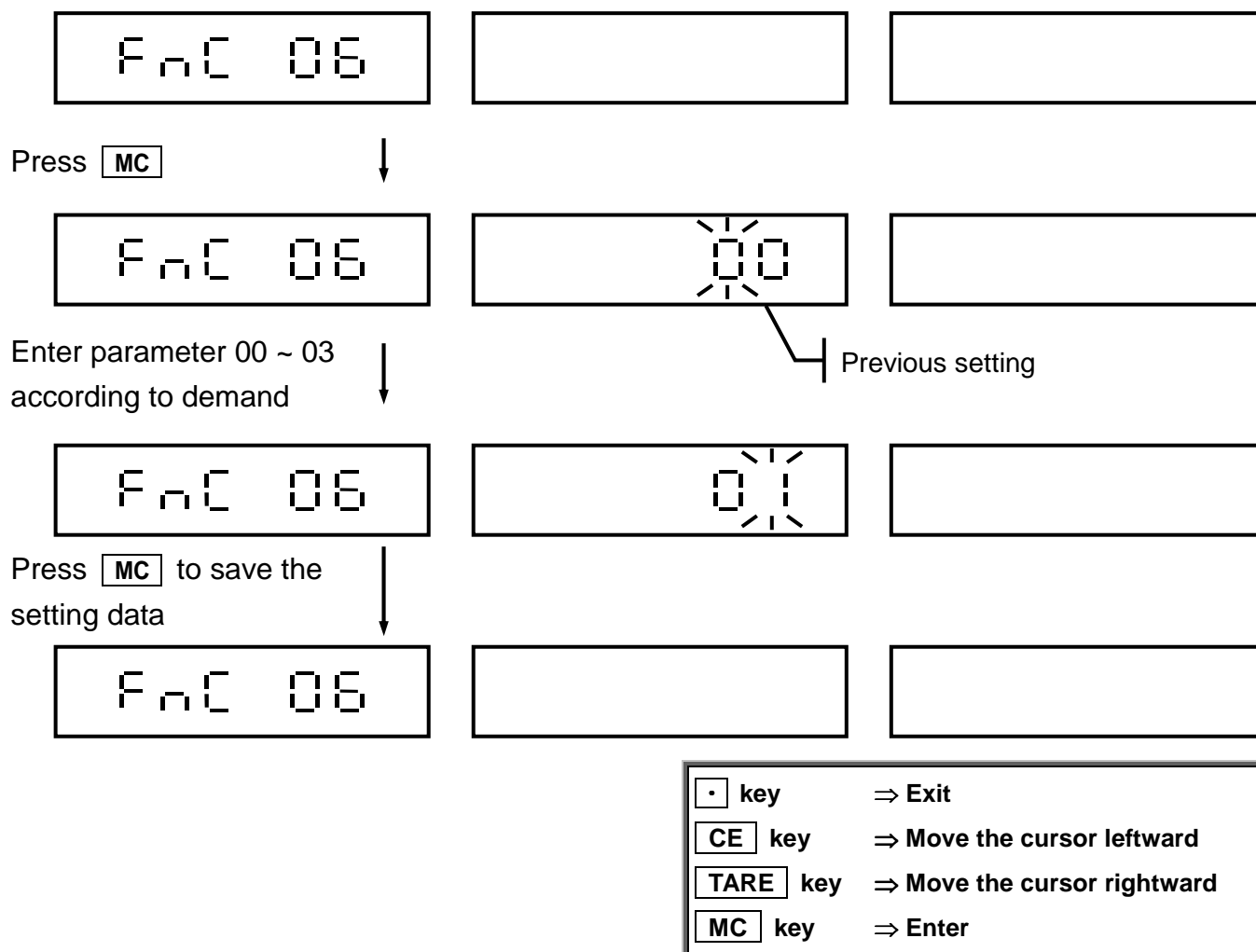
· key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

📄 **Default setting:** 0 1

0 0 ⇒ Low speed is about 7.5 Hz. (Weighing reflection is slow but relatively stable.)

0 1 ⇒ Fast speed is about 15 Hz. (Weighing reflection is fast but relatively unstable.)

3-1-6 F n C 06 Zero Display Range Setting



☰ The default setting is 0 1.

0 0 ⇒ Display all

0 1 ⇒ Zero range ± 1 bit will not display division, and displays zero instead.

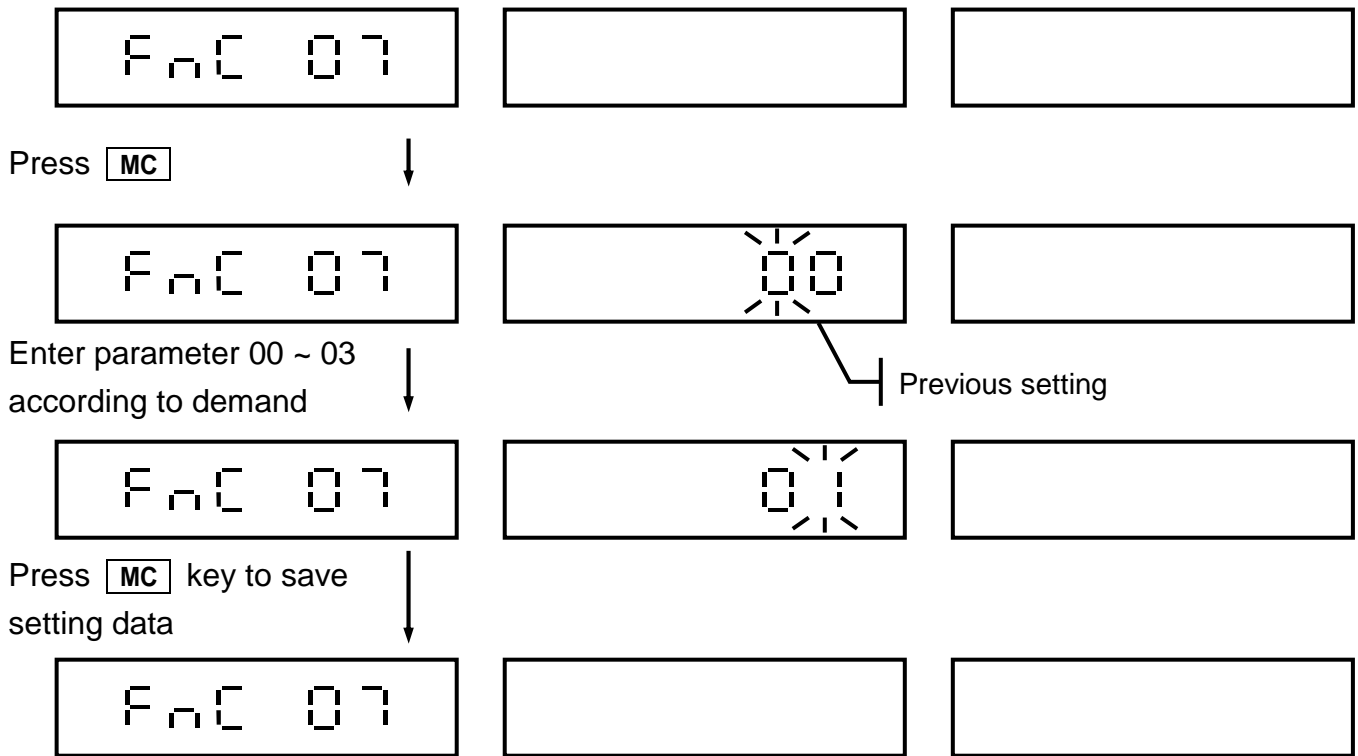
0 2 ⇒ Zero range ± 2 bits will not display division, and displays zero instead.

0 3 ⇒ Zero range ± 3 bits will not display division, and displays zero instead.


If 0 3 is set, when setting up Pre-Tare data, the Pre-Tare data can not be less or equal to ± 3 bits external value, and so on.

When the weight is over 1/3 full capacity and return to 0, this function will be started.

3-1-7 F_nC 07 Zero Tracking Range Setting



[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter


 The default setting is 0 1.

0 0 ⇒ After weight keeps stable continuously for over 1 second, it could track $\pm 1/4d$ (external value is 1/4 bit).

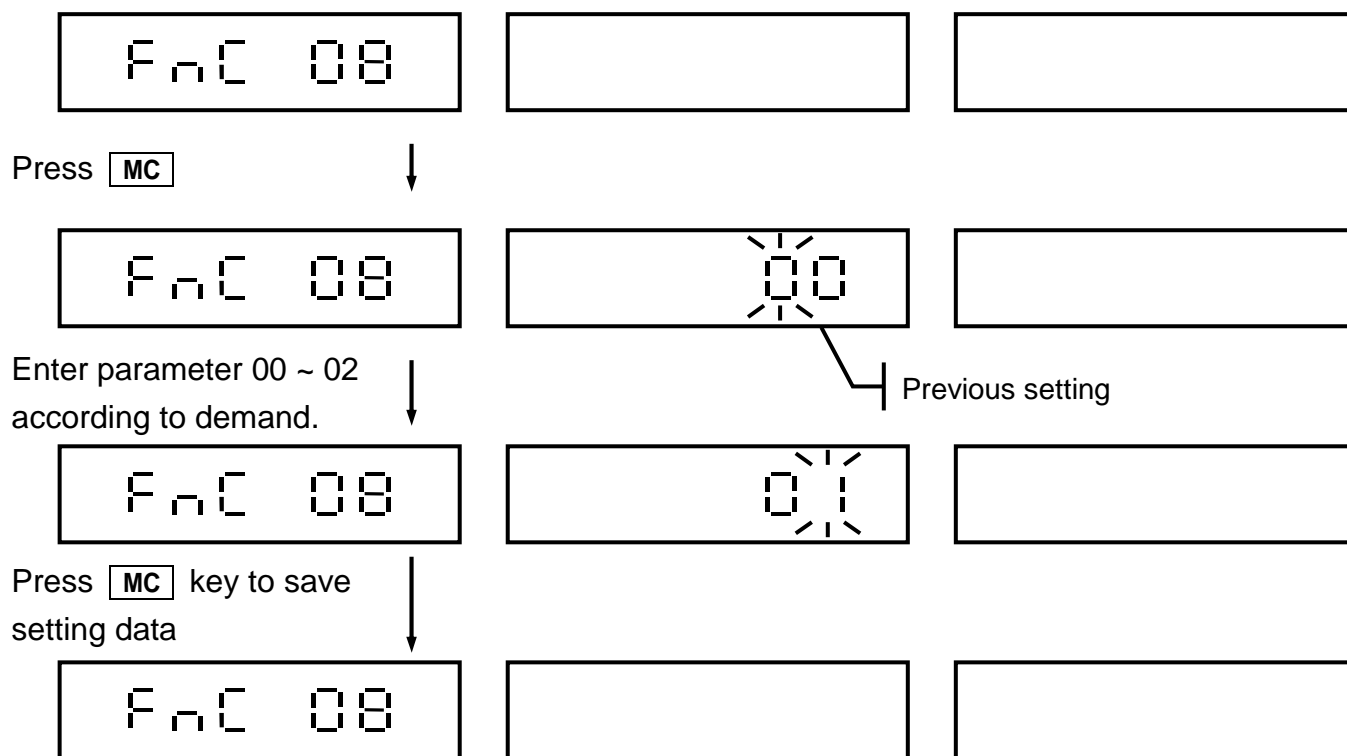
0 1 ⇒ After weight keeps stable continuously for over 1 second, it could track $\pm 1/2d$ (external value is 1/2 bit).

0 2 ⇒ After weight keeps stable continuously for over 1 second, it could track $\pm 1d$ (external value is 1 bit).

0 3 ⇒ After weight is being stable continuously for over 1 second, it could track $\pm 2d$ (external value is 2 bits). (d=division)

 Only if GROSS = 0, zero tracking function will be started.

3-1-8 F n C 08 Accumulation Ending Mode Setting



[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

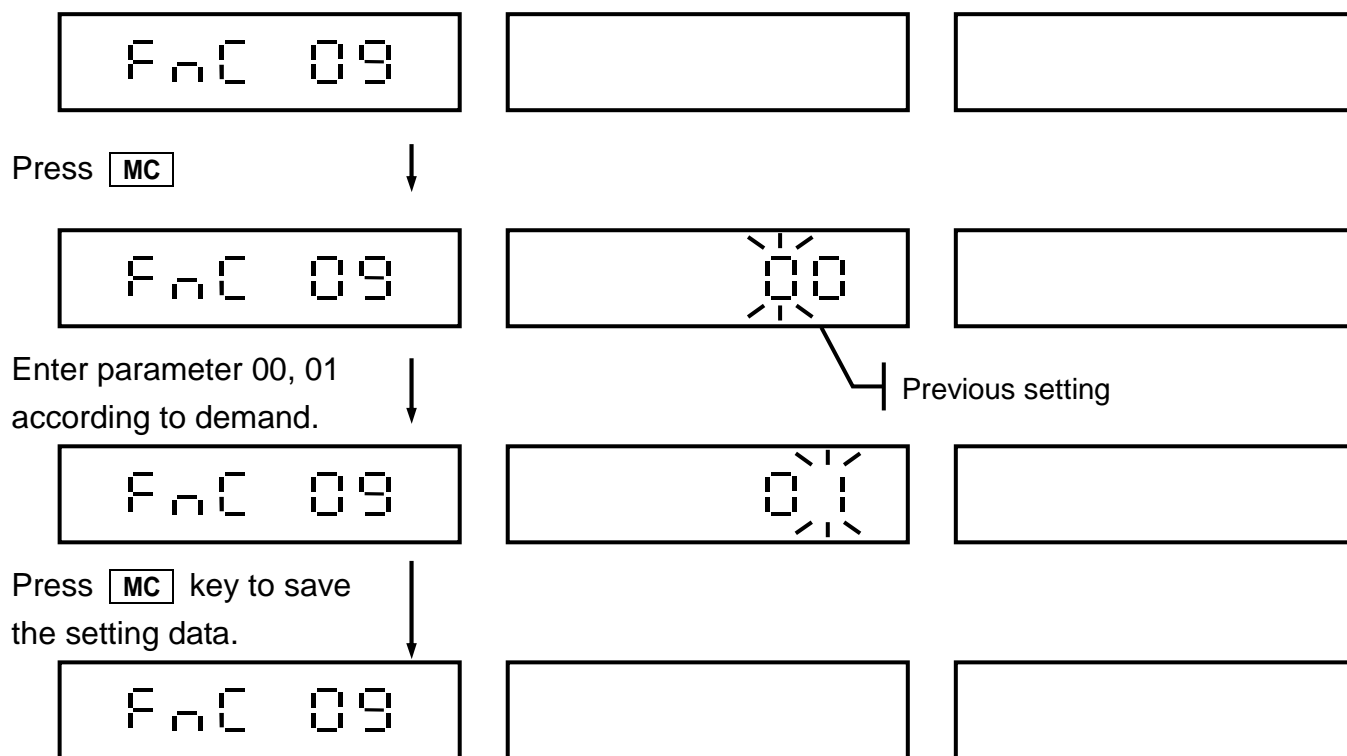
Default setting: 00

00 ⇒ Press **[M+]**. After screen displays accumulation data for 3 seconds, the scale will be back to weighing mode directly.

01 ⇒ Press **[M+]**. And the screen displays accumulation data. The scale will not be back to weighing mode until pressing **[CE]**.

02 ⇒ Press **[M+]**. And the screen does not display accumulation data, but beeper will “beep” once.

3-1-9 F n C 09 Pre-Tare Mode Setting




[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

Default setting: 00

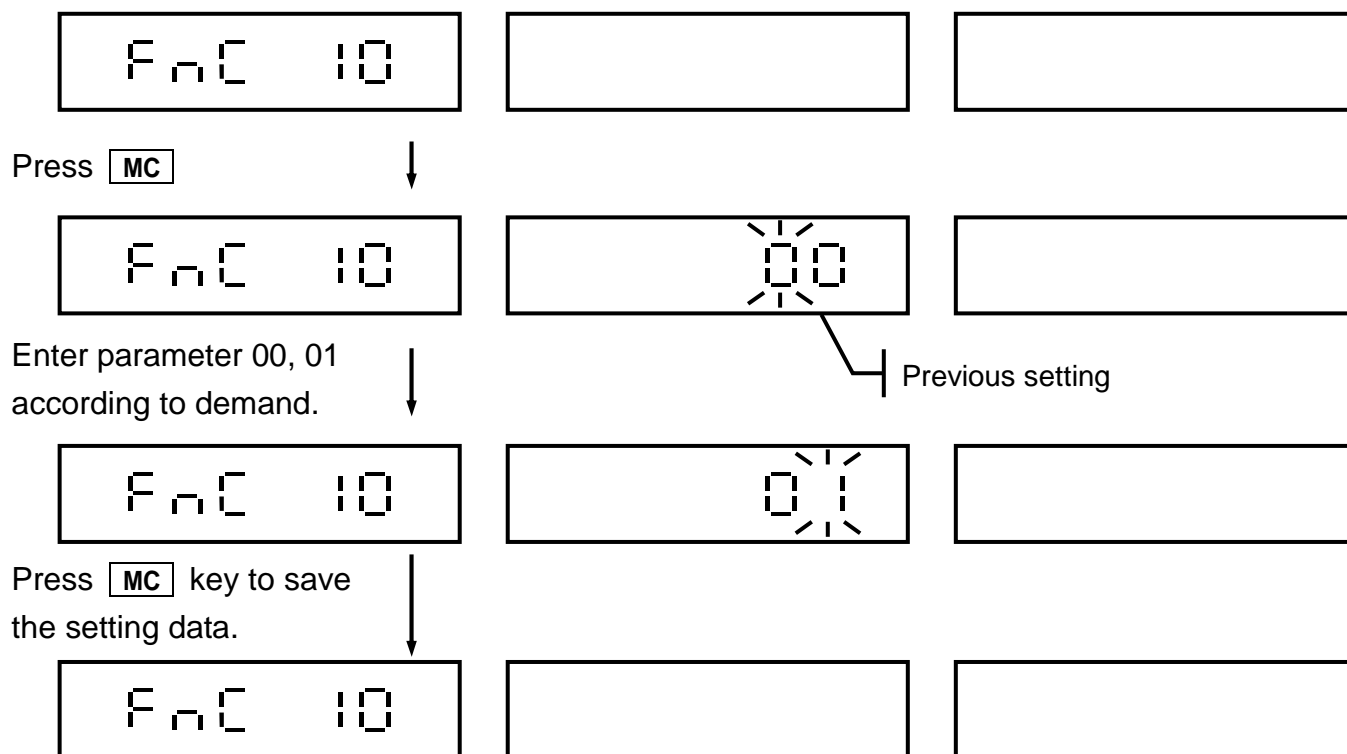
00 ⇒ Traditionally, Pre-Tare can not proceed when there is weight on platter. When there is no weight on platter, press [TARE] key to enter Pre-Tare value, and then press [TARE] key again to complete.

0 1 ⇒ Pre-Tare can be proceeded when there is weight on platter (enter digit in the unit weight column, and then press tare key).

When there is weight on scale, enter Pre-Tare data in the unit weight column. Example: enter “1”, “1.0”, “1.00” or “1.000” and then press [TARE] key again to complete the Pre-Tare “1kg.”

 Pre-Tare value can not be more than maximum weighing value, or the first and second segment point of division; besides, the value can not be less than or equal to the external value set up in F n C 06.

3-1-10 F n C 10 Beeper Sound Output Condition Setting under Quantity Mode



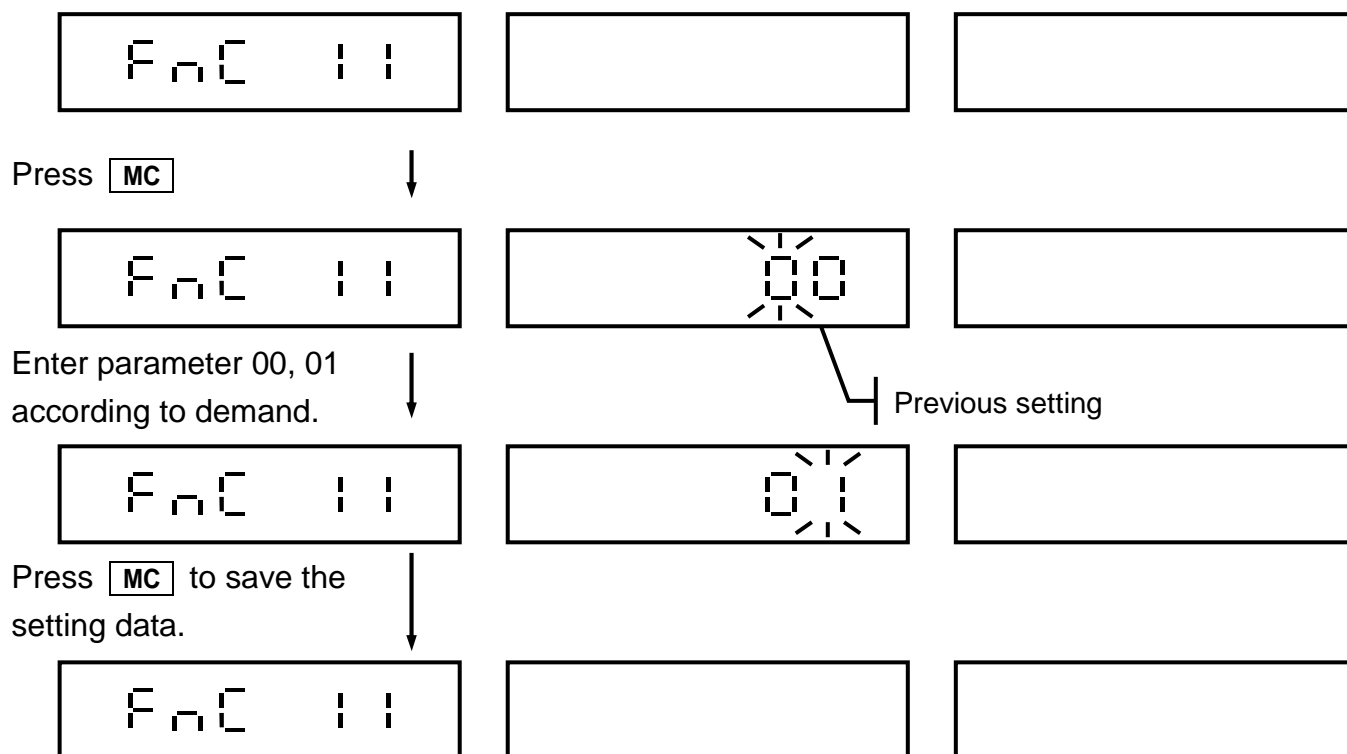
• key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

☰ The default setting is 0 1.

00 ⇒ If the weighing quantity exceeds quantity setting (or weight exceeds weight setting), the beeper will make sounds “bee” under unstable situation.

0 1 ⇒ If the weighing quantity exceeds quantity setting (or weight exceeds weight setting), it's no need to be stable and the beeper will make sounds “bee” automatically.

3-1-11 F n C | | Accumulation Acceptable Condition Setting 1



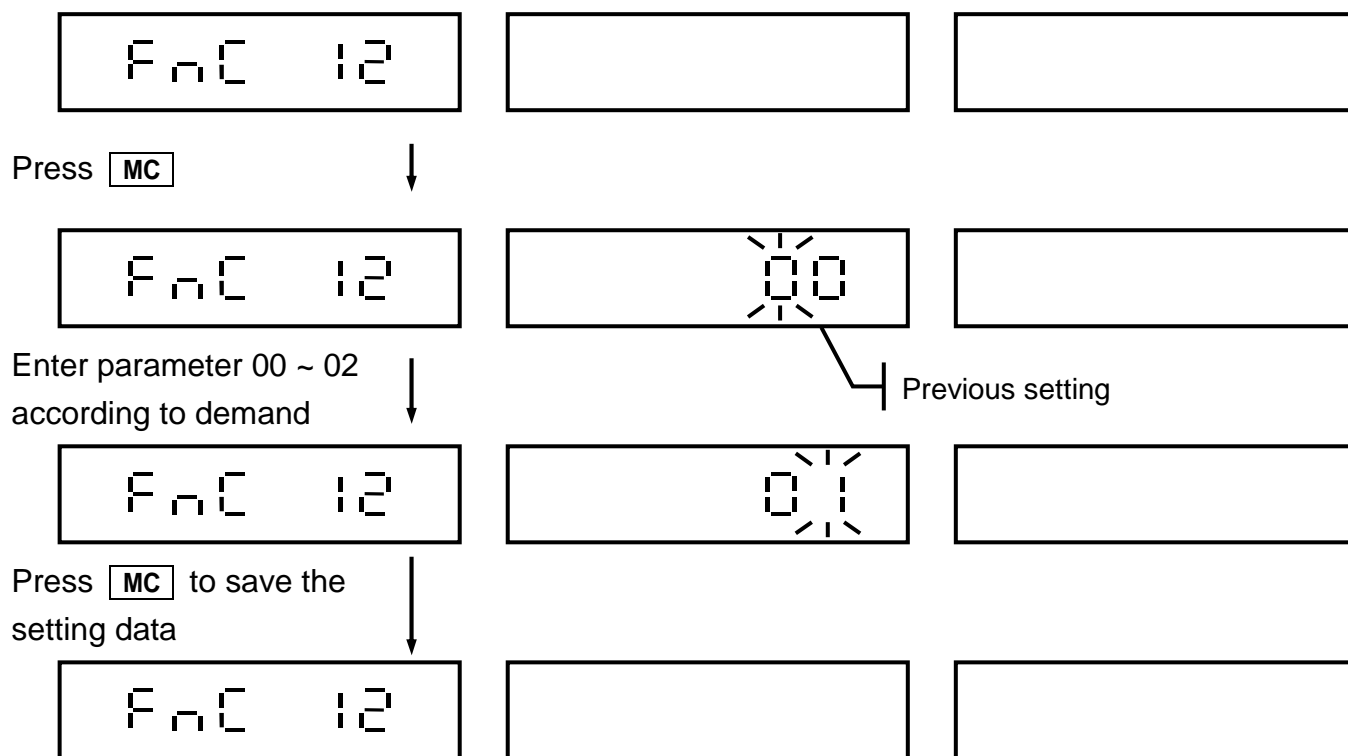
[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

 **Default setting:** 00

00 ⇒ The scale will accept accumulation only when being stable.




0 1 ⇒ The scale will accept accumulation no matter its being stable or not.

3-1-12 F n C 12 Accumulation Acceptable Condition Setting 2



[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

 **Default setting: 00**

00 ⇒ Only when the weight returns to zero, the scale accepts the next accumulation data. If the weight is close to zero band, the scale can be adjusted by   
01

01 ⇒ It's no need to return to zero and the scale can accept the next accumulation data. That means when there is load, the weight can be accumulated continuously.

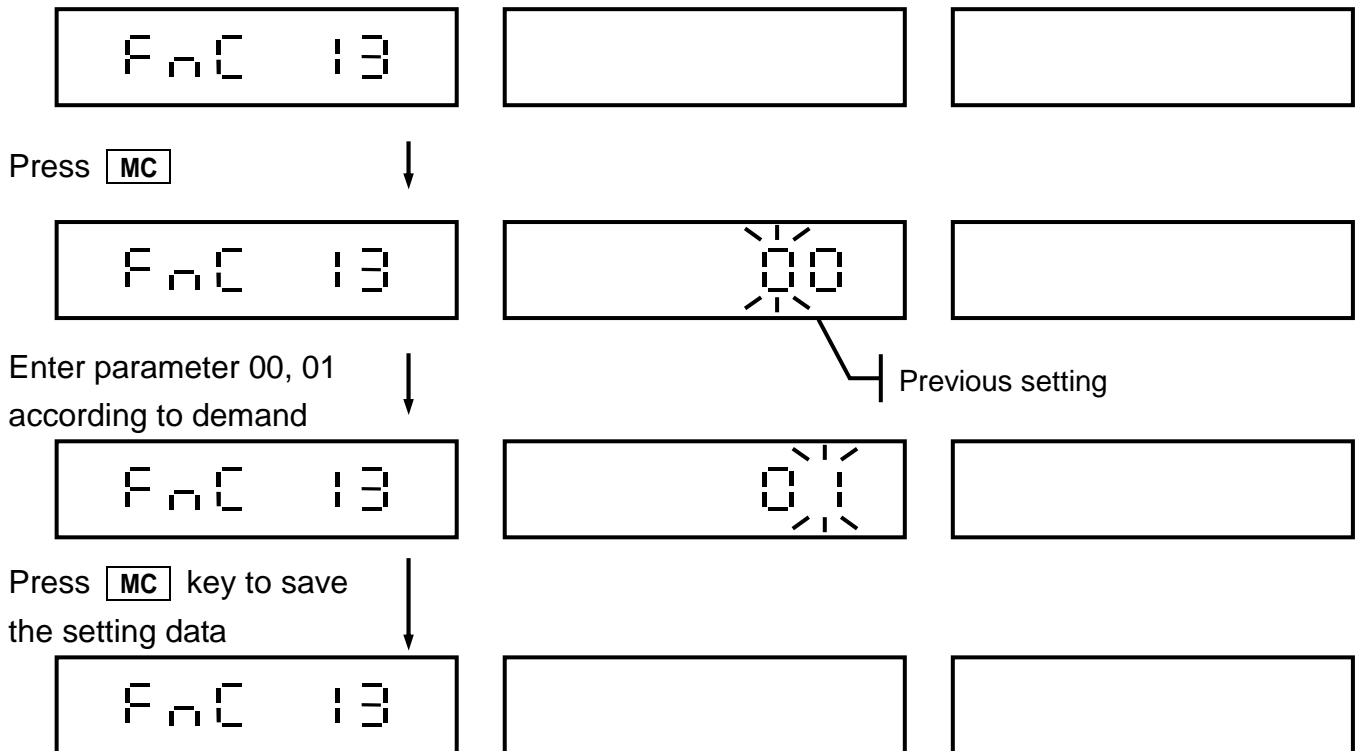
02 ⇒ The weight must return to zero (gross = 0), and the scale can accept the next accumulation data.

03 ⇒ Press [M+] key not to accumulate the data, at the same time, RS232 would be transmit the LCD data.

3-1-13 F n C 13 Combination Key Setting

Combination key represents **kg/lb** **U.W.PST** key; this key contains two functions:

- ① Unit switching
- ② 10 sets for unit weight preset

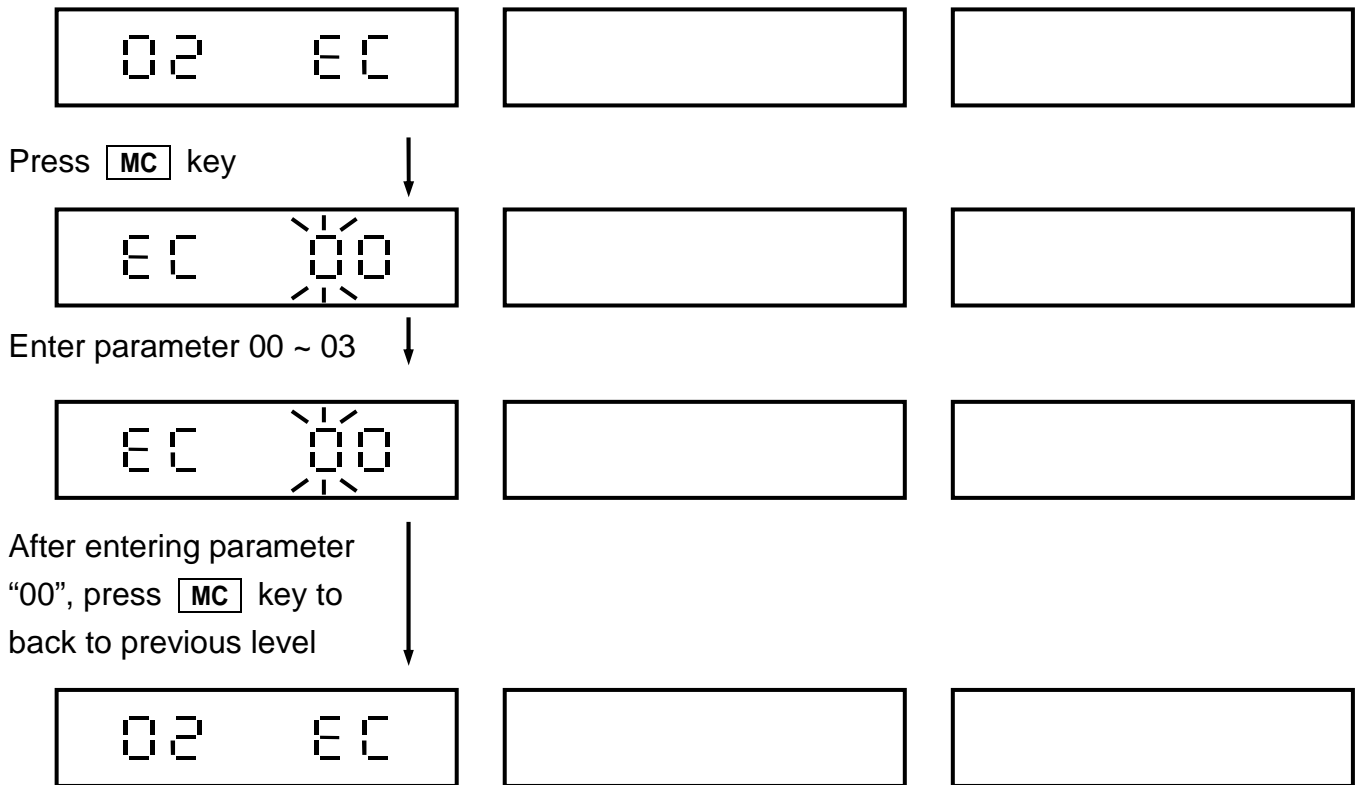


• key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

 **Default setting:** 00

- 00 ⇒ Press the combination key once to select unit (priority function)
Press and hold combination key for 3 seconds to pre-set unit weight (minority function)
- 01 ⇒ Press combination key once to pre-set unit weight (priority function)
Press and hold combination key for 3 seconds to select unit (minority function)

3-2 02 EC External Weight & Gravity Calibration



[.] key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

EC	00	⇒ Back to previous level
EC	01	⇒ External weight calibration
EC	02	⇒ Gravity adjustment or weight calibration in operation place

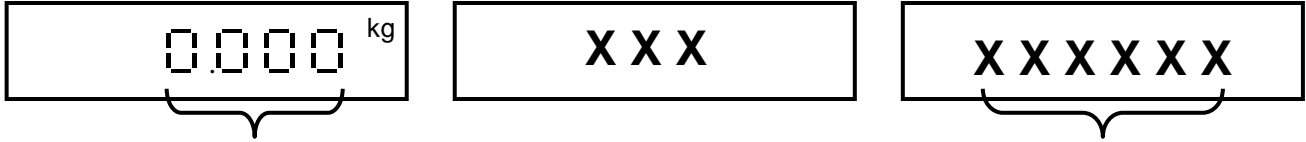
3-2-1 E C 0 1 External Weight Calibration

Zero value can be calibrated separately from the weight calibration value.



Press **MC**

If there is no temperature IC, the unit weight column will display $\square\square\square\square$.



No weight display

Internal value of no weight display

Make sure that no load on platter, and press **MC** to read "Zero"

Press **PRESET CE** to switch calibration unit.

Press **.** if not intend to calibrate "0".



Calibration poises value (weight value of fully capacity)

Internal value of full capacity display

Use number key **0** ~ **9** to modify calibration poises value, place enough poises according to value entered, and press **MC** key to read calibrated internal value and save into EEPROM.

- Calibration poises value entered can not be higher than "maximum weighing capacity".
- Poises weight entered will be compared with internal calibration poises weight. If the actual weight is more than the entered poises weight in 1.1~0.9 times, the weight column will display $\square\square\square\square$ for 1 second. Re-enter the calibration poises value, or place the correct weight to operate once again.
- If you do not calibrate weight, press **.** key to exit without saving AD data into EEPROM.



Poises weight value on platter

Internal value

Under weight calibration mode, please put on or remove weight to test. After testing, press **MC** key to complete external weight calibration



. key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

3-2-2 E C O 2 Gravity Adjustment

- ☰ It's capable for users to reset and modify gravity for 9 times. If it's the 10th revised gravity calibration, it needs to enter into **E C O 2** to redo the "gravity calibration in operation location," and the calibration time will be re-set to "1".
- ☰ Gravity adjustment in operation location must be done "after" external weight calibration.
- ☰ If the external weight calibration is done before gravity adjustment, the previous gravity value will be set as the value of operation location of external weight calibration.

☰ Gravity Value Modify Calculation

Gravity, the accelerated speed "G", is the reaction of centrifugal force for free falling object.

Standard gravity for the equator on earth surface:

$$G_E = 978.03184558 \text{ cm/sec}^2 = 9.7803184558 \text{ m/sec}^2$$

Standard gravity for polar region:

$$G_p = 983.21772792 \text{ cm/sec}^2 = 9.8321772792 \text{ m/sec}^2$$

The G value below ground is the object's free fall acceleration at that location.

Gravity does not decrease gradually from mantle to the earth's core. Gravity in the mantle will reaches its highest value (about 1021 cm/ sec²), and decreases to 0 at the earthe's core.

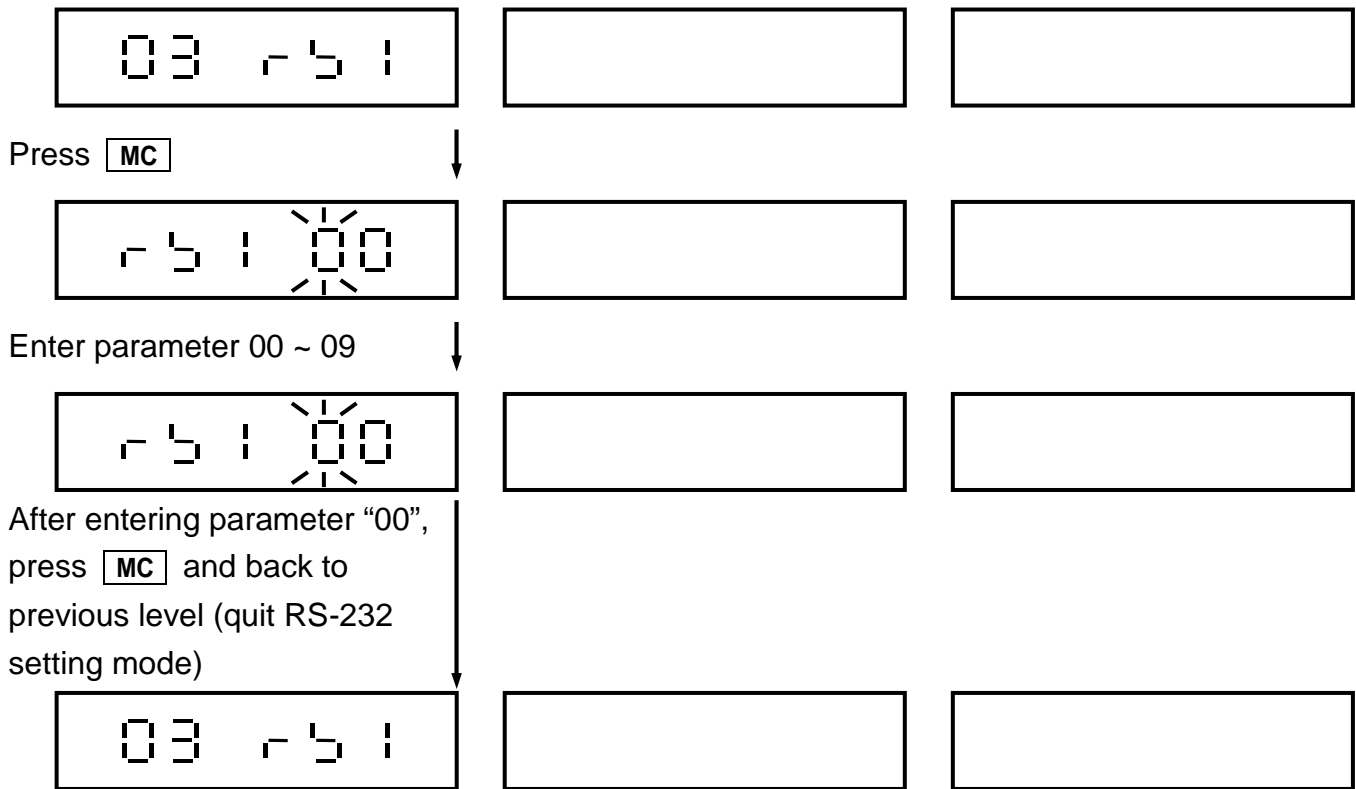
Standard gravitation acceleration in different latitude (ψ) can be calculated by formula described as bellowed descriptions:

$$G = 978.03185 (1 + 0.005278895 \sin^2 \psi + 0.000023462 \sin^4 \psi)$$

G: cm/sec² ψ : Latitude

Gravity must between 9.78032 m/sec² to 9.83218 m/sec².

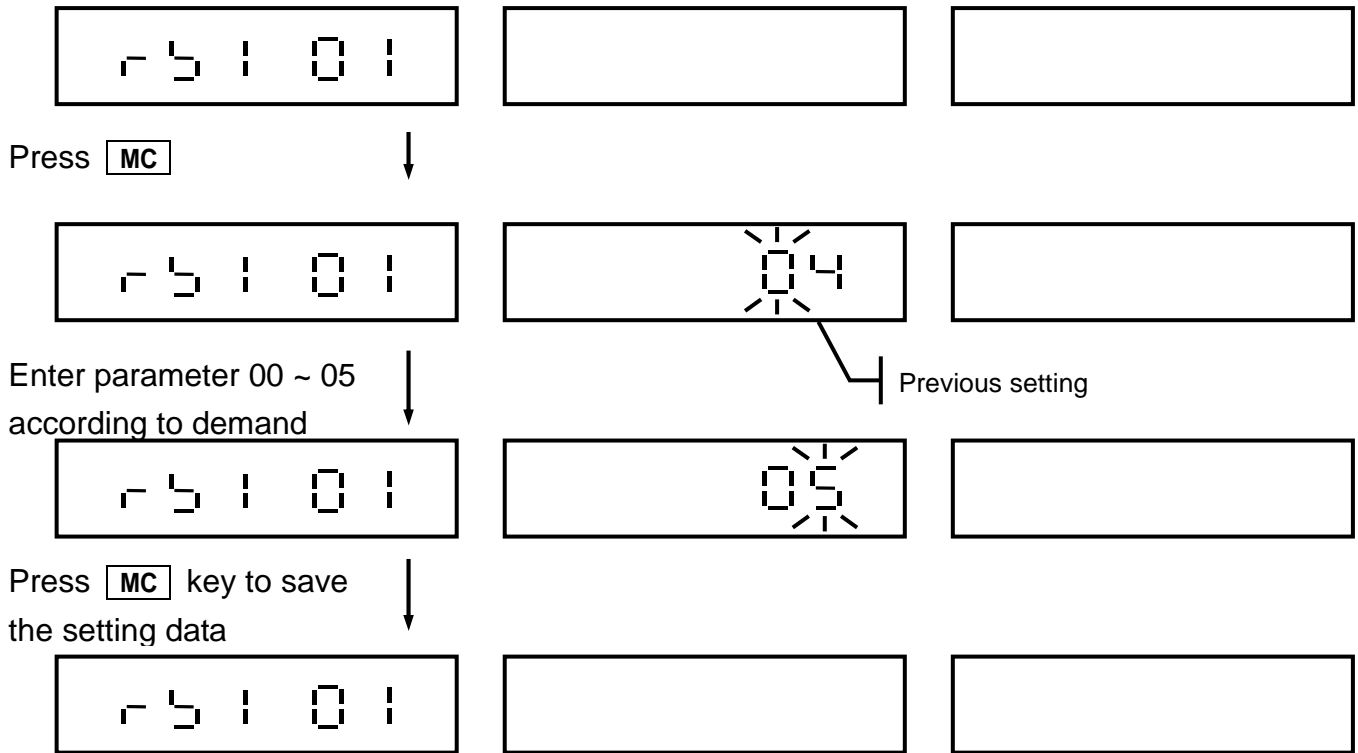
3-3 03 r 5 | RS-232 and Serial Printer Setting



. key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

- r 5 | 00 ⇒ Back to previous level
- r 5 | 01 ⇒ Baud rate setting
- r 5 | 02 ⇒ Communication protocol setting
- r 5 | 03 ⇒ Output data format setting
- r 5 | 04 ⇒ Output counts setting per second in continuous transmission
- r 5 | 05 ⇒ Operation mode setting
- r 5 | 06 ⇒ Continuous transmission output condition setting
- r 5 | 07 ⇒ Zero reset condition for automatic transmission setting
- r 5 | 08 ⇒ Reset condition for automatic transmission setting

3-3-1 5 1 0 1 Baud Rate Setting



• key	⇒ Exit
[CE] key	⇒ Move the cursor leftward
[TARE] key	⇒ Move the cursor rightward
[MC] key	⇒ Enter

 **Default setting: 04 (9 600 bits/second)**

00 ⇒ 600 bits/second

01 ⇒ 1 200 bits/second

02 ⇒ 2 400 bits/second

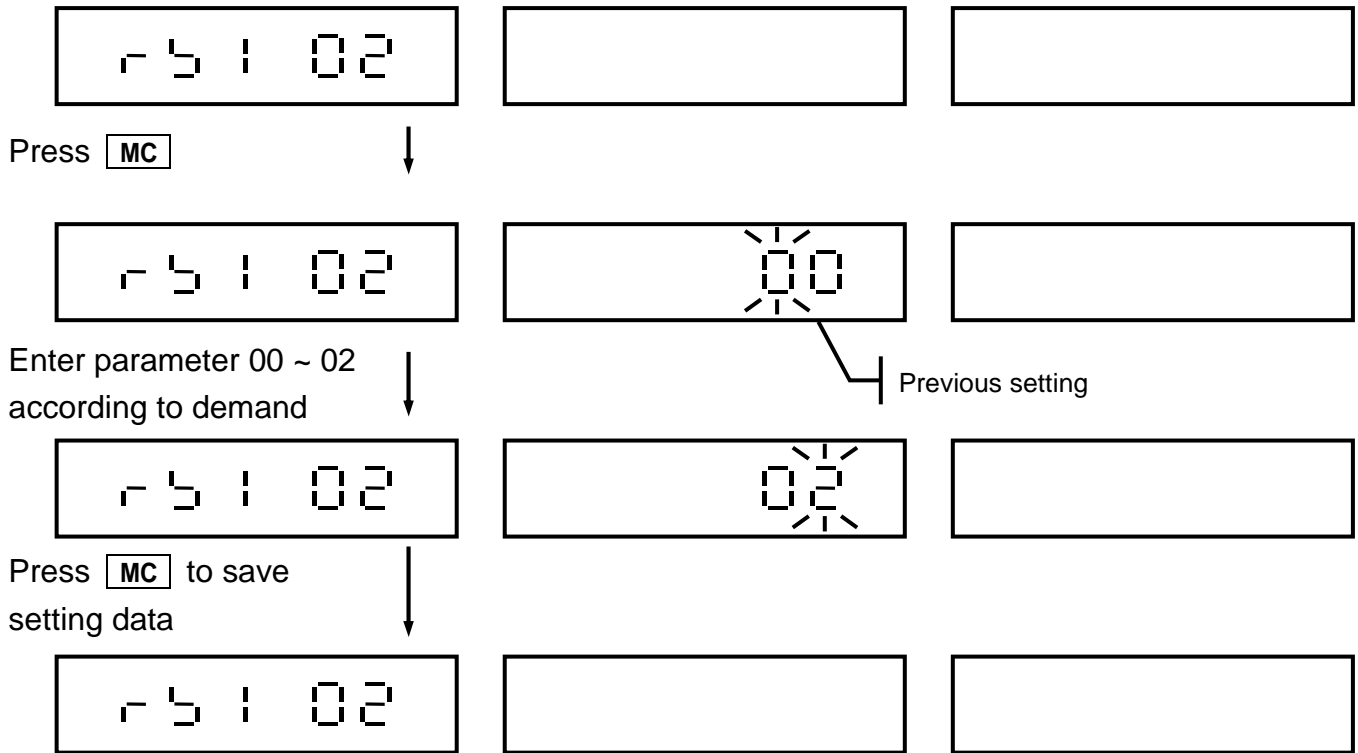
03 ⇒ 4 800 bits/second

04 ⇒ 9 600 bits/second

05 ⇒ 19 200 bits/second

 If there is free form device, it is 9600 bits/sec transmit.

3-3-2 r 5 1 02 Communication Protocol Setting




· key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

 **Default setting:** 00 (N, 8, 1)

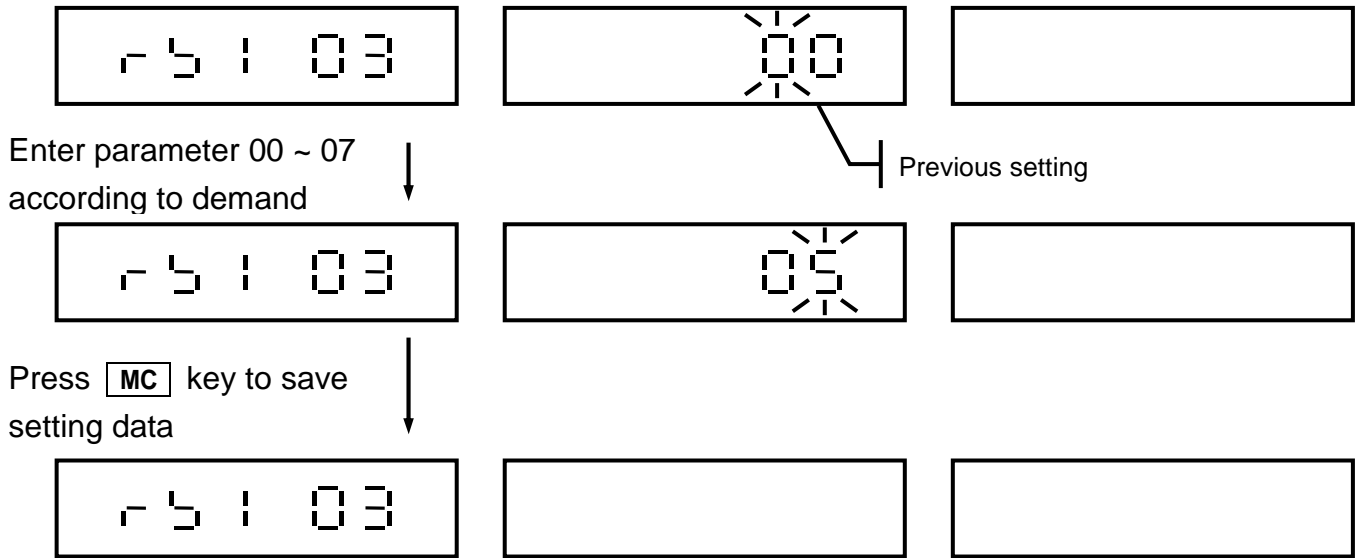
00 ⇒ N, 8, 1





01 ⇒ E, 7, 1

02 ⇒ O, 7, 1

 If there is free form device, it is n81 transmit.

3-3-3 Output Data Format Setting




 key	⇒ Exit
 key	⇒ Move the cursor leftward
 key	⇒ Move the cursor rightward
 key	⇒ Enter


 **Default setting:**  (fixed format 1)

 ⇒ Fixed format 1 (details as the following page)

 ⇒ Fixed format 2 (details as the following page)


 ⇒ RESERVED

 ⇒ Same as screen display (general format)

 ⇒ Same as screen display (simple format)

 ⇒ Gross weight (general format)



 ⇒ Net weight (general format)

 ⇒ Tare (general format)

 ⇒ Fixed format 3 (details as the following page)

 ⇒ Fixed format 4 (details as the following page)

 For output format illustration, refer to “Appendix 1”.

 When scale connects with free format card, this setting will be fixed as  ⇒ RESERVED



Example: Illustration for fixed format is described as below:

Fixed format 1

“Press **M+** key to transmit”

NO.	3
G	2.480 kg
N	2.000 kg
T	0.080 kg
PT	0.400 kg
U/W	1.6003 g
Q	1250 pcs

Fixed format 2

“Press **M+** key to transmit”

ID: xxxxxxxx xxxxx
 ITEM: xxxxxxxx xxxxx

NO.	3
G	2.480 kg
N	2.000 kg
T	0.080 kg
PT	0.400 kg
U/W	1.6003 g
Q	1250 pcs

Note: if the format (rs1 03 setting) belongs to M+MC Key, but the method of transmission (rs1 05 setting) is continuous or automatic transmission, some content maybe useless.

Fixed format 3 “Press **M+ key to transmit”**

NO.	1
N/W	0.500
U/W	1.00013
PCS	500

Fixed format 4 “Press **M+ key to transmit”**

N/W	0.500
U/W	1.00013
PCS	500

Fixed format 1,2

“Press **MC** key to transmit”

(to print out total accumulation data, and clear data in memory)

=====

T/N	3
T/W	1500 kg
T/Q	300 pcs



Fixed format 3

“Press **MC** key to transmit”

(to print out total accumulation data, and clear data in memory)

=====

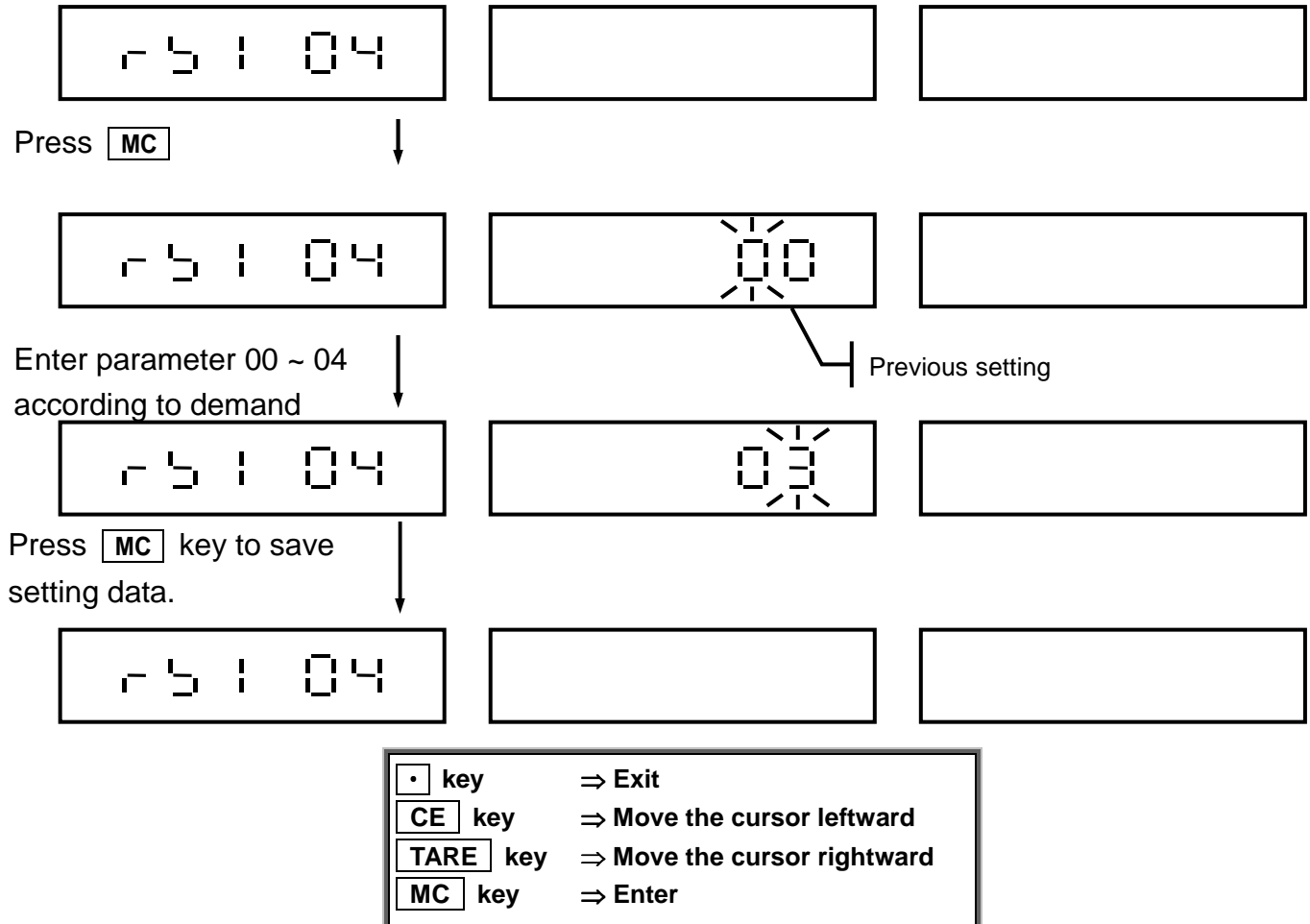
T/N 3

T/W 1500

T/A 300

- NO.** ⇒ **Number of Counts**
- Q** ⇒ **Quantity**
- T** ⇒ **Tare**
- PT** ⇒ **Pre-Tare**
- G** ⇒ **Gross Weight**
- N** ⇒ **Net weight**
- U/W** ⇒ **Unit weight**
- T/N** ⇒ **Total Number of Counts**
- T/W** ⇒ **Total weight**
- T/Q** ⇒ **Total quantity**
- ID:** **12 digits (max.)**
- ITEM:** **12 digits (max.)**

3-3-4 $r\ 5\ 1\ 0\ 4$ Output Counts Setting Per second in Continuous Transmission



 **Default setting:** $0\ 0$ (1 count/second)


$0\ 0 \Rightarrow$ 1 count/second


$0\ 1 \Rightarrow$ 2 counts/second


$0\ 2 \Rightarrow$ 4 counts/second

$0\ 3 \Rightarrow$ 8 counts/second

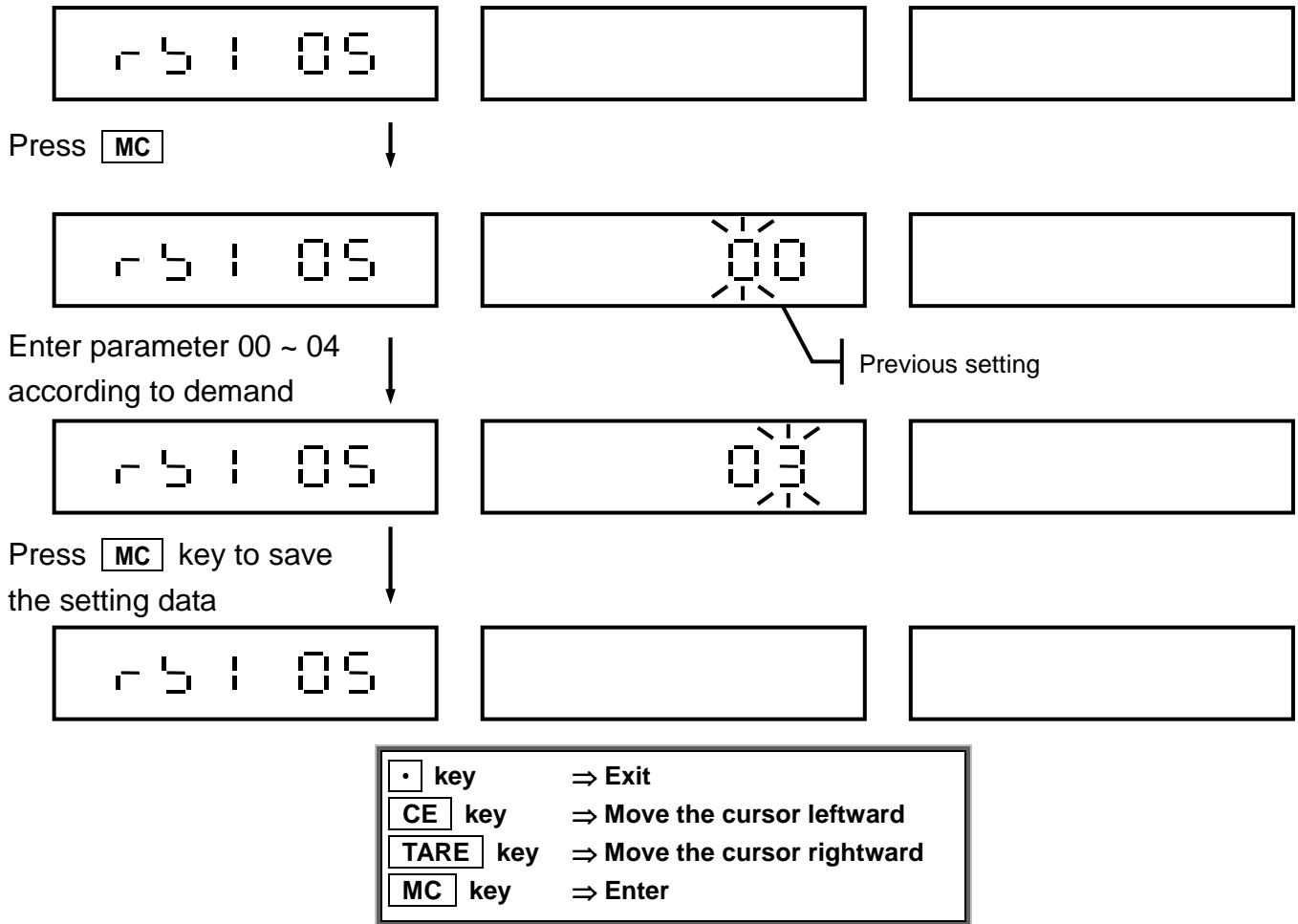
$0\ 4 \Rightarrow$ More than 8 counts/second

 If parameter of $r\ 5\ 1\ 0\ 3$ is set as $0\ 0$ (fixed format 1) or $0\ 1$ (fixed format 2), it may not be available to reach the transmission counts due to too long distance.

 If parameter of $r\ 5\ 1\ 0\ 3$ is set as $0\ 2$ (Reserved), it's not capable of continuous transmission mode.

 If parameter of $r\ 5\ 1\ 0\ 3$ is set as $0\ 3 \sim 0\ 7$, it's capable of continuous transmission normally.

3-3-5 r 5 1 05 Operation Mode Setting



 **Default setting:** 0 3 3

00 ⇒ Command mode

01 ⇒ Continuous transmission + command mode


02 ⇒ Automatic transmission + command mode


03 ⇒ Manual transmission + command mode


Please press **M+** key or **MC** key to do manual transmission.

04 ⇒ No RS-232 transmission

05 ⇒ ZEBRA PRINTER special format

 If parameter of r 5 1 03 is set as 02 (Reserved), the setting of r 5 1 05 will be fixed as manual transmission but without command mode.

 For the illustration of command mode format, refer to “Appendix 1”.

 If there is free form device which is detected, it will be ” 0 3 ” => Manual transmission + command mode.



Zebra printer output format

1. Press **[M+]** key to transmit the data.

F	R	"	5	2	0	P	"	<LF>										
?	<LF>																	
G	G	,	G	G	G	<LF>												
T	T	,	T	T	T	<LF>												
PT	PT	,	PT	PT	PT	<LF>												
N	N	,	N	N	N	<LF>												
UW	UW	,	UW	UW	UW	<LF>												
PCS	PCS	PCS	PCS	PCS	PCS	<LF>												
n	n	n	n	n	n	t	t	t	t	t	t	pcs	pcs	pcs	pcs	pcs	pcs	<LF>
P	1	,	1	<LF>														

G = Gross T = Tare PT = Pretare N = Net

UW = Unit Weight PCS = Quantity , Fill in blanks for zero "0" on the left.

n = Net t = Tare + Pretare pcs = Quantity, zero "0" on the left reserved

<LF> = 0x0A line feed

For example:

- Gross = 0,500 kg
- Tare = 0,150 kg
- Pre-tare = 0,050 kg
- Net = 0,300 kg
- UW = 0,5g
- PCS = 600

F	R	"	5	2	0	P	"	<LF>										
?	<LF>																	
SP	0	,	5	0	0	<LF>												
SP	0	,	1	5	0	<LF>												
SP	0	,	0	5	0	<LF>												
SP	0	,	3	0	0	<LF>												
SP	0	,	5	0	0	<LF>												
SP	SP	SP	6	0	0	<LF>												
0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	6	0	0	<LF>
P	1	,	1	<LF>														

<LF> = 0x0A (line feed) SP = 0x20 (Blank)



2. Press **MC** key to transmit the data.

F	R	"	5	2	0	T	"	<LF>										
?	<LF>																	
TN	TN	TN	TN	TN	TN	<LF>												
TW	TW	,	TW	TW	TW	<LF>												
TA	TA	TA	TA	TA	TA	<LF>												
tn	tn	tn	tn	tn	tn	tw	tw	tw	tw	tw	tw	ta	ta	ta	ta	ta	ta	<LF>
P	1	,	1	<LF>														

TN: Total number TW: Total weights TA: Total quantities
tn: Total number tw: Total weights ta: Total quantities
NOTE: Fill in zero "0" for the blanks on the left.

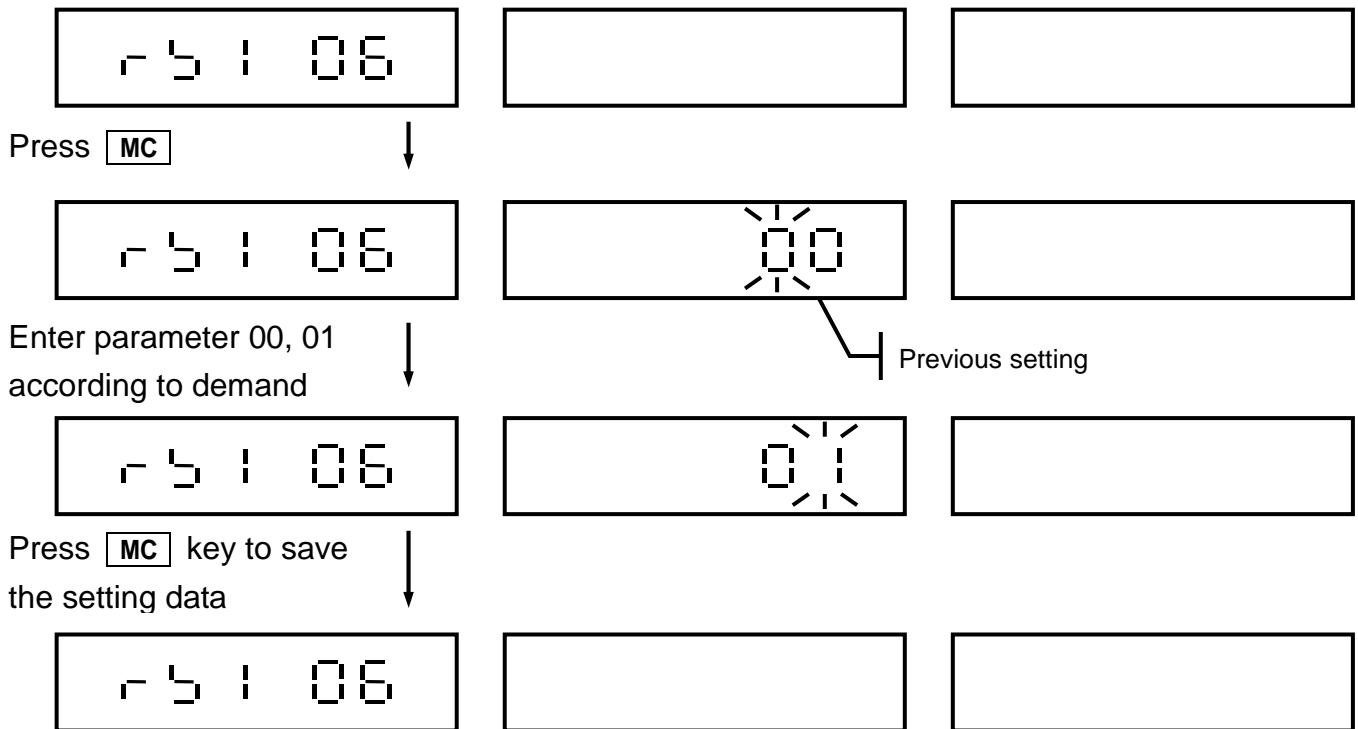
For example:





TN = 3
TW = 2,395 kg
TA = 23937

F	R	"	5	2	0	T	"	<LF>										
?	<LF>																	
SP	SP	SP	SP	SP	3	<LF>												
SP	2	,	3	9	5	<LF>												
SP	2	3	9	3	7	<LF>												
0	0	0	0	0	3	0	0	2	3	9	5	0	2	3	9	3	7	<LF>
P	1	,	1	<LF>														


<LF> = 0x0A (line feed) SP = 0x20 (Blank)

3-3-6 Continuous Transmission Output Condition Setting


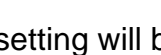



 key	⇒ Exit
 key	⇒ Move the cursor leftward
 key	⇒ Move the cursor rightward
 key	⇒ Enter

- **Default setting:  (output all)**

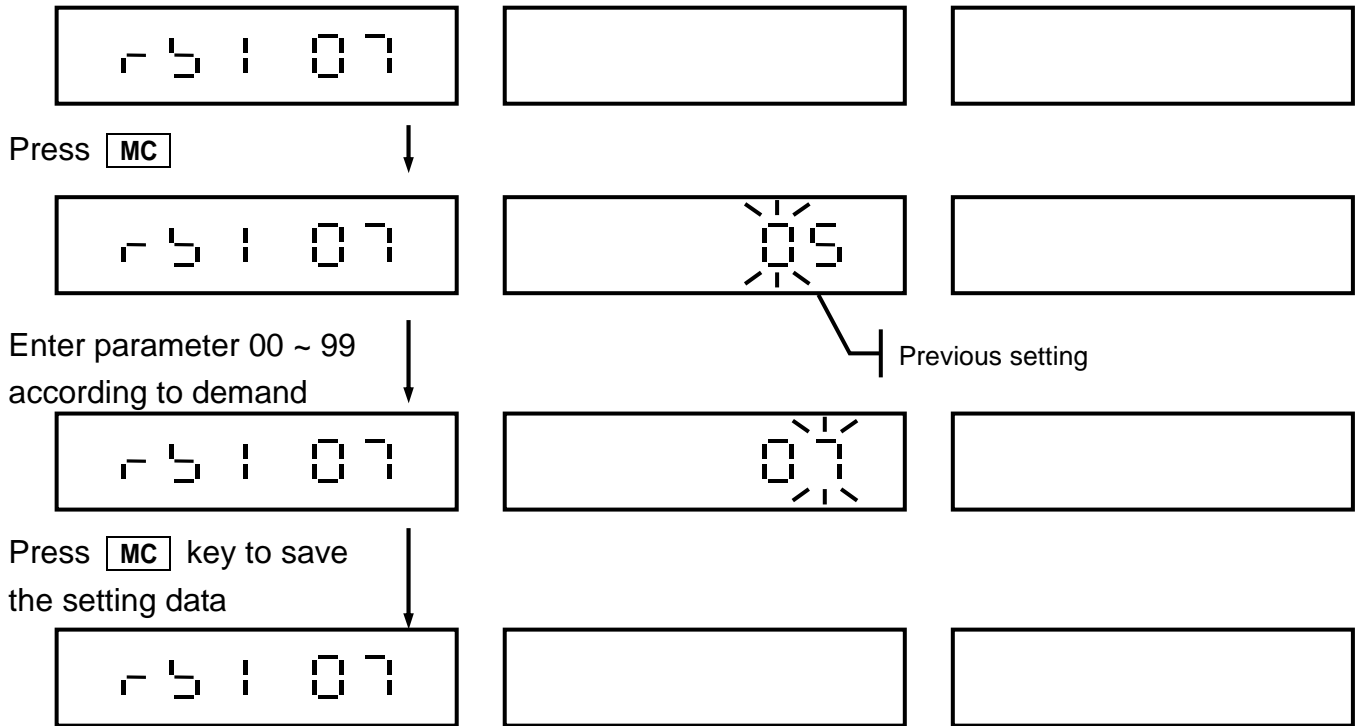
 ⇒ Output all

 ⇒ No output under OL or unstable condition

- The  setting will be effective only when  is set as  "continuous transmission mode".

3-3-7 $r\ 5\ 1\ 0\ 7$ Zero Reset Condition for Automatic

Transmission Setting



. key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

 **Default setting: $0\ 5$ (external value “5d”)**


$0\ 0$ ⇒ External value “0d” (d=division)


$0\ 1$ ⇒ External value “1d”

$0\ 2$ ⇒ External value “2d”

⋮

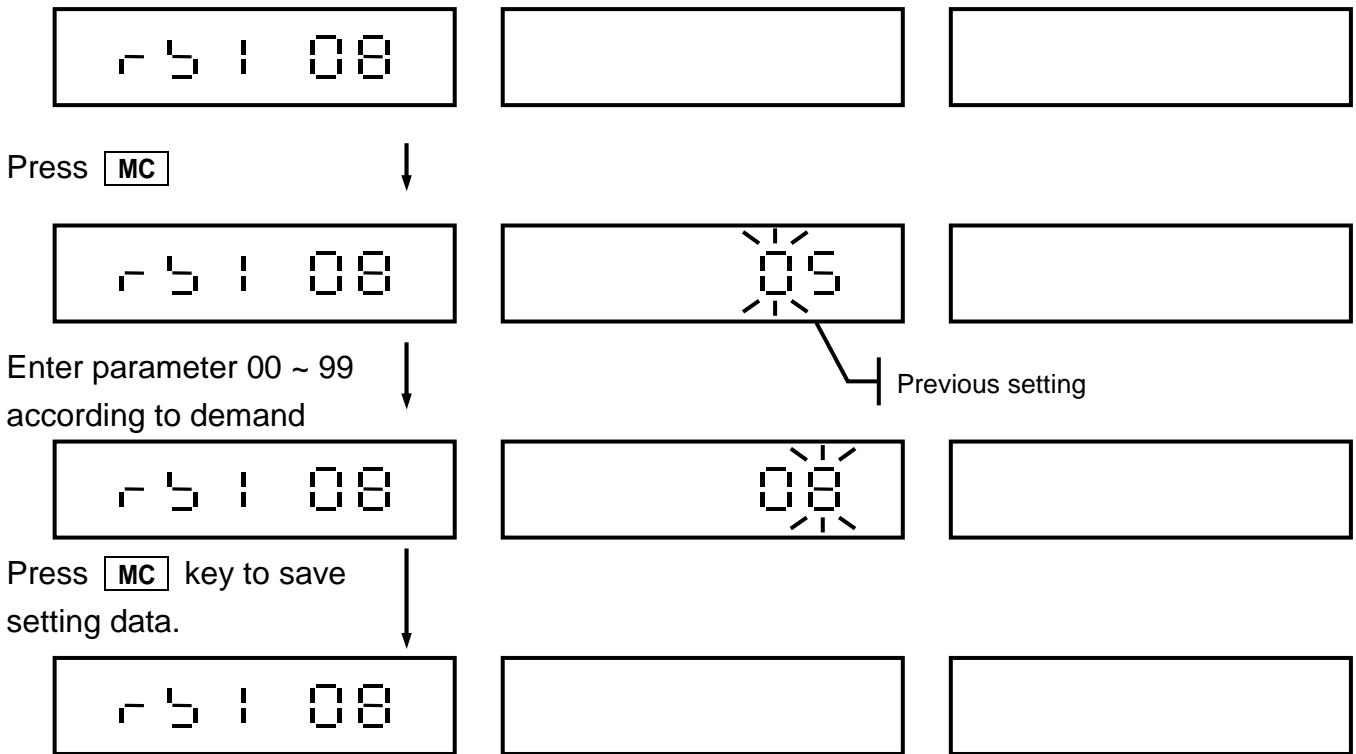
$9\ 9$ ⇒ External value “99d”

 The range setting of $r\ 5\ 1\ 0\ 7$ is related to the zero reset setting in accumulation acceptable condition in $F\ n\ C\ 1\ 2$.


 Only if the $r\ 5\ 1\ 0\ 5$ setting is set as $0\ 2$ will the $r\ 5\ 1\ 0\ 7$ setting be effective.

3-3-8 r 5 1 08 Reset Condition Setting for Automatic


Transmission



· key	⇒ Exit
CE key	⇒ Move the cursor leftward
TARE key	⇒ Move the cursor rightward
MC key	⇒ Enter

 **Default setting: 05 (External value "5d")**

- 00 ⇒ External value "0d" (d=division)
- 01 ⇒ External value "1d"
- 02 ⇒ External value "2d"
- ⋮
- 99 ⇒ External value "99d"

 Only if r 5 1 05 Setting is set as 02 "automatic transmission mode" will r 5 1 08 setting be effective.

Appendix 1 RS-232 Full Duplex Format

Table 1. Command Format Illustration

Command Format A


Host	Command		
Slave			Command
MZ	Return to zero	CP	Clear off pre-tare value
MT	Tare	CT	Clear off tare value
AT	Current net weight accumulation & count plus 1	DT	Clear off accumulated data and counts
SC	Set continuous transmission mode	SA	Set automatic transmission mode.
SM	Set manual transmission mode	SO	Set command mode
UA	Shift to first unit	UB	Shift to second unit
%	Cease continuous transmission mode and enter into command mode		

Command Format B

Host	Command		
Slave			Data
<i>RW</i>	<i>Read current displaying weight</i>	<i>RB</i>	<i>Read current displaying weight(simple)</i>
<i>RG</i>	<i>Read gross weight</i>	RT	Read tare
<i>RN</i>	<i>Read net weight</i>	RI	Read net weight (simple)
RH	Read gross weight (simple)	RE	Read pre-tare (simple)
RU	Read unit weight (simple)	RD	Read accumulated quantity (simple)
RC	Read accumulated counts (simple)	RI	Read tare (simple)
Rf	Read pre-set name (ITEM)	Rk	Read accumulated weight (simple accumulation format)
Rg	Read ID#	Rh	Read weighing unit
RQ	Read quantity (simple)	Ri	Read unit weight unit
Re	Read PLU#		

Note : Add % before italic and magnified letter to read continuously.

Add # before italic and magnified letter to read stable value only.

 Two formats (AB) mentioned above are all RS-232 full duplex. If the slave terminal receives the below-listed messages, it represents Error condition.

- E1: Wrong command
- E2: Wrong format (wrong parameter)
- E3: Mismatch proceeding condition

Table 2. Output Format Illustration

General Format

Gross weight	S	T	,	G	S	,	+	1	.	2	3	.	4	5	6	l	b	o	z
Net weight	S	T	,	N	T	,	+	1	2	.	3	4	.	5	6	T	l	.	g
Tare	S	T	,	T	R	,	+	0	1	2	.	3	4	5	6	SP	SP	k	g
+ overload	O	L	,	G	S	,	+	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
- overload	O	L	,	G	S	,	-	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP
Unstable	U	S	,	G	S	,	+	0	1	2	3	.	4	5	6	SP	SP	l	b

Totally 21 bytes (including CR LF)

Simple Format (price computing & counting)

ID#	0	0	0	0	0	0	0	0	0	0	0	0	2
Read preset name	SP	SP	SP	SP	SP	SP	SP	A	P	P	L	E	

Totally 14 bytes (including CR LF)

Simple Format

Read current weighing unit	0	CR	LF
Read current price computing unit	1		
Read current unit weight unit	2		

Totally 3 bytes (Including CR LF)

Simple Format (price computing & counting & weighing)

Gross weight	+	1	.	2	3	.	4	5	6
Net weight	+	1	2	.	3	4	.	5	6
Tare	+	0	1	2	.	3	4	5	6
Pre-tare	+	0	1	2	.	3	4	5	6
+ overload	+	SP	SP	SP	SP	SP	SP	SP	SP
- overload	-	SP	SP	SP	SP	SP	SP	SP	SP
Unstable	+	1	2	3	4	5	6	7	8
Quantity	0	1	2	3	.	4	5	6	7
Unit weight	0	0	0	0	0	0	0	0	1
Accumulated counts	0	0	0	0	0	0	0	0	2
Accumulated number	0	0	0	0	0	0	0	1	2
PLU#	0	1	2	3	4	5	6	7	8

Totally 11 bytes (including CR LF)



Simple Accumulation Format

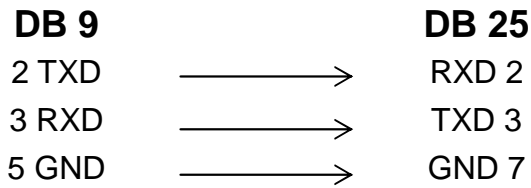
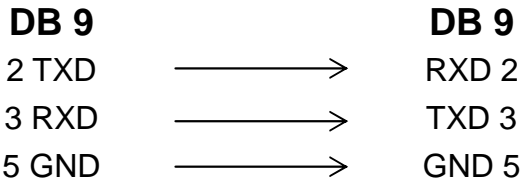
Accumulated weight	SP	0	1	2	3	4	.	5	6	.	7	CR	LF
Accumulated quantity	SP	0	1	2	3	4	5	6	7	8	9		
Accumulated weight + overflow	+	SP	SP,	SP	SP	SP	SP	SP	SP	SP	SP		
Accumulated weight - overflow	+	SP	SP,	SP	SP	SP	SP	SP	SP	SP	SP		

Totally 13 bytes (including CR LF)

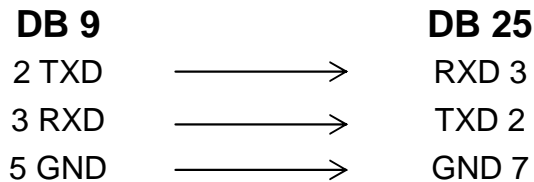
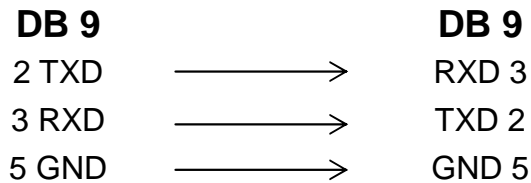


Appendix 2 Fixed Format RS-232 Transmission Line Illustration

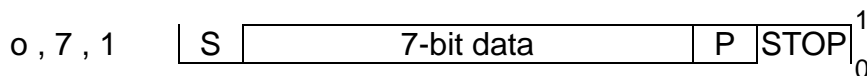
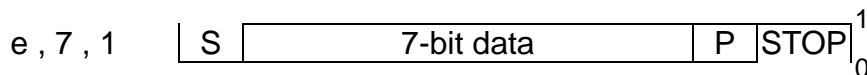
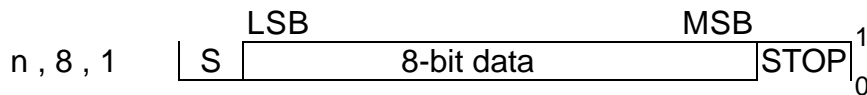
SCALE → RS232 PRINTER



SCALE → PC



Serial Data Transfer/Receive Format



- S : Start bit
- STOP: Stop bit
- P : Parity bit



Appendix 3 ASCII Code Table

Symbol	ASCII Code	Symbol	ASCII Code	Symbol	ASCII Code
A	41H	a	61H	0	30H
B	42H	b	62H	1	31H
C	43H	c	63H	2	32H
D	44H	d	64H	3	33H
E	45H	e	65H	4	34H
F	46H	f	66H	5	35H
G	47H	g	67H	6	36H
H	48H	h	68H	7	37H
I	49H	i	69H	8	38H
J	4AH	j	6AH	9	39H
K	4BH	k	6BH	↵	0DH
L	4CH	l	6CH		
M	4DH	m	6DH		
N	4EH	n	6EH		
O	4FH	o	6FH		
P	50H	p	70H		
Q	51H	q	71H		
R	52H	r	72H		
S	53H	s	73H		
T	54H	t	74H		
U	55H	u	75H		
V	56H	v	76H		
W	57H	w	77H		
X	58H	x	78H		
Y	59H	y	79H		
Z	5AH	z	7AH		

