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User Manual
High Resolution Weighing Scale
SI-132

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Before Using The Scale

Thank you for purchasing a High Precision Electronic Digital Scale. In order to use the scale properly, please read this instruction carefully before use. If you have a problem concerning the scale, please contact your supplier.

Instruction For Use

1) Please keep the scale in a cool dry place. Do not store it at high temperature.
2) Do not allow any liquids to come into contact with the scale. If necessary wipe the scale with a dry soft clothe.
3) Avoid objects impacting with the scale. Do not drop loads onto the scale or subject the weigh pan to any strong shock loads.
4) The load placed on the weigh pan must not exceed the maximum weighing capacity of the scale.
5) If the scale is not going to be used for some time, please clean it and store it in a plastic bag in dry conditions. A desiccant sachet may be included to prevent any moisture build up.
6) Do not mix different types of dry batteries or mix used dry batteries with new dry batteries.

Preparing To Use The Scale

1) Locate the scale on a firm level surface free from vibrations for accurate weight readings.
2) 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.
3) Avoid operating the scale in direct sunlight or drafts of any kind.
4) 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.
5) 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
6) 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.
7) Once the scale has been powered on, it will go through an LCD display test and it is ready for use when the display shows zero.
8) The scale requires 15~20 minutes warm up before operation to ensure best accuracy.
9) Please note when the  symbol keeps flashing on the screen, the batteries need to be replaced.

Chapter 1 Introduction

1-1 Features and Specification

Features:

- 30,000d display resolution
- Large LCD display (digit height 8.5mm x 18.5mm) with LED backlight
- Kilogram (kg), gram (g), pound (lb) and ounce (oz) weighing modes
- Hold function; Check mode Lo/Hi/OK
- Adjustable gravity value
- Auto calibration; Full range tare; Auto-zero tracking; Simple counting; Gross/Net indication, Unit weight average function
- Low power indication and auto power off
- With level bubble, Adjust feet
- Stainless steel platter (198x176mm)

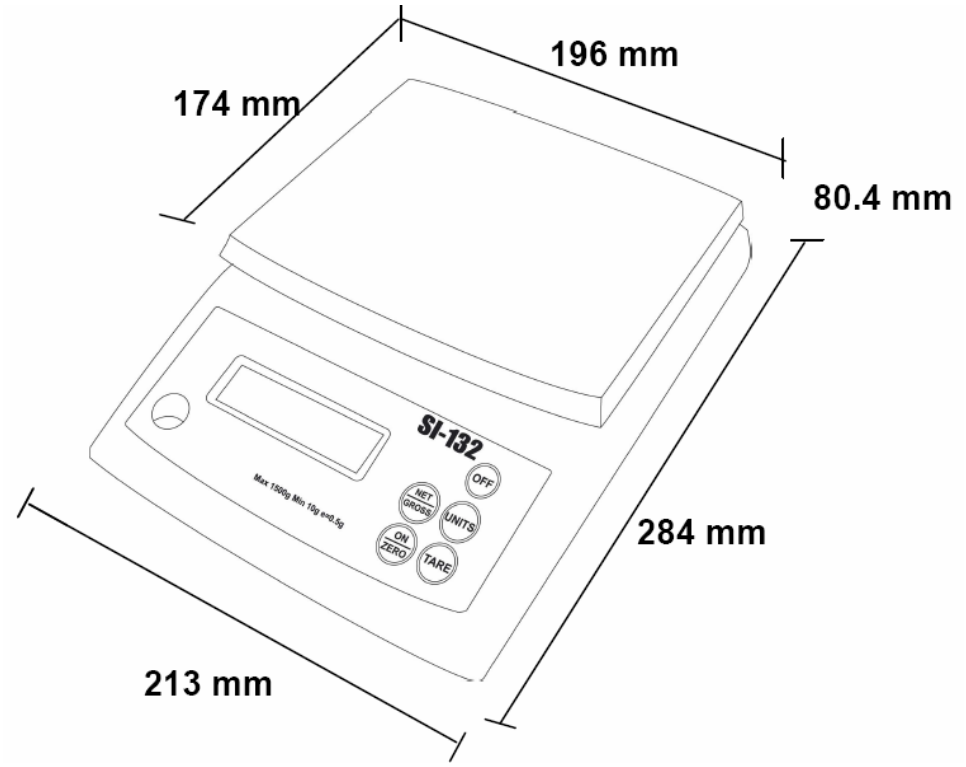
Option:

- RS-232C or Serial printer output

Specifications:

Model	Capacity	Division	Resolution	Min. Cap.
SI132-1.5	1,500g (3 lb)	0.05g (0.0001 lb)	1/30000	1g
SI132-3	3,000g (6 lb)	0.1g (0.0002 lb)	1/30000	2g
SI132-6	6,000g (12 lb)	0.2g (0.0005 lb)	1/30000	4g
SI132-15	15,000g (30 lb)	0.5g (0.001 lb)	1/30000	10g
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)			
Power Source	4 x UM-2 1.5V dry batteries or AC adaptor DC 9V			
Weigh pan Size	196 x 174 mm (Plastic pan) 198 x 176mm (Stainless steel pan)			

1-2 Scale Appearance



The package includes:

1. Scale	1 off
2. AC adaptor	1 off
3. User Manual	1 off

***** Stainless steel weigh pan is an optional depends on the model you purchase.

When you first unseal the product package if you find any of the items above are missing, contact your supplier.

Notice: Dry batteries are not included in the product package.

1-3 Power Supply

Power supply selection

1. 4 x UM-2 1.5V dry batteries (not included)
2. AC adaptor DC 9V

Power consumption

Approximately DC 14 mA (Scale)
Approximately DC 24 mA (Scale + Display backlight)

Low battery warning

Please note when the () symbol keeps flashing on the display, the batteries should be changed.

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

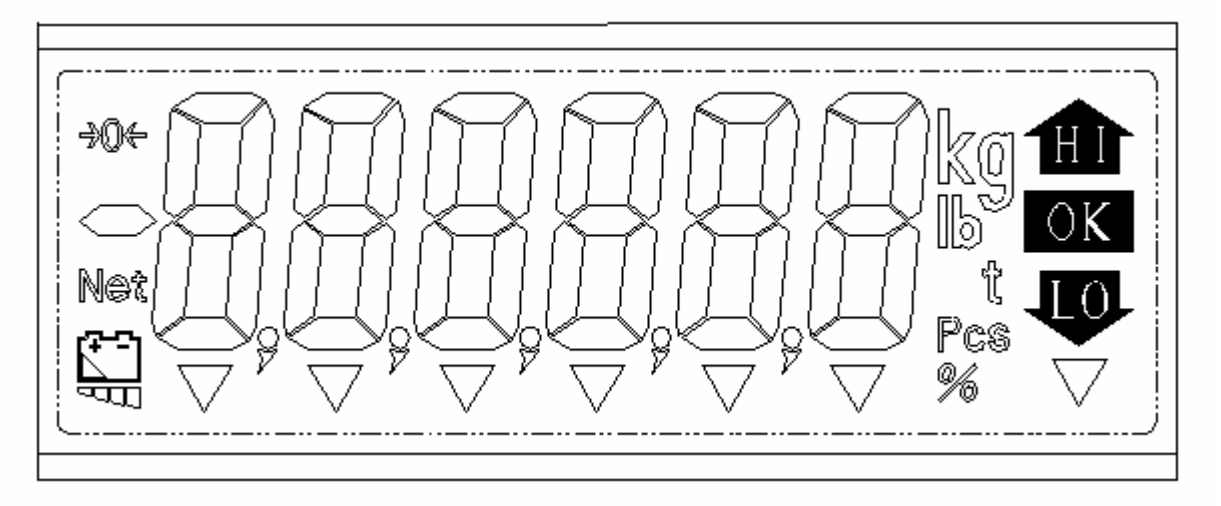
Charging voltage

1. AC110 V +10% , -15%
2. AC220 V +10% , -15%

Safety reminder

- Please make sure “+” , “- “ poles are placed in the correct direction
- Please don’t’ place the battery in hot areas, or try to dissemble the battery, to avoid electricity leakage.
- Do not mix different types of dry batteries or mix used dry batteries with new dry batteries.
- Please don’t keep the used-up battery in the battery case to avoid breakdown. (dry cell models)
- The battery inside the indicator was used for testing the fullness of the product. Therefore, the battery life cannot be measured from the day it is purchased.

1-4 Display



1 2 3 4 5 6 7

HI : The weight on weigh pan is greater than the high limit

OK : The weight on weigh pan is equal to the OK limit

LO : The weight on weigh pan is lower than the check value

kg : kg units. When “kg” is displayed, it means the weight shown is in kg

lb : Pound units. When “lb” is displayed, it means the weight shown is lb

Pcs : Piece units. When “Pcs” is displayed, it means the scale is in “sampling and counting” mode

→0← : Zero status indication, when displayed the scale is at the centre of its zero band

Net : The display shows the goods weight, not including the weight of any container. This Net status indication is on when the TARE function is used

 : Battery status indication. When this symbol is flashing replace the batteries.

▼1 STABLE : The weight is stable.

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

▼3 

: The unit weight is not sufficient. When the icon is on, the counting function is operational but the count may contain errors.

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

▼5 Hold : The Hold function is in use.

▼6 : “GN”, “dwt”, or “carat” units. The actual unit depends on the model of the scale.

▼7 oz : ounce unit. When “oz” is on, it means the scale is weighing in ounces

1-5 Keypad Function

ON/ZERO KEY

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

OFF KEY

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

TARE KEY

The tare function will not operate during the following conditions:

(1) When the scale powers on if the weight is negative and after a container is placed on the weigh pan if the weight is still below zero.

(2) The tare value is over the full scale capacity.

UNITS KEY

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

NET/GROSS KEY

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

1-6 Operating The Scale

Power on

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

Power off

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

Zero

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

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

Switching Units

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

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

Tare function

(1) Put a container on the weigh pan and after the weight is stable, press the **TARE** key to zero the weight of the container. The screen displays the "Net" icon.

(2) Put the goods in the container, the screen displays the net weight value of the goods.

(3) Remove the full container; the screen displays the negative weight value of the container. At this time pressing the **TARE** key again will cancel the tare and the scale reverts back to zero. The "Net" icon is switched off.

- The tare function can be operated continually to the full weighing capacity of the scale.
- Continual tare operation is adding or removing tare objects on weigh pan and pressing the **TARE** key each time.

NET/GROSS Function

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

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

Simple Counting Function

(1) Use the UNITS key to enter into the “PCS” mode

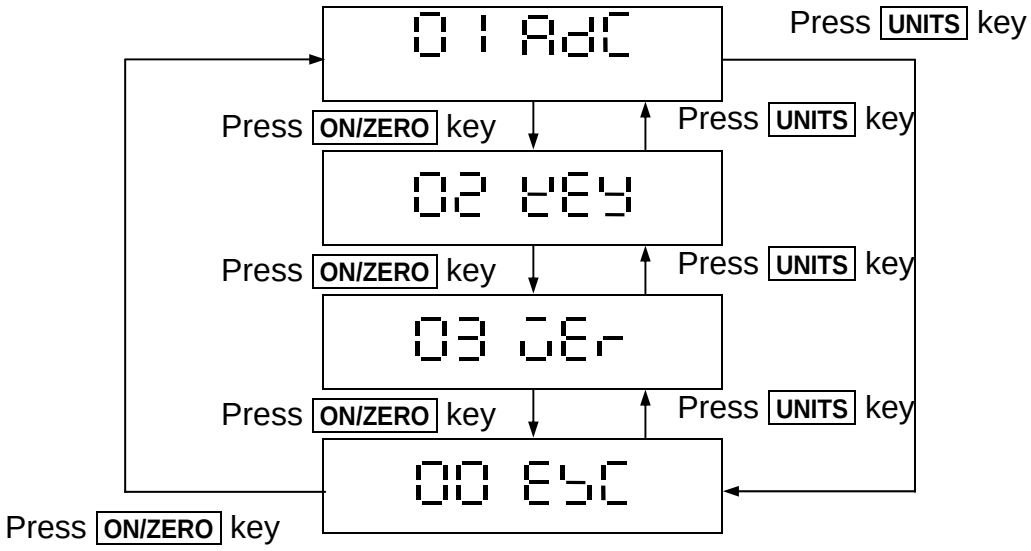
(2) Press the NET/GROSS key to select the counting sample size (S = 10, S = 20, S = 50, S = 100, S=200). The LCD shows C 10, C 20, C 50, C 100, C 200 in order.

(3) Put the samples on the weigh pan and press the UNITS key, the screen displays “------”. After the sampling process is complete, put the goods on the weigh pan and the screen shows the quantity of the items.

- The sample weight should be heavier than the minimum capacity of the scale (20d), If not the arrow pointing to the + icon will be activated.
- The weight of a sample should be heavier than the 0.2d (d=division), or the arrow pointing to the Pcs icon will be on.
- When the + or Pcs are indicated, the scale is still operational but the count may contain errors.
- To power off in this mode, the scale will memorize the “Pcs” unit. When the scale is powered on again, it directly enters the simple counting mode.
- While the “Auto unit weight average” function is available in the Advanced Function, the goods on the weigh pan are 5pcs greater than the sample size and less than double the sample size, the scale will automatically re-sample the unit weight.

1-7 Self-Test Mode

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



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

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/ PT 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/ PT to enter , display shows the firmware version 02005,
② Press TARE/ PT key again, the display shows maintenance number 302 for 2 secs
③ Press ON/ZERO key to back to the last screen, display shows 03 SEr

00 ESC BACK TO THE LAST SCREEN

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

1-8 Error Message

E0 ⇒ Unable to read the EEPROM.
(The EEPROM is not mounted yet, or the circuit near EEPROM is broken.)

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 ⇒ Initial zero is unstable for 10 seconds. (OMIL approval models)

E5 ⇒ Internal value is below Zero.

E9 ⇒ A/D IC malfunction (cannot read A/D value). The load cell may not be connected to the indicator correctly.

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

oF ⇒ A/D IC value is over the maximum range.

----- ⇒ If the negative weight is over 20 divisions and there is no T or PT, the display shows "- - - - - -" (OMIL approval models)

1-9 Weight Unit

(kg)	1 g = 0.001 kg
(g)	1 g = 1 g
(lb)	1 g = 0.002204623 lb
(lb/oz)	1 g = 0.03527396 oz
(oz)	1 g = 0.03527396 oz
(GN)	1 g = 15.432358 GN
(dwt)	1 g = 0.6430149 dwt
(ct)	1 g = 5 ct

Chapter 2 Advanced Functions

2-1 Advanced Function Setting Table

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

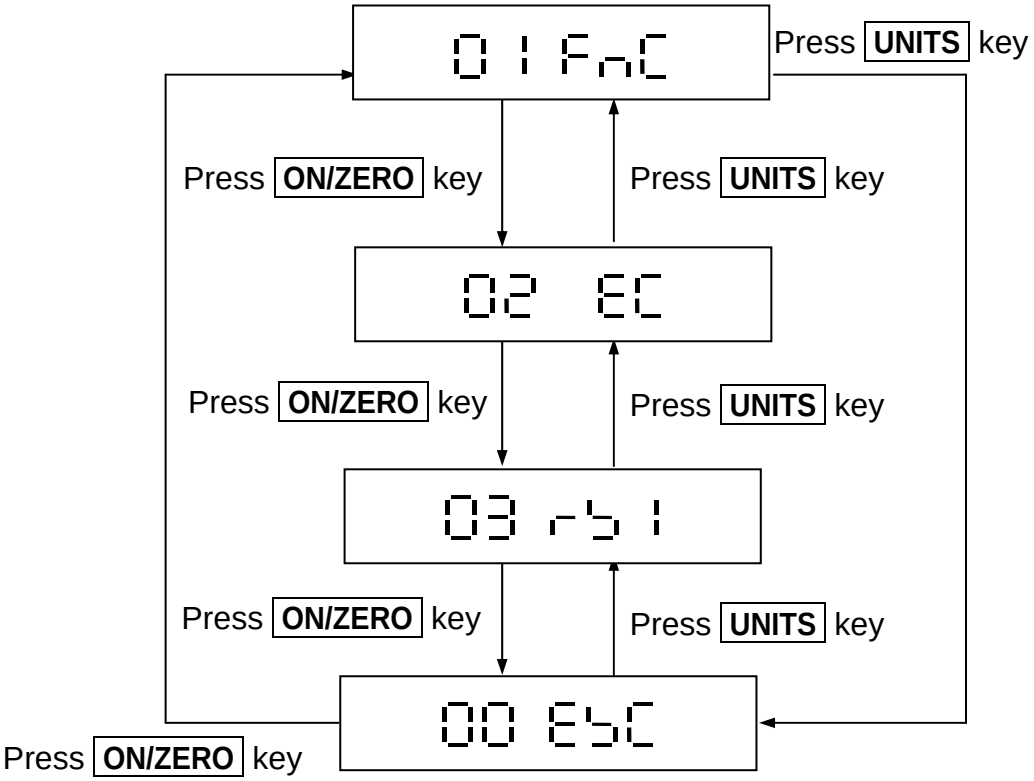
DISPLAY	LEVEL 1 FUNCTION	DISPLAY	LEVEL 2 FUNCTIONS
00 ESC	Exit the **Advanced Function** setting mode	---	---
01 FnC	General Function setting mode	FnC 00	Return to the **Advanced Function** setting menu
		FnC 01	Automatic backlight function setting
		FnC 02	Automatic power-off timer setting
		FnC 03	Hi/Lo/OK function setting
		FnC 04	Restore the default settings
		FnC 05	Noise filter setting
		FnC 06	Hold function setting
		FnC 07	Auto unit weight averaging setting
02 EC	External Weight Calibration	---	---
03 rS1	RS232 Bi-direction Function setting	rS1 00	Return to the **Advanced Function** setting mode menu
		rS1 01	Baud rate setting
		rS1 02	Communication protocol setting
		rS1 03	Output format setting

DISPLAY	LEVEL 1 FUNCTION	DISPLAY	LEVEL 2 FUNCTIONS
03 rS 1	RS232 Bi-direction Function setting	rS 104	Continuous Transmission setting
		rS 105	Continuous data transmission rate
		rS 106	Auto transmission at Zero
		rS 107	Reset of auto transmission
		rS 108	Output condition setting

2-2 Advanced Function Setting Workflow

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

Overall workflow of the Advanced Function setting mode:



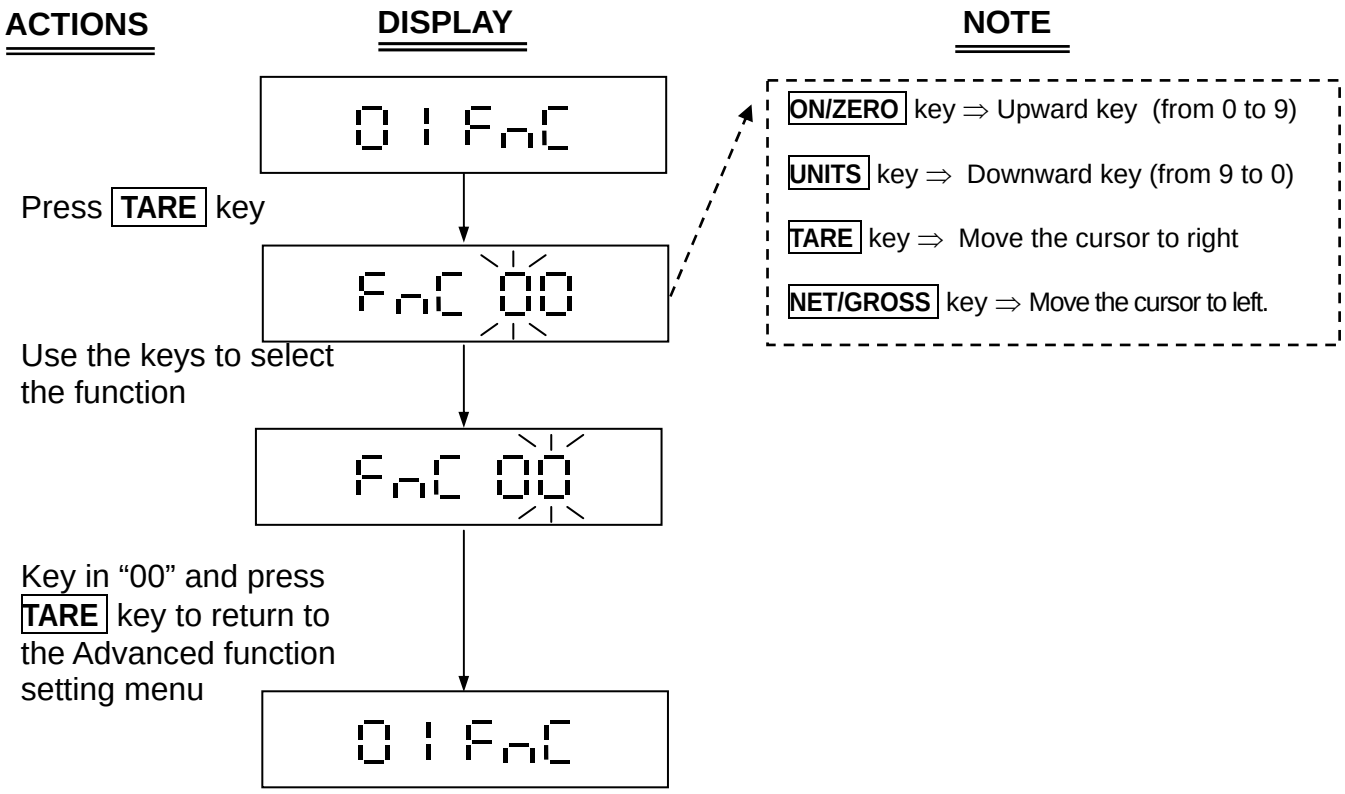
01 FnC ⇒ General Function setting mode
02 EC ⇒ External Weight Calibration
03 rS1 ⇒ RS232 Bi-direction Function setting
00 EsC ⇒ Exit the Advanced Function setting mode

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

2-3 General Function Setting 01 FnC

- There are 7 functions in the general function setting mode from FnC 01 to FnC 07.

Workflow of the General Function setting:

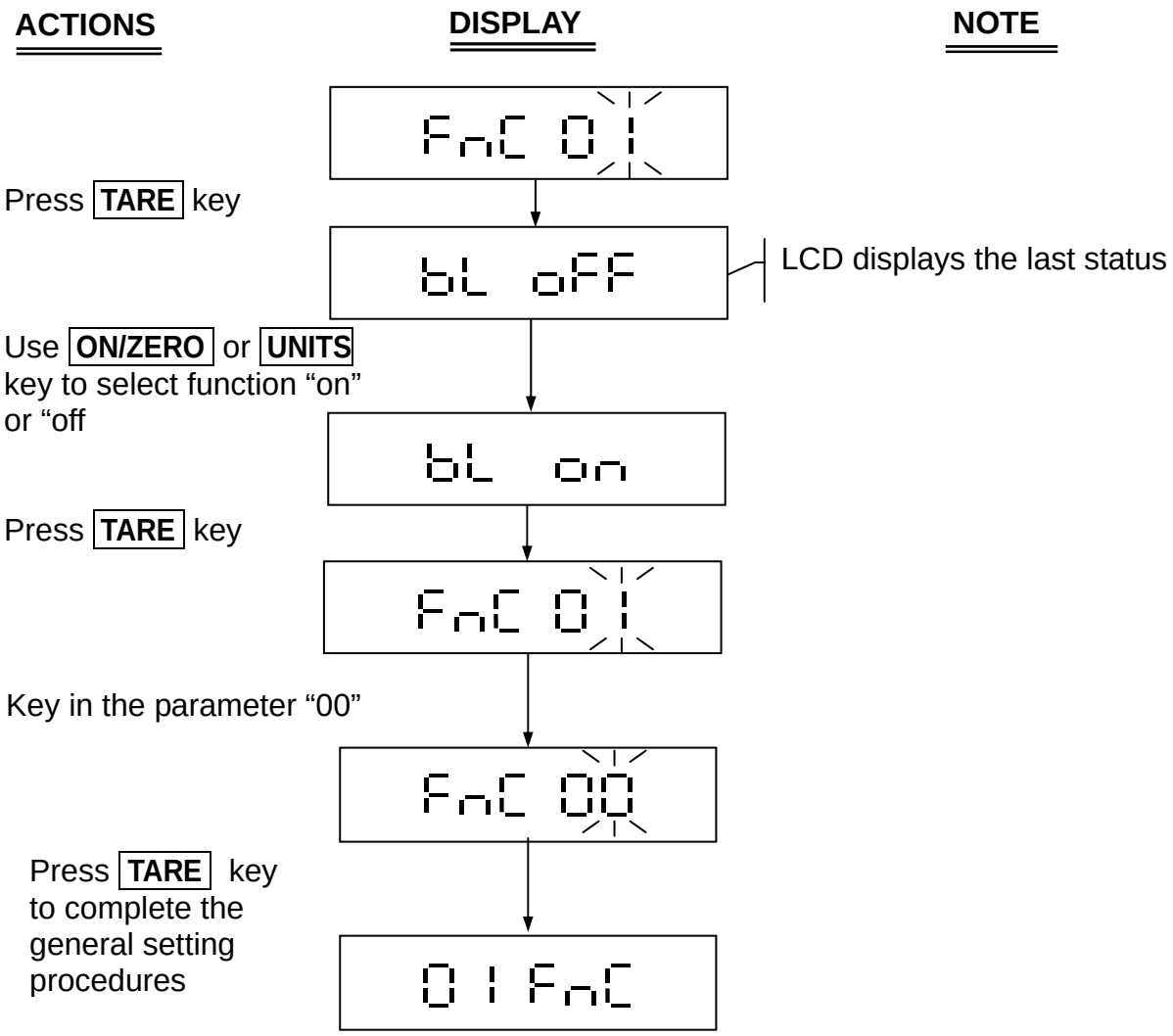


FnC 00 ⇒ Return to the Advanced Function Setting Mode Menu
FnC 01 ⇒ Automatic Backlight Function Settings
FnC 02 ⇒ Automatic Power-off Timer Settings
FnC 03 ⇒ Hi/Lo/OK Settings
FnC 04 ⇒ Restore the Default Settings
FnC 05 ⇒ Noise Filter Settings
FnC 06 ⇒ Hold Function Settings
FnC 07 ⇒ Auto Unit Weight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

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

2-3-1 Automatic Backlight Function Setting FnC 01

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



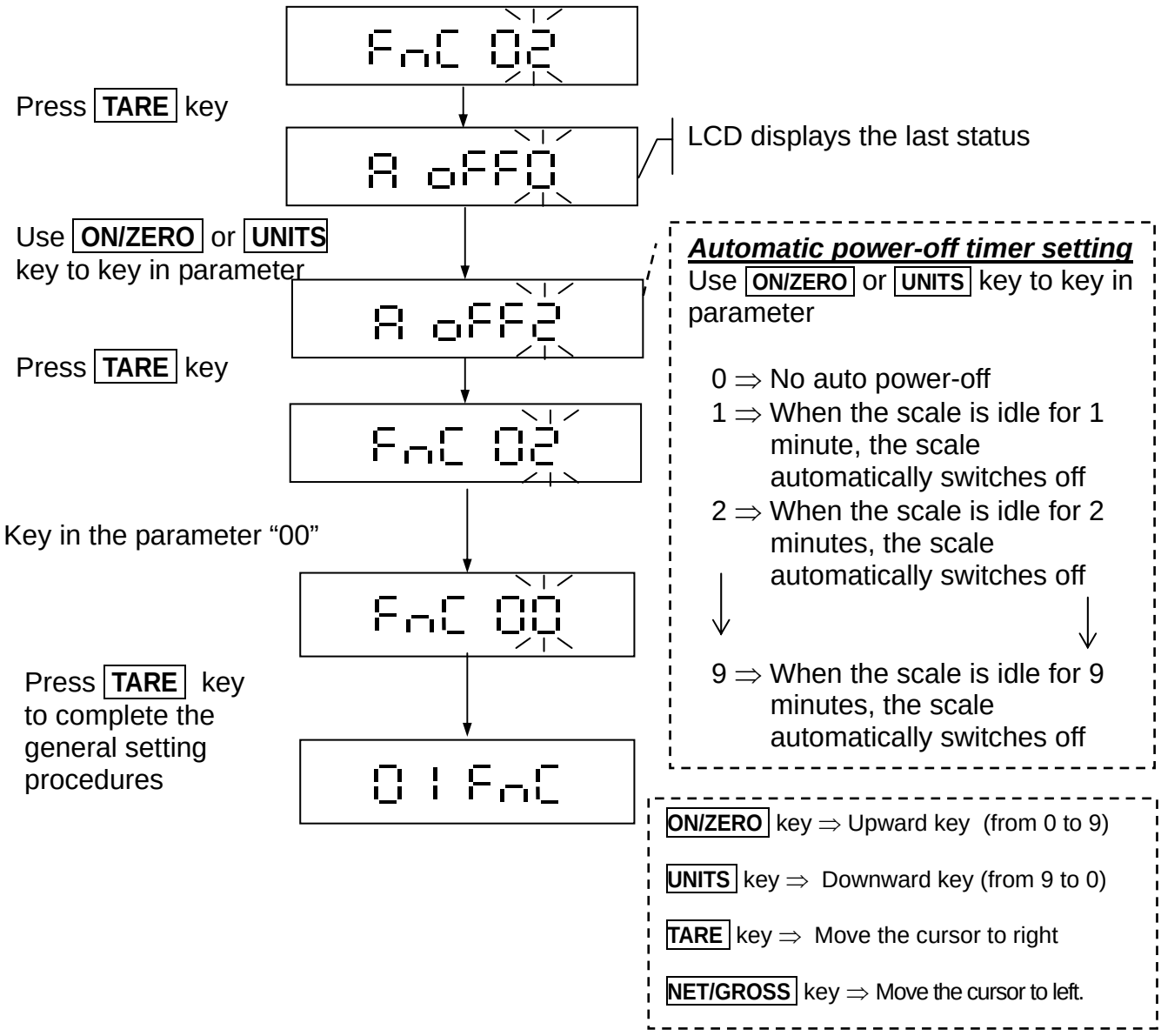
Automatic backlight function

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

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

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

ACTIONS **DISPLAY** **NOTE**



Automatic power-off function

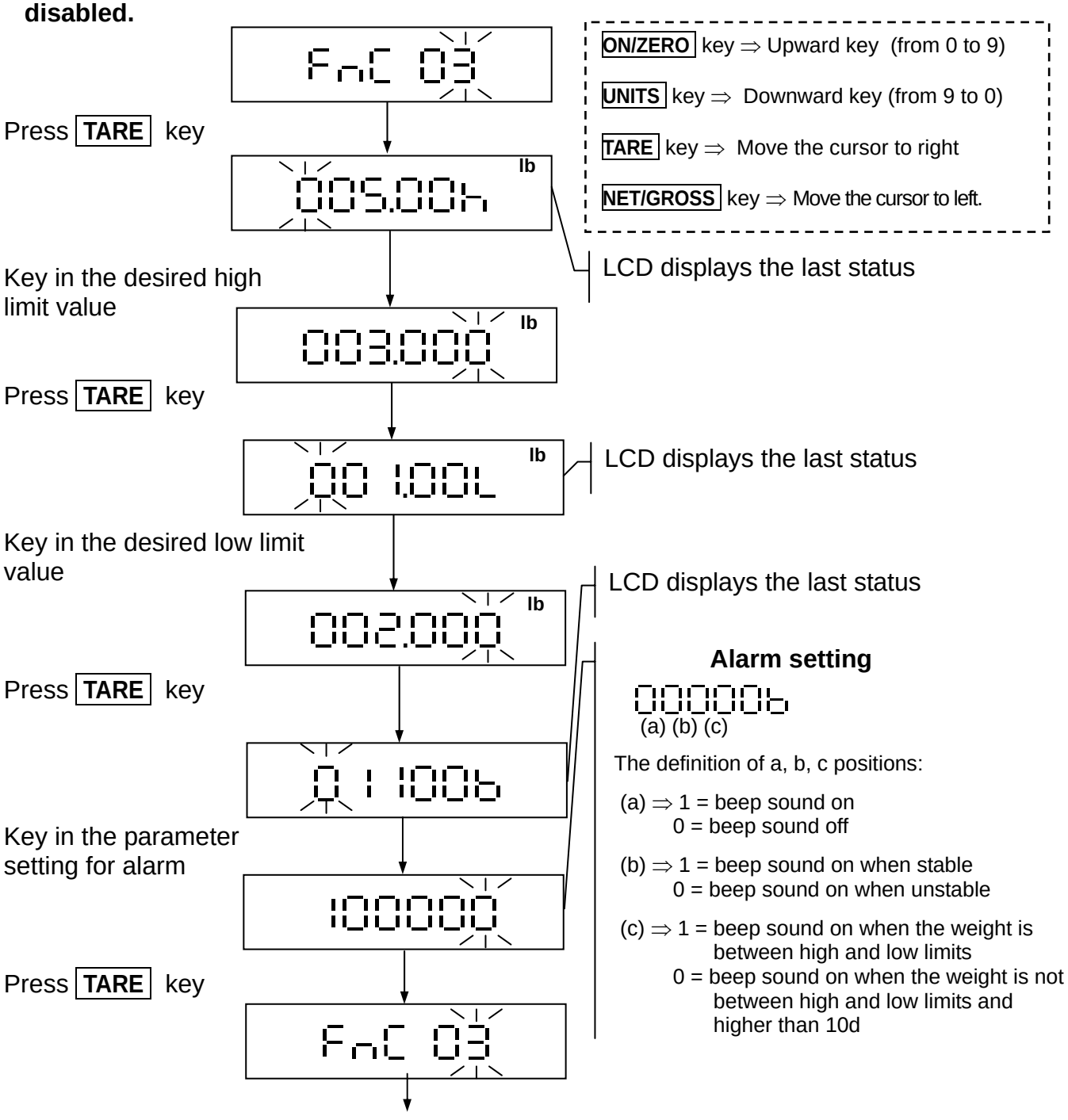
When the weight on weigh pan is less than 10d or keeps idle for the set time, the scale will automatically switch off.

2-3-3 Hi/Lo/OK Function Setting 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**

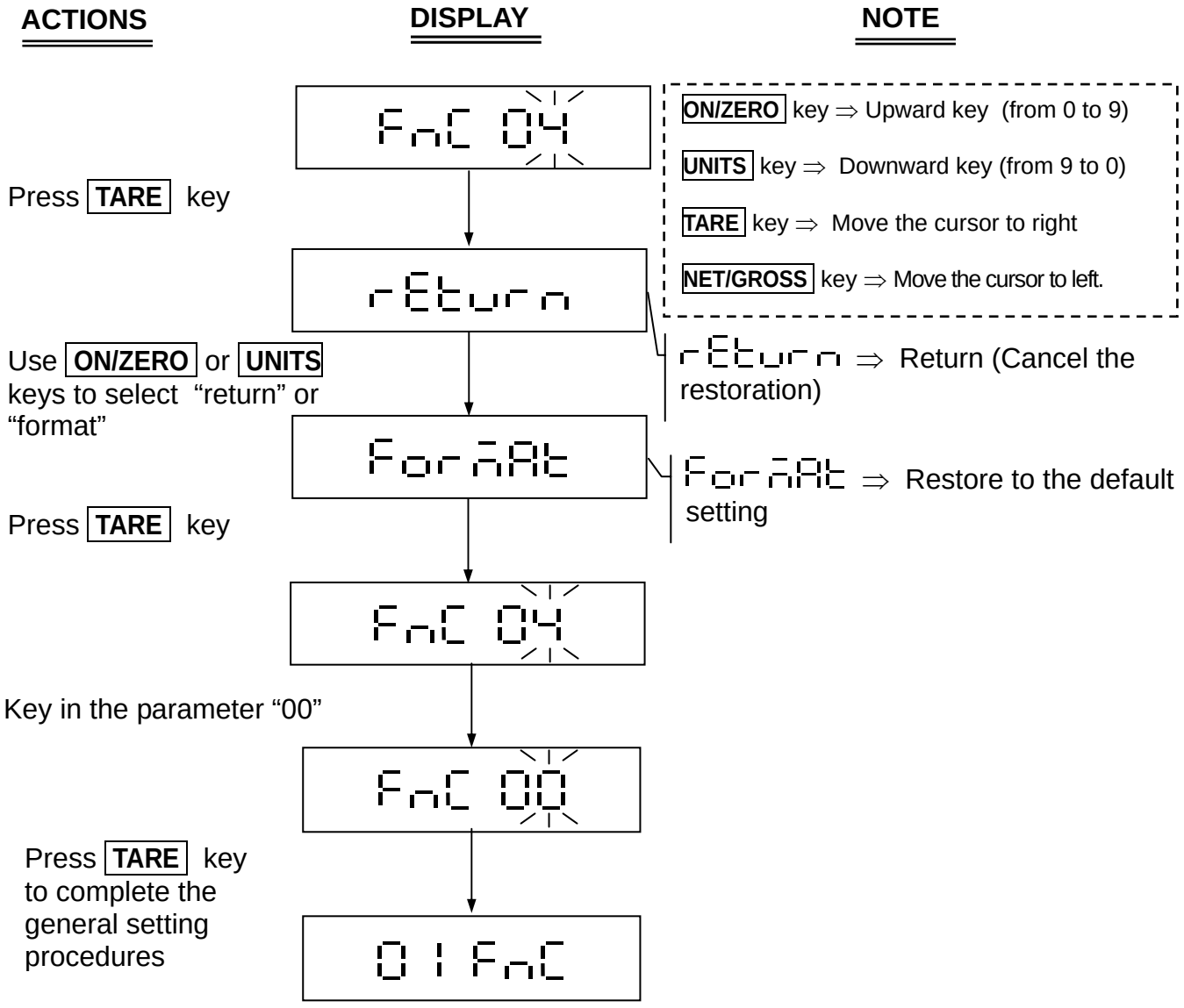
When the high limit and low limit are both set as "0", the Hi/Lo/OK function is disabled.



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

2-3-4 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)
  4) Sampling setting for the counting function

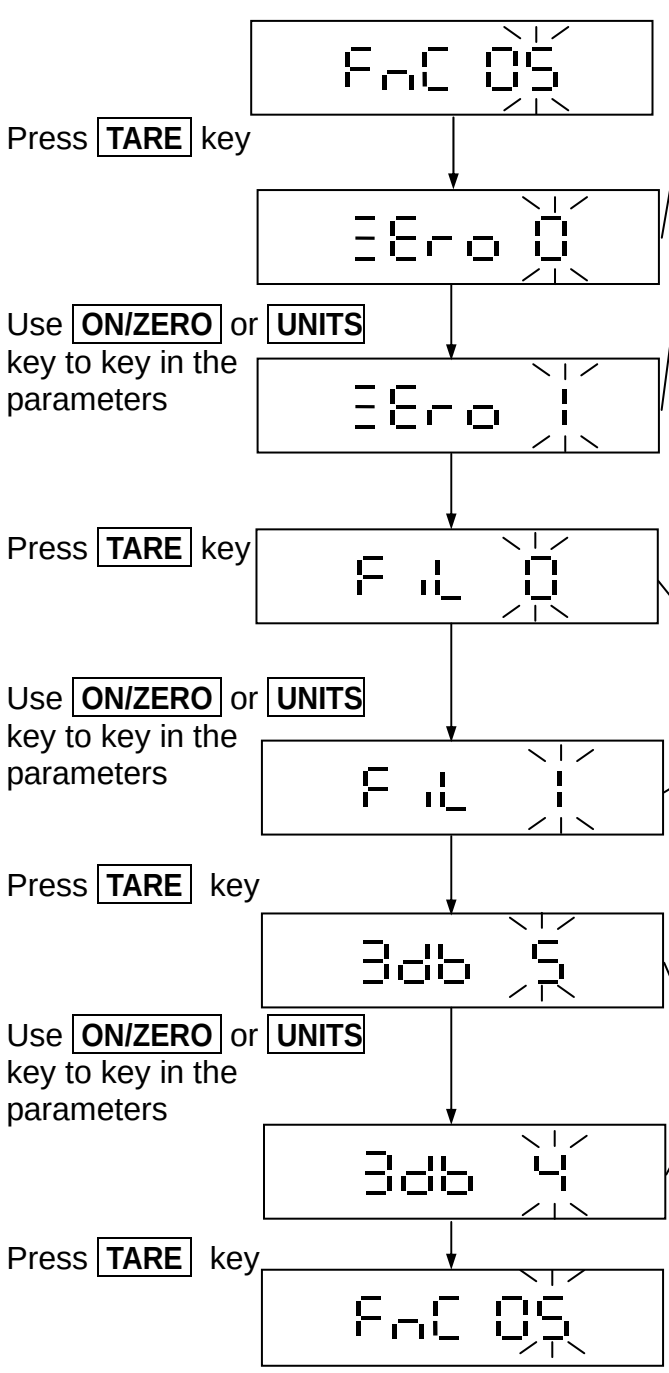
- In approved models, CFn 02 set as 1 or 3, FnC 04 setting is not available.

2-3-5 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.



Returning to zero point setting
LCD displays the last status

Returning to the zero point setting

Use ON/ZERO or UNITS key to key in the parameters or zero point
Default setting = 0

0 ⇒ No skip	5 ⇒ skip 5d
1 ⇒ skip 1d	6 ⇒ skip 6d
2 ⇒ skip 2d	7 ⇒ skip 7d
3 ⇒ skip 3d	8 ⇒ skip 8d
4 ⇒ skip 4d	9 ⇒ skip 9d

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

Digital switch & Stabilization range setting
LCD displays the last parameter setting

Digital switch & Stabilization range setting
Use ON/ZERO or UNITS keys to key in the parameters. Default setting = 0
Parameter 0 ~ 9, the larger the number the more stable the weight.

Filter parameter setting
LCD displays the last parameter setting

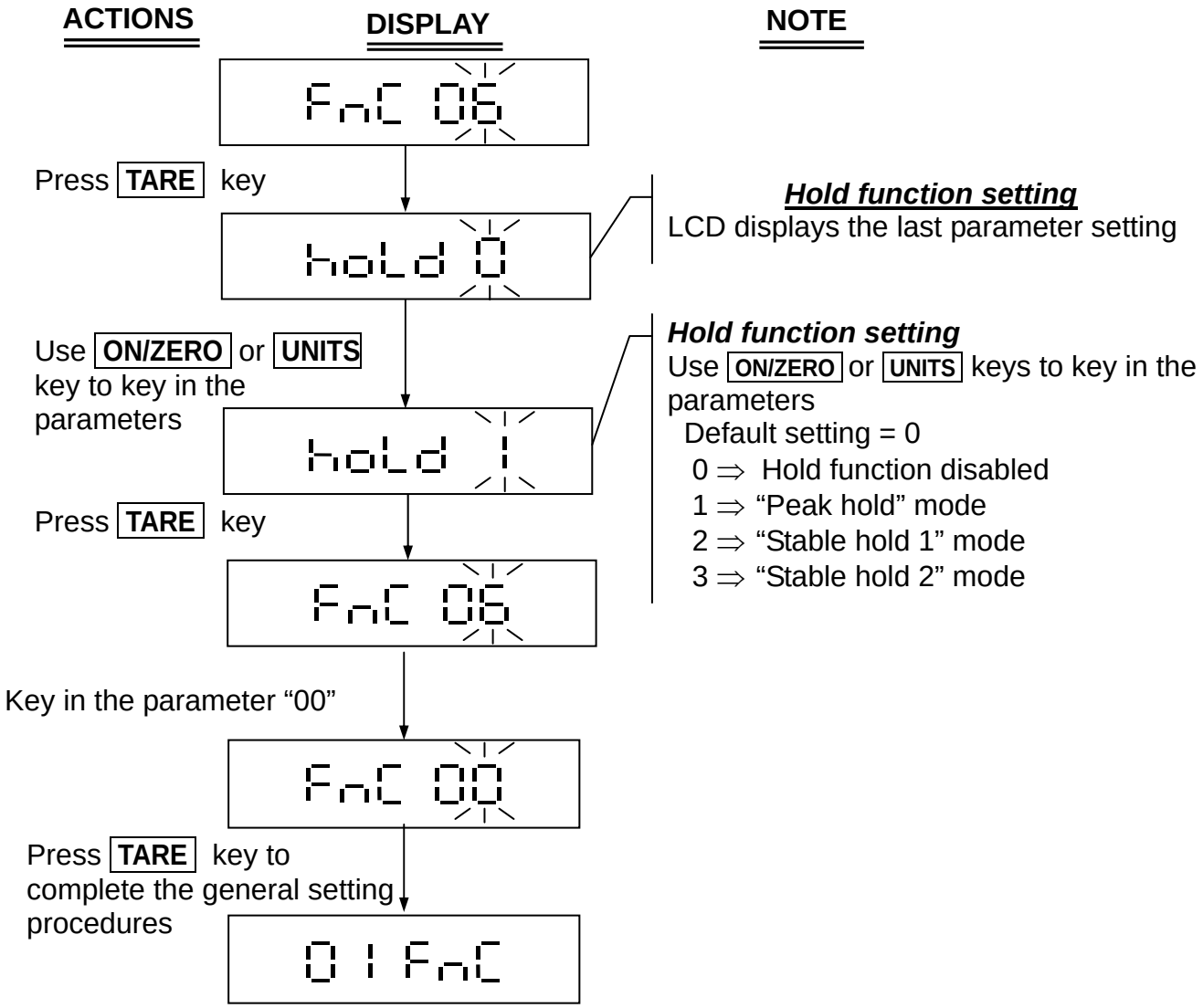
Filter parameter setting
Use ON/ZERO or UNITS keys to key in the parameters. Default setting = 5
Parameter 0 ~ 9, the larger the number, the faster the filter response. Fast response can lead to weight instability.

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, CFn 02 set as 1 or 3, FnC 05 setting is not available

2-3-6 Hold Function Setting FnC 06

Select FnC 06 in the General Function setting mode 01 FnC to set the hold function.



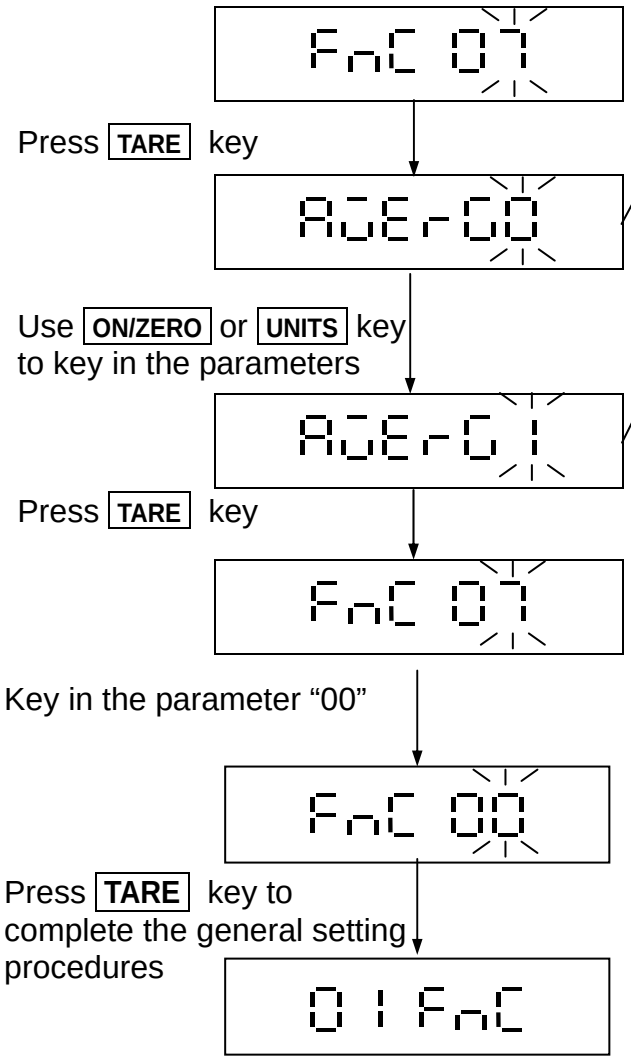
hold 0 = Hold function disabled

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

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

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

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



Auto unit weight averaging setting
LCD displays the last parameter setting

Auto unit weight averaging setting
Use ON/ZERO or UNITS keys to key in the parameters
Default setting = 0
0 ⇒ Auto unit weight averaging
1 ⇒ Non auto unit weight averaging

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

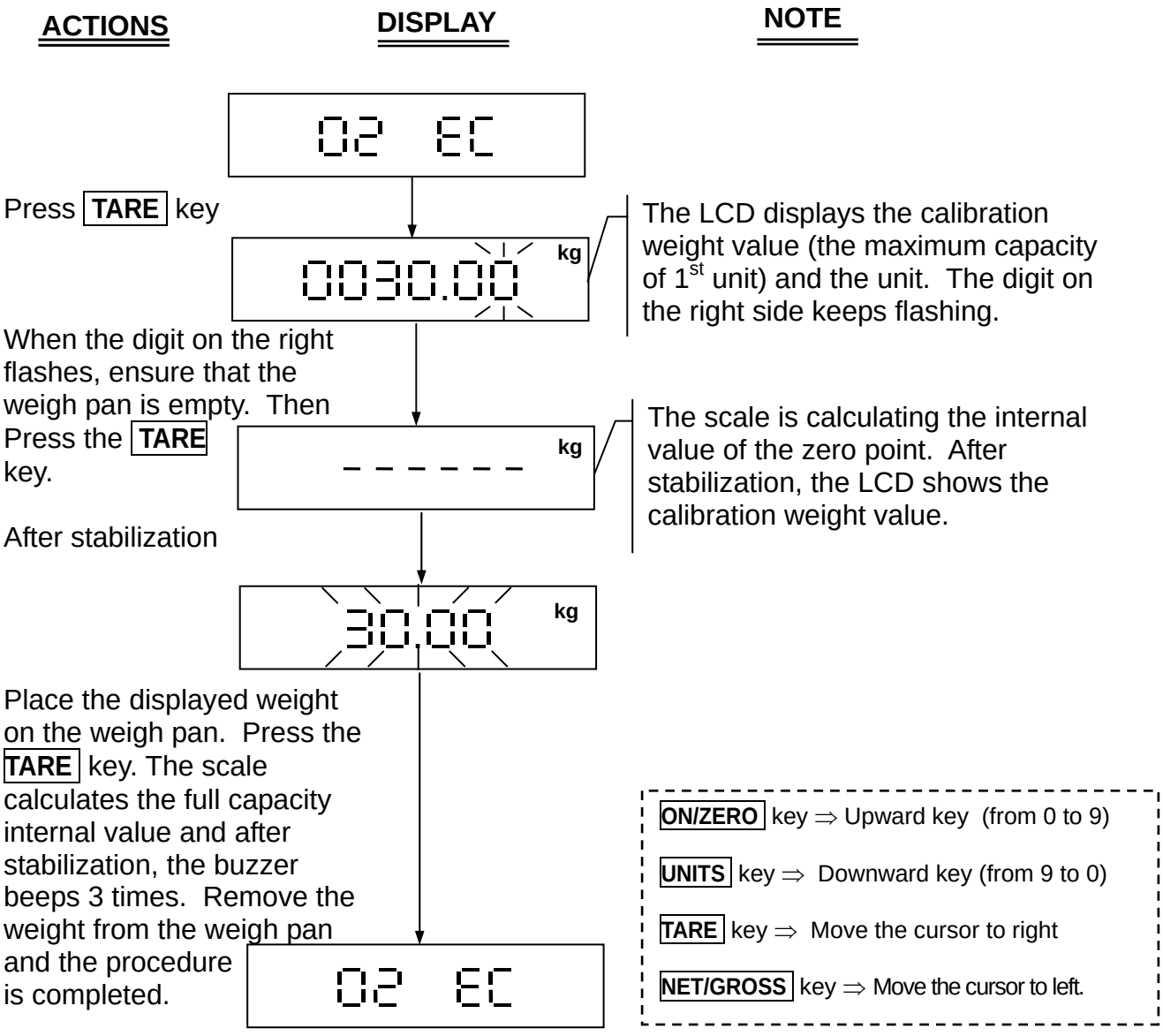
UNITS key ⇒ Downward key (from 9 to 0)

TARE key ⇒ Move the cursor to right

NET/GROSS key ⇒ Move the cursor to left.

2-4 Weight Calibration 02 EC

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

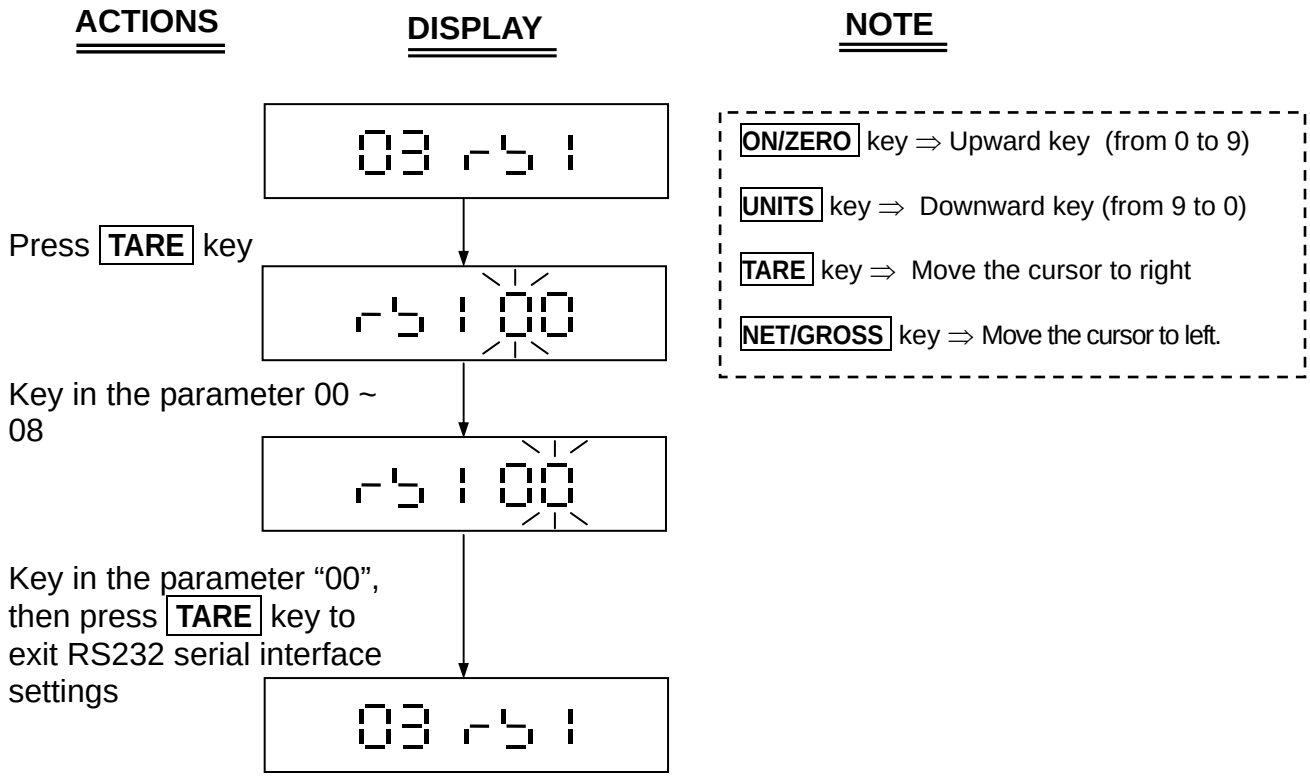


- In approved models, CFn 02 set as 1 or 3, then 02 EC is disabled.
- Weight calibration conditions:
  The calibration weight value placed on the weight pan must be over e100, and the standard deviation of the weight must be within 10%.

2-5 RS232 Serial Interface Settings 03 rS1

In the weighing mode, press the **NET/GROSS** and **ON/ZERO** keys at the same time to enter the **Advanced Function** setting mode. The LCD shows 01 FnC and use the **NET/GROSS** or **UNITS** key to select 03 rS1 to enter the RS232 serial interface setting mode.

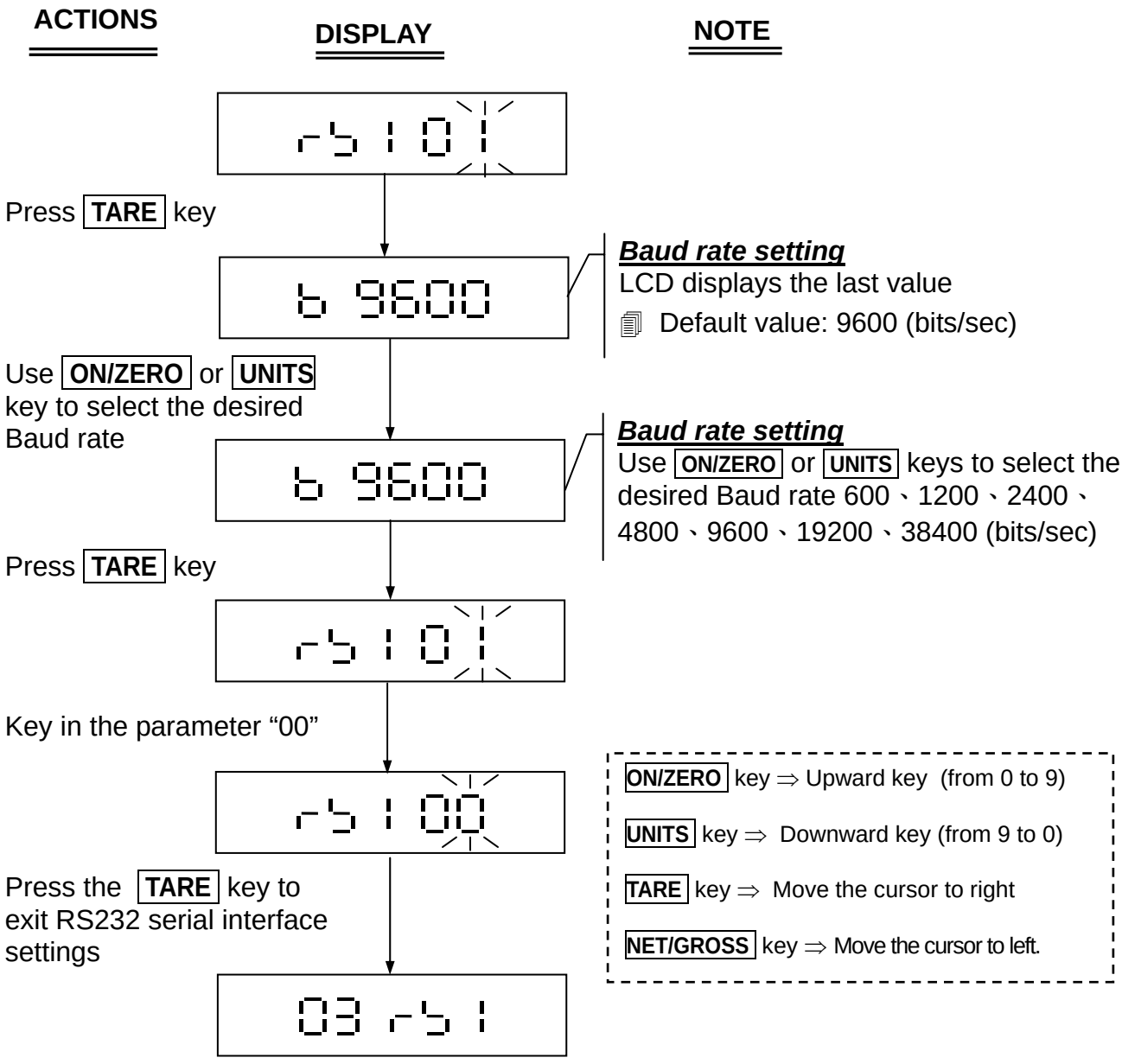
RS232 serial interface settings span rS101 ~ rS108 , 8 settings.



rS100 ⇒ Exit the RS232 serial interface setting mode
rS101 ⇒ Baud rate setting
rS102 ⇒ Communication protocol setting
rS103 ⇒ Output format setting
rS104 ⇒ Continuous transmission setting
rS105 ⇒ The selection of continuous transmission rate
rS106 ⇒ Auto Transmission at Zero
rS107 ⇒ Reset of Auto Transmission
rS108 ⇒ Output condition setting

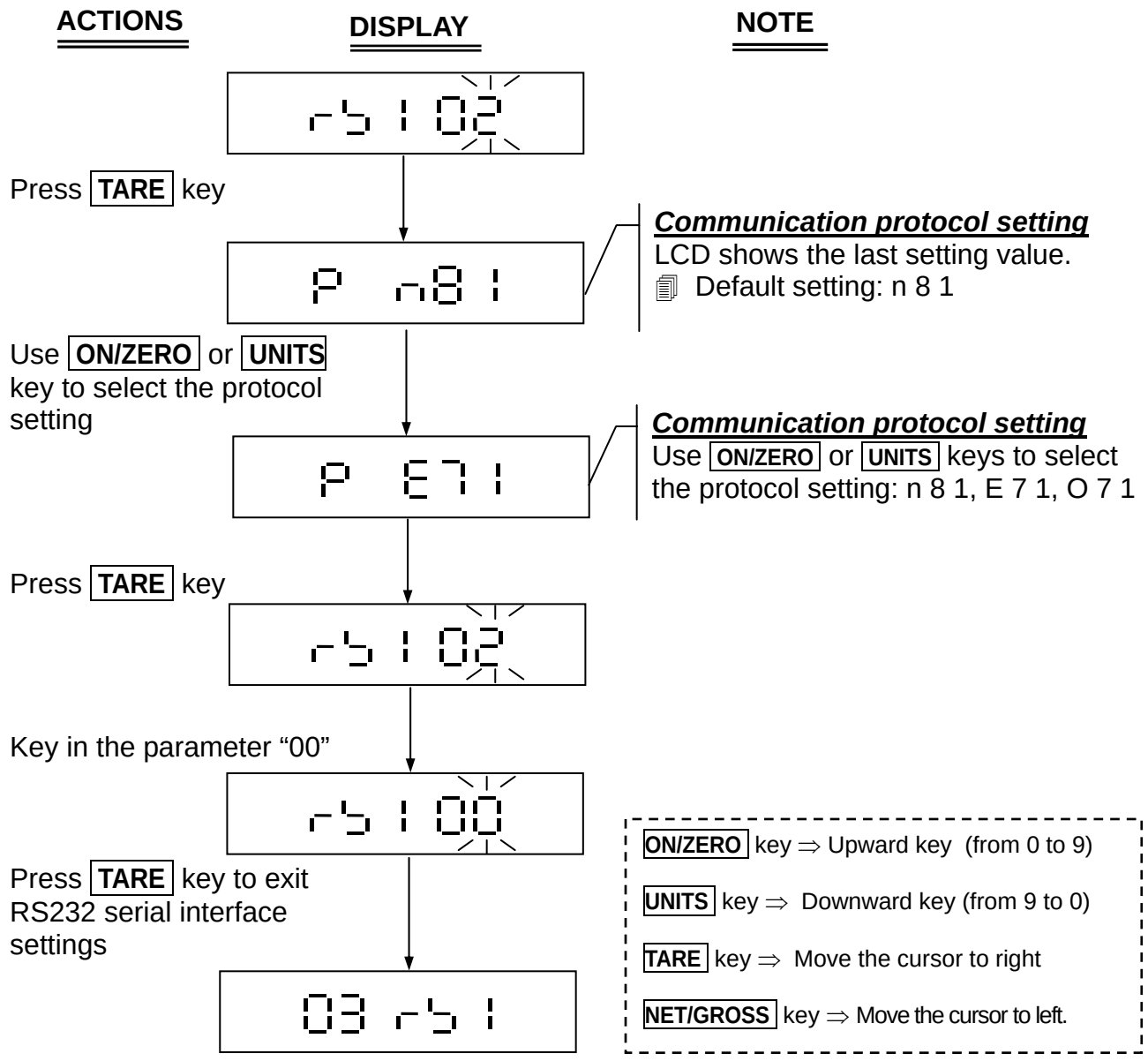
2-5-1 Baud Rate Setting r5 101

Select r5 101 in the RS232 serial interface setting mode 03 r5 1 to set the Baud Rate.



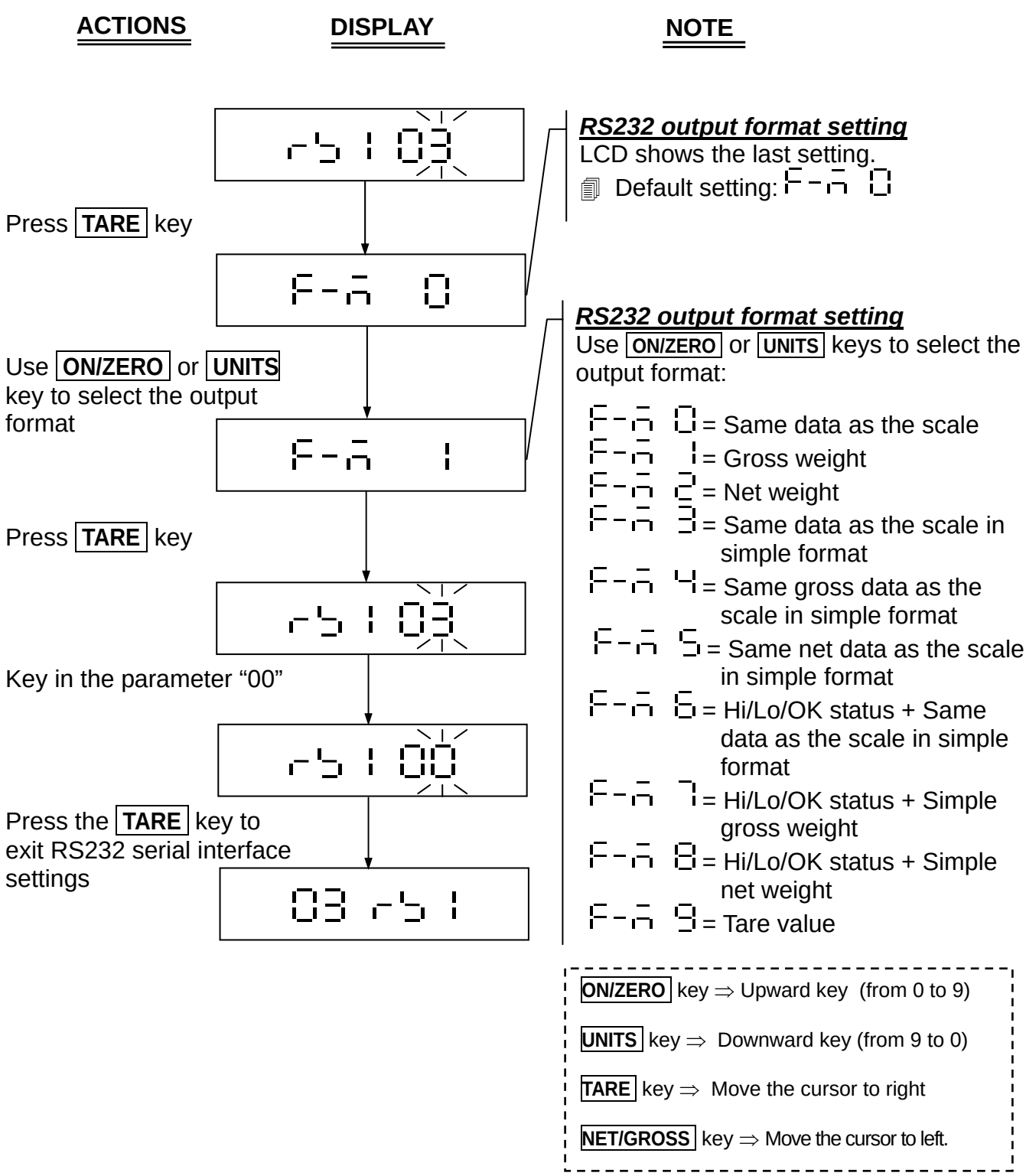
2-5-2 Communication Protocol Setting r5 1 02

Select r5 1 02 in the RS232 serial interface setting mode 03 r5 1 to set the Communication Protocol.



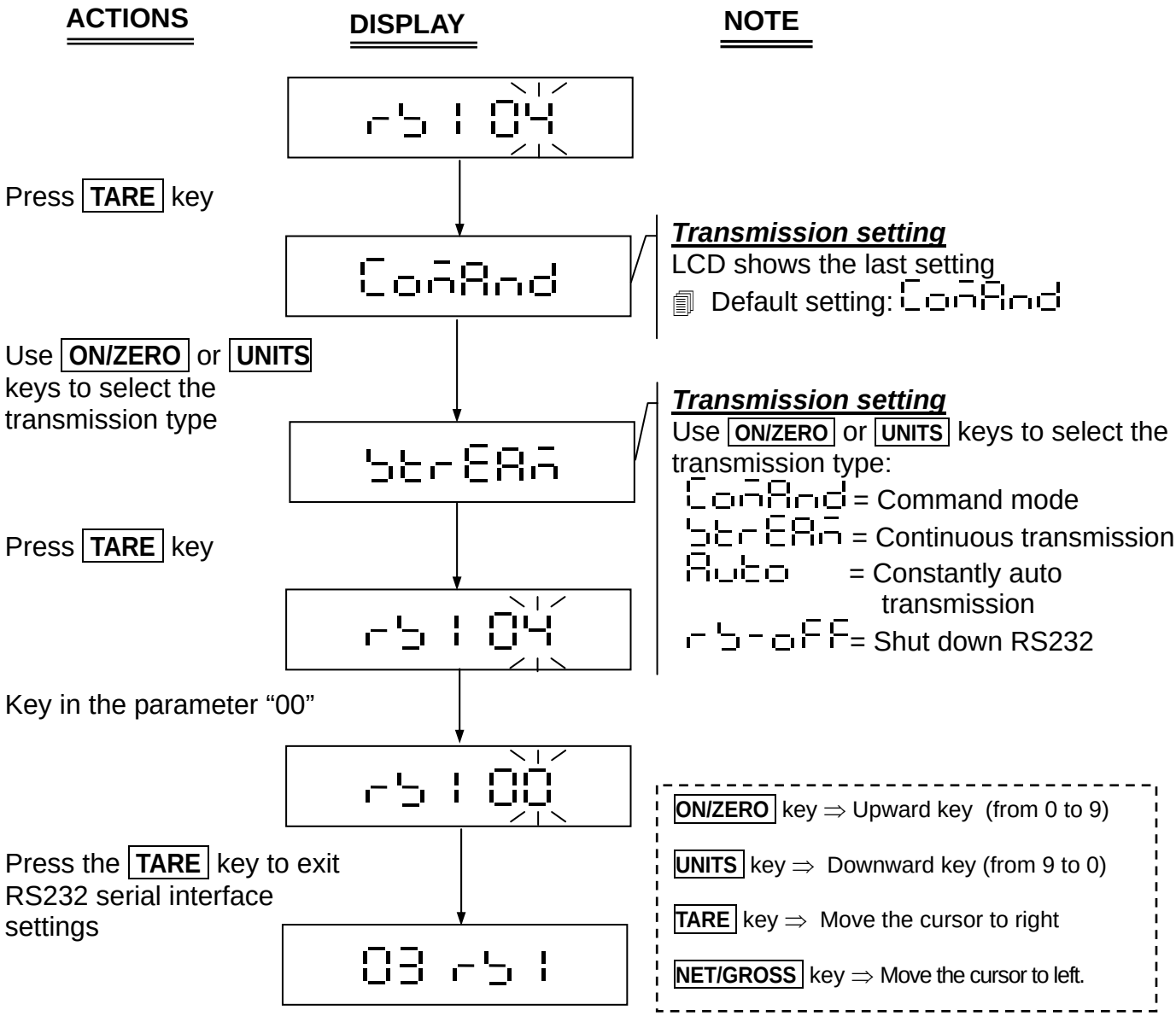
2-5-3 Output Format Setting r5 1 03

Select r5 1 03 in the RS232 serial interface setting mode 03 r5 1 to set the Output Format.



2-5-4 Continuous Transmission Setting rS i 04

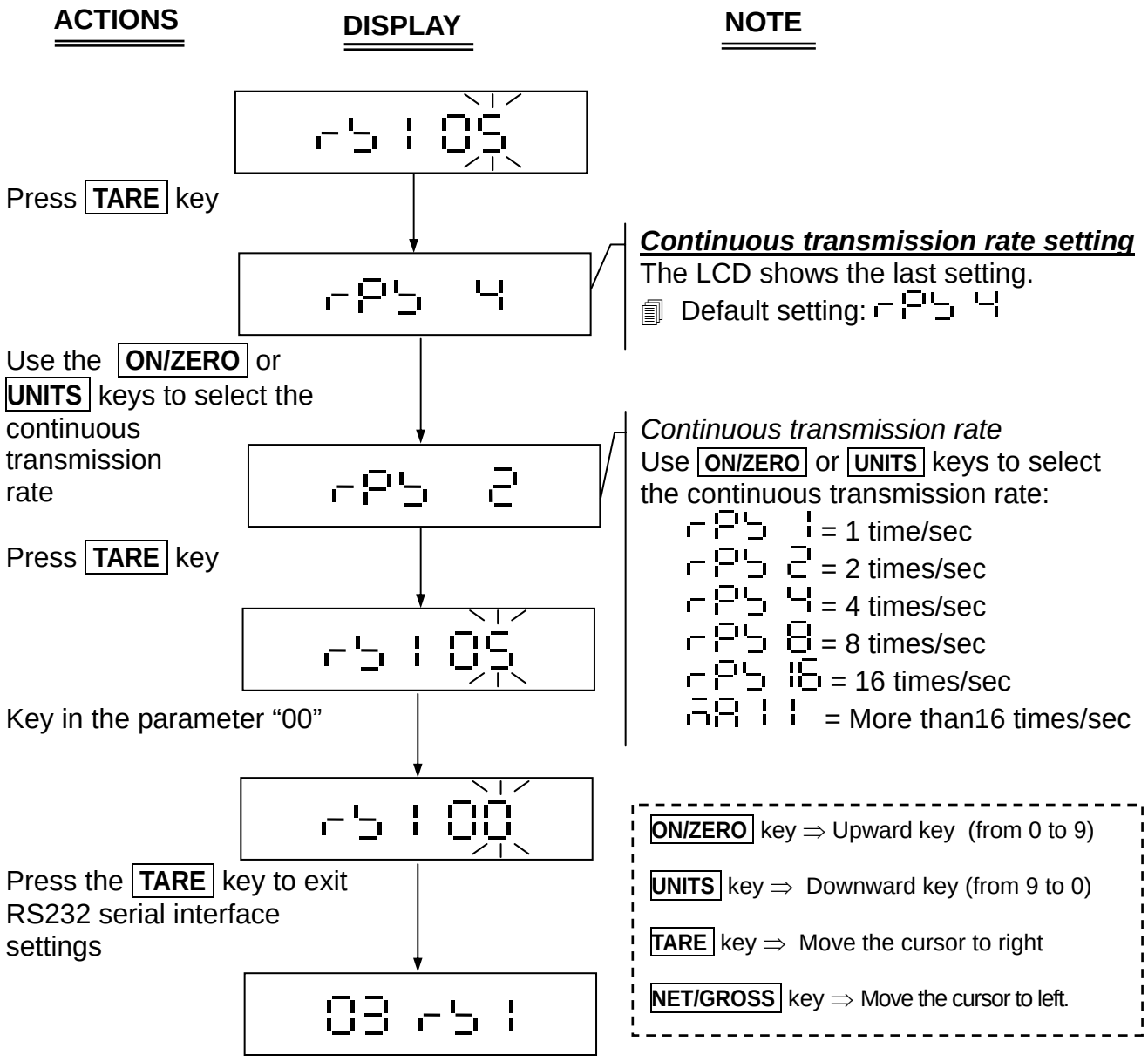
Select rS i 04 in the RS232 serial interface setting mode 03 rS i to set the Continuous Transmission Setting.



2-5-5 The selection of the Continuous Transmission Rate

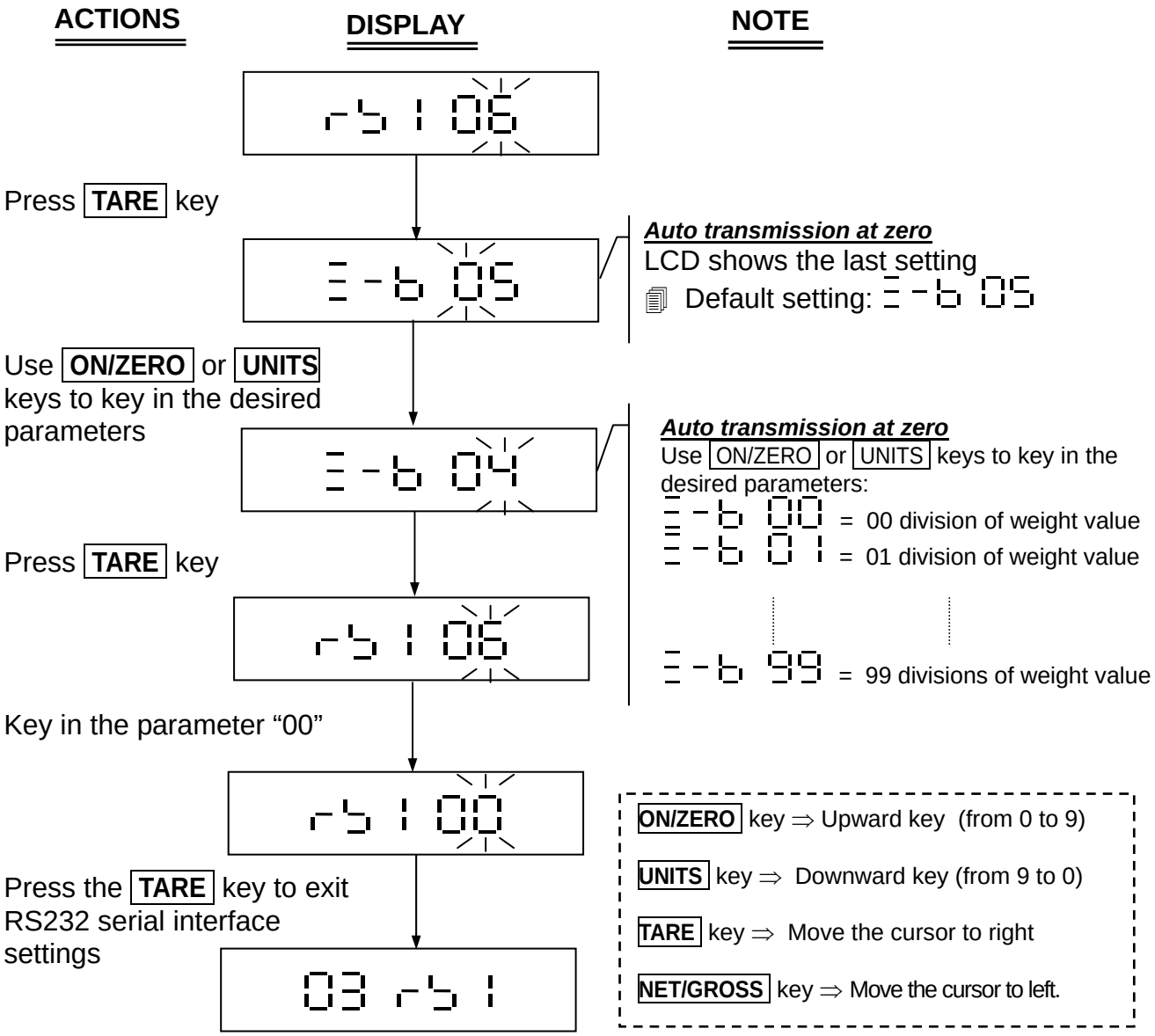
r5 1 05

Select r5 1 05 in the RS232 serial interface setting mode and 03 r5 1 to set the Continuous Transmission Rate.



2-5-6 Auto Transmission at Zero r5 1 06

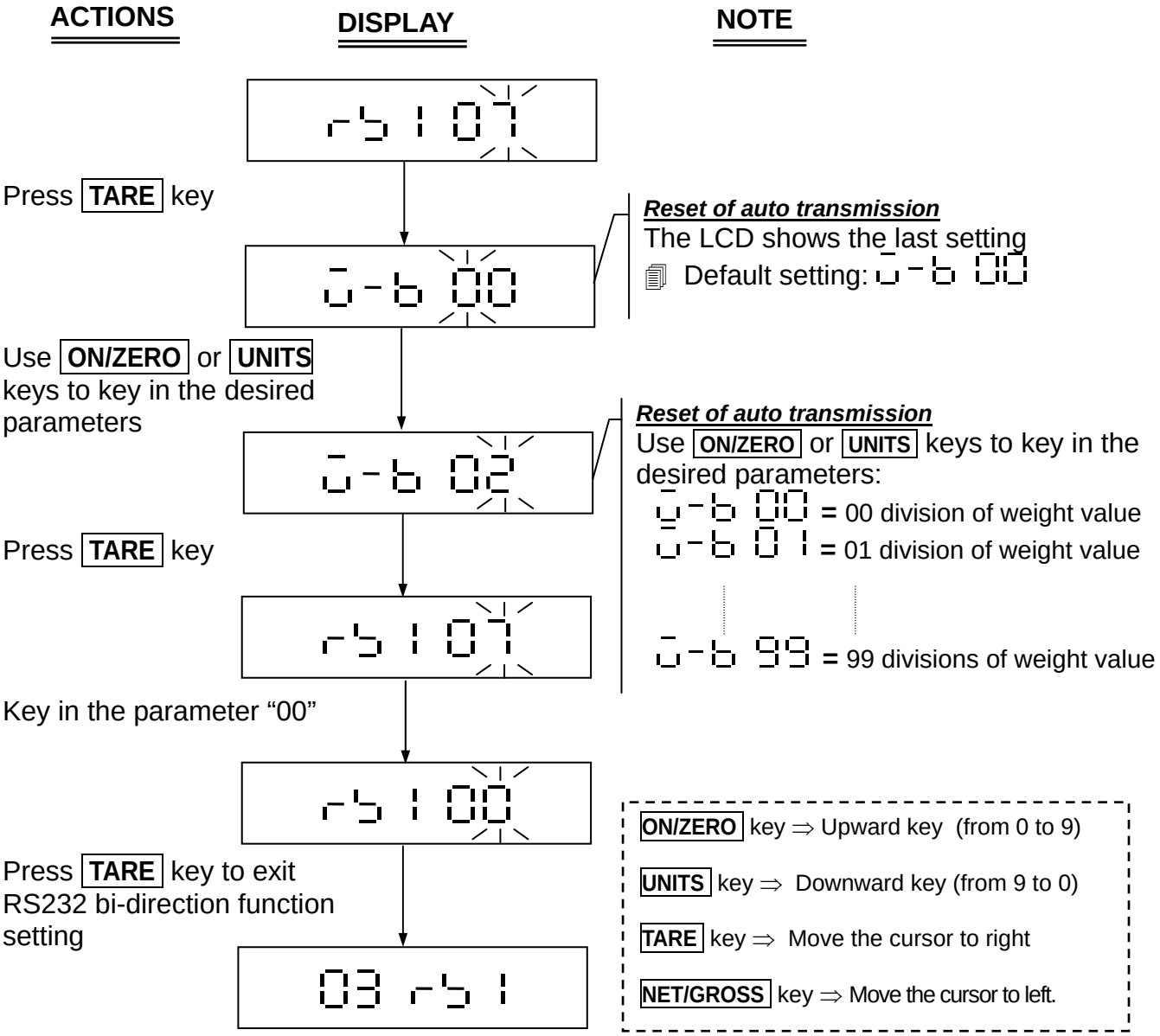
Select r5 1 06 in the RS232 serial interface setting mode 03 r5 1 to set the Auto Transmission at Zero.



- When the parameter is set as Z-b 00, the "Auto transmission" function is not available. It is because when the zero is stable, the transmission becomes "Continuous Transmission".

2-5-7 Reset of Auto Transmission r5 107

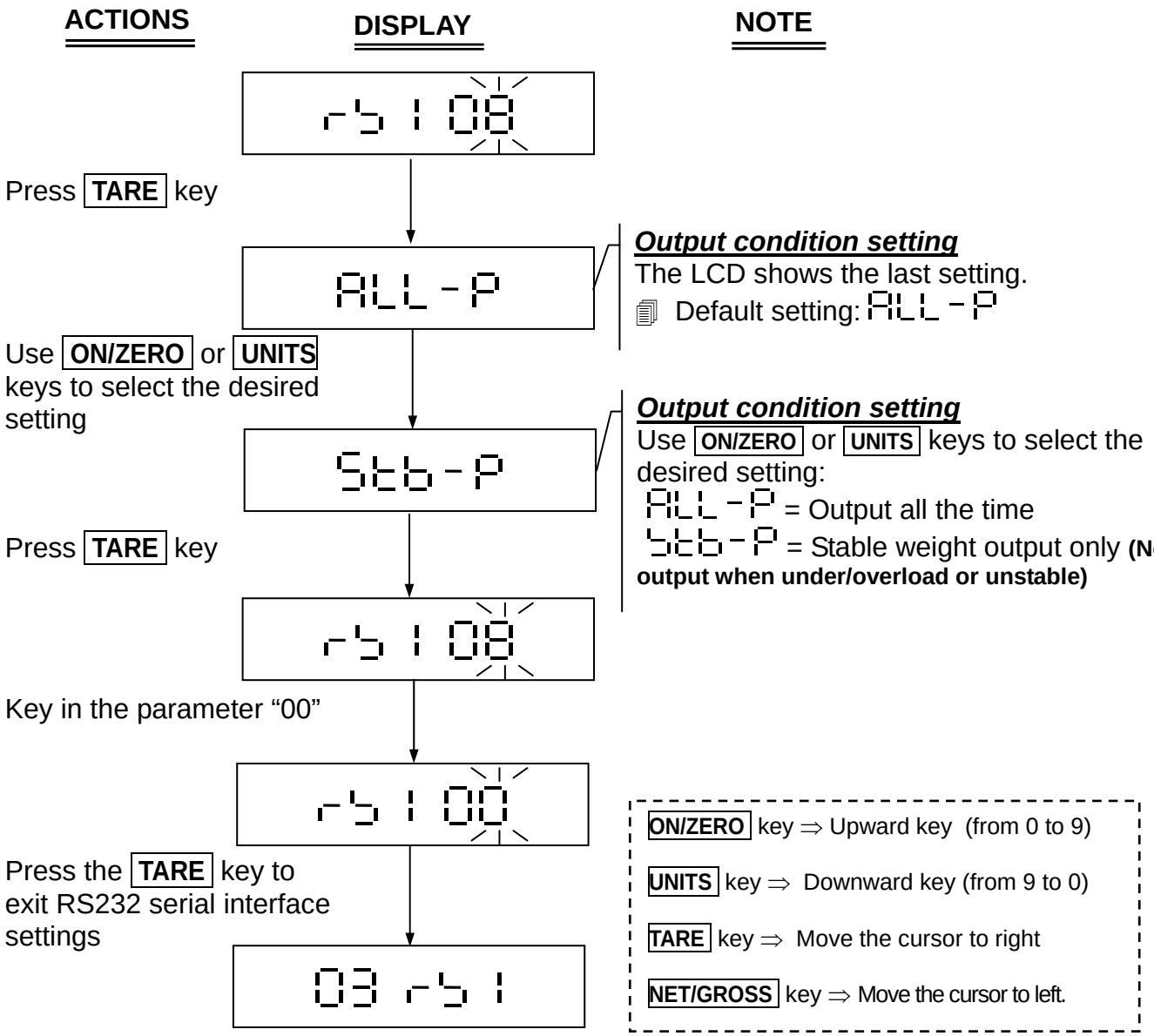
Select r5 107 in the RS232 serial interface setting mode 03 r5 1 to Reset of Auto Transmission.



When the parameter is set as U-b 00 , the “Auto transmission” function is not available. It is because when the zero is stable, the transmission becomes “Continuous Transmission”.

2-5-8 Output Condition Setting r5 1 08

Select r5 1 07 in the RS232 serial interface setting mode
03 r5 1 to Reset of Auto Transmission.



Command mode

Command Format A

Host | Command

Slave | Command

MZ	Zero	SO	Command mode
MT	Tare	UA	Switch to the first unit
MG	Gross weight	UB	Switch to the second unit
MN	Net weight	UC	Switch to the third unit
CT	Clear TARE value	UD	Switch to the forth unit
SC	Continuous transmission	UE	Switch to the fifth unit
SA	Auto transmit	UF	Switch to the sixth unit
%	Stop continuous transmission and enter the command mode		

Note: UA ~ UF settings are dependent the model of the scale

Command Format B

Host | Command

Slave | Data

RW	Read current weight	RH	Read Gross (simple)
RG	Read Gross weight	RI	Read Net (simple)
RN	Read Net weight	RJ	Read comparison situation + current display of weight (simple)
RT	Read TARE	RK	Read comparison situation + Gross (simple)
RB	Read current display of weight (simple)	RL	Read comparison situation + Net (simple)

Note: a. add % before the command to read continuously
b. add # before the command to transmit a stable value

Read weight comparison setting value RS○○□□

○○: Groups(00 ~ 09) □□: Setting Items

HI	**Show "HI" presetting value**
LO	**Show "LO" presetting value**

Note : ○○(Group) is various depended on different models

00 ⇒ The first group

01 ⇒ The second group

02 ⇒ The third group

EX: RS02LO＜CR＞＜LF＞ Show "LO" presetting value

ANS: RS02LOXXXXXX＜CR＞＜LF＞

Command Format C

Host | Command+ Data |

Slave | Command+ Data |

Write weight comparison setting value WS○○□□XXXXXX

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

HI	**Write "HI" setting value**
LO	**Write "LO" setting value**

Note : ○○ (Group) is various depended on different models

00 ⇒ The first group

01 ⇒ The second group

02 ⇒ The third group

EX: WS00HI001000＜CR＞＜LF＞ Write "HI" setting value

ANS: WS00HI001000＜CR＞＜LF＞

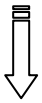
Command Format D

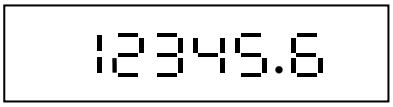
Host | Data |

Slave

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

When the SI-132 receives this data format, it will transfer the data and display it on its LCD.





Note: The function is effective, when the weight value is over 0.

- The four format A, B, C, D are RS232. If you receive the massage as follow, it is under wrong condition.
  E1: Wrong command
  E2: Command format error (Wrong parameters)
  E3: Command not recognised

Output data format

Weight format

Gross	S	T	,	G	S	,	+	0	1	2	3	4	5	6	7	SP	SP	o	z	CR	LF
Net	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		
Plus OL	O	L	,	G	S	,	+	SP	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	SP		
Unstable	U	S	,	G	S	,	+	0	1	2	3	4	.	5	6	SP	SP	l	b		

Simple format

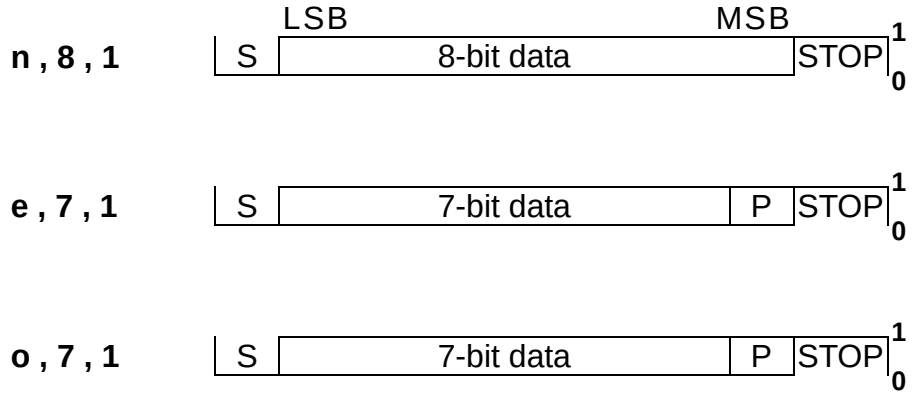
G/N	+	1	.	2	3	.	4	5	6	CR	LF
G/N	+	0	1	2	3	4	5	.	6		
G/N	+	0	1	2	.	3	4	5	6		
Plus OL	+	SP	SP	SP	SP	SP	SP	SP	SP		
Minus OL	-	SP	SP	SP	SP	SP	SP	SP	SP		

Comparison status + Simple format

Byte0	Byte1	Byte2	+/-	1	.	2	3	.	4	5	6	CR	LF

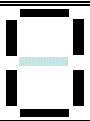
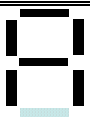
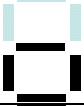
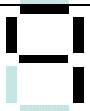
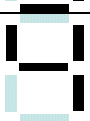
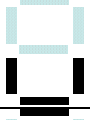
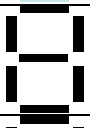
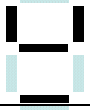
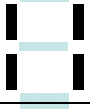
Byte0 : HI 30H/31H
Byte1 : OK 30H/31H
Byte2 : LO 30H/31H

Serial Data Transfer/Receive Format



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

Appendix 1 7-Segment Display Characters

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

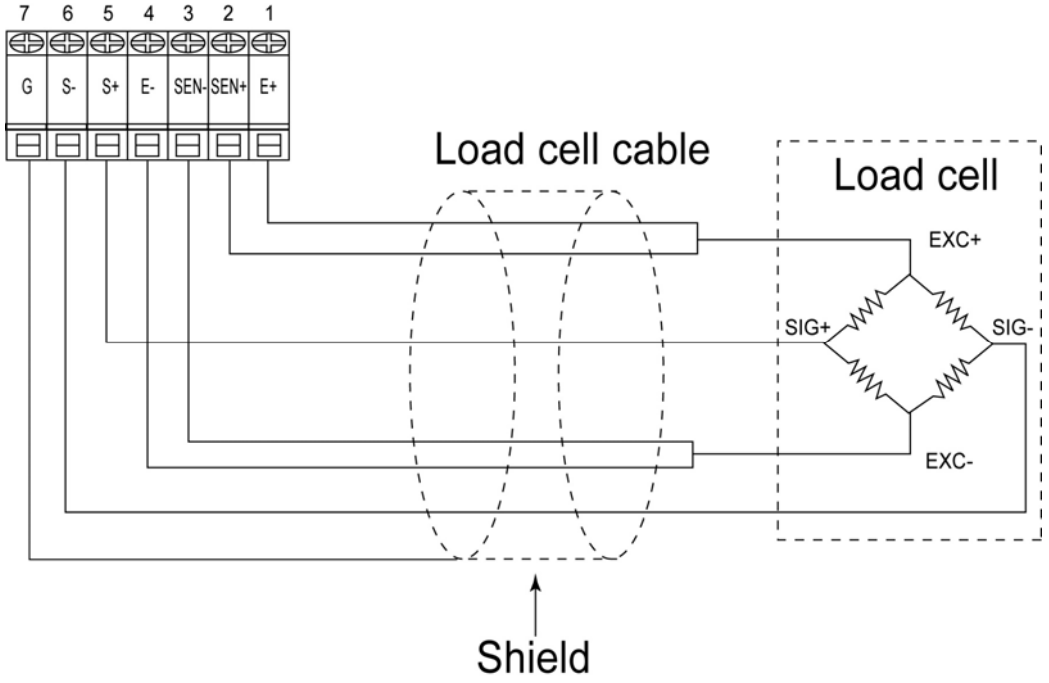
Appendix 2 ASCII Code Table

Symbol	ASC II Code	Symbol	ASC II Code	Symbol	ASC II 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		

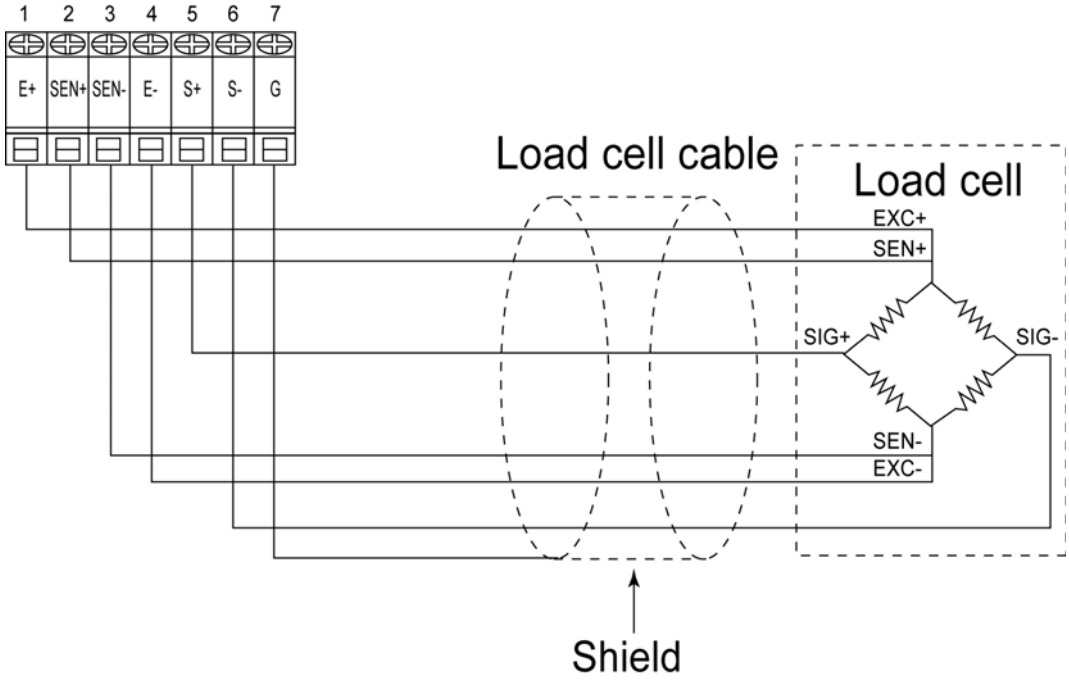
Appendix 3 Wiring Instructions

Load cell wiring method:

(1) As shown below, when a load cell is connected with a 4PIN cable, SEN+ and SEN- can be unconnected. J11 and J12 on PCB must be tin-soldered in short circuit.

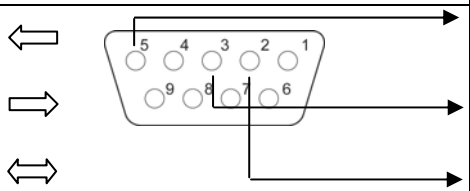


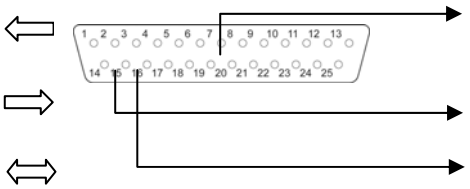
(2) If Load Cell is 6PIN, please wire as the following diagram:



RS232 Wiring Instruction

To connect RS232, please open the housing, RS232's PIN connectors locate on the bottom-right corner of the mainboard. The most common connection method is using 9PIN and 25PIN, as shown below:

PC	PIN	Function	Female 9 PINS	PIN	Function
	2	Transmit Data		1	SG
	3	Receive Data		2	TxD
	5	Signal Ground		3	RxD

Printer	PIN	Function	Male 25 PINS	PIN	Function
	2	Receive Data		1	SG
	3	Transmit Data		2	TxD
	7	Signal Ground		3	RxD

To use other connection methods, please identify the signal and following the above principles. After it is finished, please install the housing by the instruction in the SPECIAL NOTICE.