

User Manual

Weighing Indicator

BTW-E



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

Instructions for Use

1. Please keep scale in a cool and dry place. Do not store under high temperatures.
2. Please keep the scale clean and free from insect infestation.
3. Avoid impacting with other items or overloaded with excessively heavy weights.
(The load must not exceed the maximum capacity of the scale).
4. If the scale is not going to be used for some time, please clean it and store it in a plastic bag in dry condition. A desiccant sachet may be included to prevent moisture from building up.
5. Any suggestion is warmly welcome.

Preparing to Use the Scale

1. Locate the scale on a firm level surface free from vibrations for accurate weight readings.
Adjust the four leveling feet to centre the leveling bubble on the scale.
2. Avoid hot sunshine directly on the scale or near the exhaust port of ventilating system.
3. Please use a separate power source plug, to avoid the disturbance of other electric appliance.
4. There should be no weight on the scale when power is turned on.
5. Commodity should be placed at the centre of platter when being weighed, and its size should not exceed the dimension of the platter.
6. We suggest to warm the scale for 15 ~ 20 minutes before using.。
7. Please note that when  symbol shows up on the display, which means the indicator needs to be recharged. The indicator could only operate for another 6~8 hours. Then “- L -” will show on the display and the indicator must be fully charged before operating again.
8. Introduction of Storage Battery



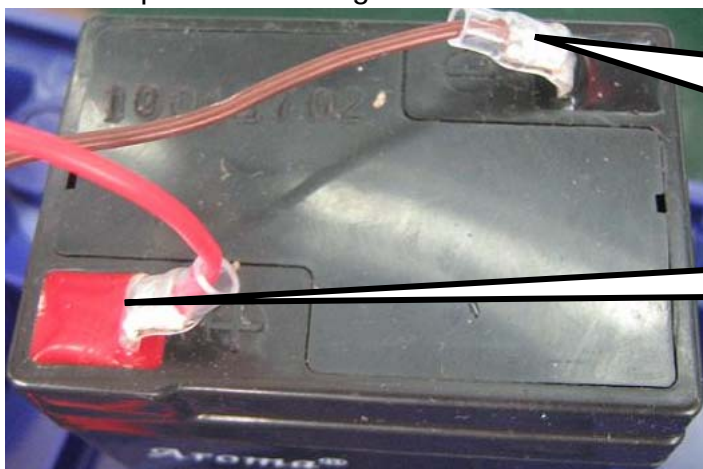
Due to the storage battery adopt the advanced free-maintaining technique, customers need not to replenish electrolyte.

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

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

Maintaining

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



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

Red cable connected with
Cathode of battery

Safety warnings

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



No burning



Caution Corrosion



Warning explosion



Children faraway



Chapter 1 Introduction

1-1 Features

- The interface is simple and easy to operate
- Up to 1/15,000 display resolution
- High Speed 24bits AD
- AC / DC switching function (Built-in rechargeable battery)
- Low power indication
- Full range tare; Auto zero tracking
- Simple counting; Gross/Net indication; Hold function
- Check mode Lo / Hi / OK with 3 selectable beeping sounds
- Lo / Hi / OK indication shows on LED lights
- Selectable unit: Kilogram (kg) and pound (lb)
- Easily viewing single weight / total weight within 1 button press

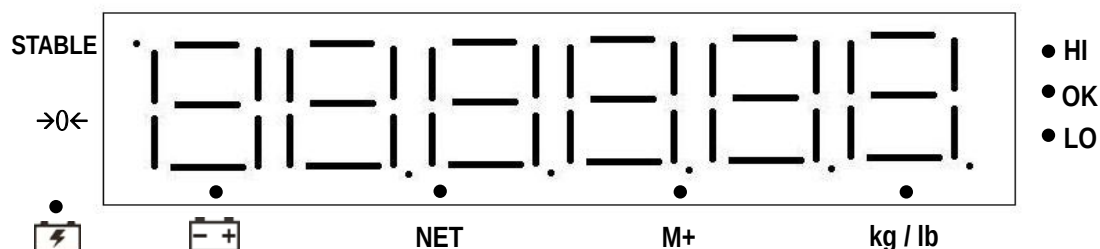
Option:

- RS232: Bi-direction transmission, easy data reading or printing
- Sleeve connecting stand

1-2 Specifications

- Display LED 6 digits
- Operating temperature: 0°C ~ 40°C (32°F ~ 104°F)

1-3 Display



Description

- : When this LED is on, the indicator is charging.
- : "Low battery power" indication
- NET : Put container on the platter, after stable, press tare key and the "NET" indication on.
- M+ : "M+" indication
- kg/lb : "Unit" indication. LED off displays "kg" unit whereas LED on displays "lb" unit.
- HI : The weight is higher than setting value, "HI" LED on
- OK : When the weight is between HI limit values and LO limits value, "OK" LED on
- LO : The weight is lower than setting value, "LO" LED on
- STABLE : "Stable" indication (eg: " 0.500")
- 0← : "Zero" indication (eg: " 0.000")



1-4 Keypad Functions Description

key	Function	Hold the key for 1 sec.	Hold the key for 3 sec.
	Zero key	Check Voltage	
	Tare/Pre-tare key	① LED light setting ② Zero display setting ③ Local G value setting	
	Unit key		Enter password to enter external weight calibration
	Function key		
	Print / transmit key	RS-232 transmission setting	

1-5 Power Supply

Power Selection

6V 4Ah rechargeable battery

110V/220V AC/DC Adaptor

LED charging icon

When “- L₀ -” shown on the display, the indicator must be charged. When the charging icon becomes red, it means the indicator is charging; when the charging icon becomes green, it means the indicator is fully charged.

The indicator needs to be charged for about 8~9 hours when “- L₀ -” shown on the display.

1-6 Error Message

E₀ ⇒ The EEPROM is not working correctly.

(The EEPROM is not set yet, or the circuit on PCB is broken.)

E₁ ⇒ Zero is higher than the zero range when switching the indicator on.

E₂ ⇒ Zero is lower than the zero range when switching the indicator on.

E₄ ⇒ A/D value is unstable

□ F ⇒ ADIC value is over the maximum range. (2097151 ~ -2097152)

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

-□ L ⇒ The weight of the object is under -1/6 maximum capacity.



Chapter 2 Operating Introduction

2-1 Keypad Operating



: Zero key

If the weighing value is within the range of zero balance, it can be re-zeroed and tare cancelled.



: Tare key

It can be tare except when the weight is negative and the maximum capacity.

Tare Function

- ❶ Place the container onto the scale, until the weight value is stable, press  key for zero return and the NET indication is shown on the display.
 - ❷ Place the object into the container and the display shows the net weight value of the object.
 - ❸ Remove both object and container, and negative value of the container will show on the display. Press  again to clear "tare value". The scale returns to zero and NET indication goes off.
-  Tare can be continuously done until tare value=maximum capacity
 -  Continuous Tare $\Rightarrow$ Press  key for continuous weight increase/decrease on platter.
 -  If there is Tare, the pre-tare cannot be done. If there is pre-tare first, and the tare weight is more than pre-tare weight, Tare can be done.
 -  No Tare can be done under gross weight display mode.

Pre-Tare Function

When there is nothing on the platter, press  key and use keypad to input pre-tare weight. When the cursor flashes on the last digit of display, press  key again to complete. Method of clearing Pre-tare value: the same as the method of clearing tare value. Pre-tare mode, keypad function as followed:



$\Rightarrow$ upward key



$\Rightarrow$ move cursor leftward



$\Rightarrow$ downward key



$\Rightarrow$ move cursor rightward



: Function key

- ❶ In weighing mode, use this key to shift among simple counting function, check weighing function, accumulation function and hold function.
- ❷ In tare mode, use this key to shift between the "Net value" and the "Gross value".

Shift between Net value and Gross value

-  In the Tare mode while the "Net" indication shows up, press  key to switch display between gross and net weight. "Net" indication shows up to display net weight whereas "Net" indication goes off to display gross weight.
-  When the screen displays the "gross weight", only  key can response.



: Unit key

Use key to select a unit as the display indicated.

The selected unit will be memorized when you turn the indicator off. And the memorized unit will appear after you turn on the indicator next time.



: Print key

In accumulation mode, if the parameter set as $r \ n \ P \ 3$ or $r \ n \ P \ 4$ transmission, it transmits the format of simple mode or complete mode.

This key is the combination key. while total counts is shown and weight returns to net zero, press key to clear data and RS-232 transmits the MC printing format.

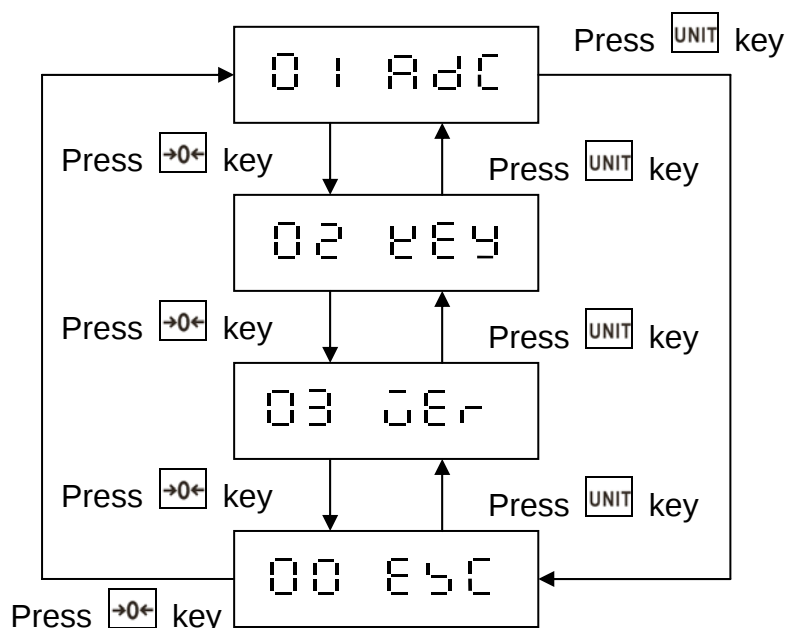
If there is new weight added on platter, a new data will be added to accumulation data. If this weight is not taken off, nothing can be added to accumulation data. Display will show the total counts for one second, then show net weight for one second, then the display returns to the current weight.

Clear Accumulation data: Press key and the total counts shows on the display. Press key again to clear accumulation data.

Weight must return to net zero if to perform clear function

2-2 Self Test Mode

Press key and not release. Then power on the indicator, Wait till display shows 01 AdC to enter "Self-Test Mode".



**01 AdC INTERNAL VALUE MODE** (must hook up full-bridge Load Cell to test)

- ① Press to enter, and the display shows internal value
- ② Please check the internal value is within normal range (0~400000 no load)。
- ③ Check whether the backlight is on
- ④ Press key to back to the last screen, the display shows 01 AdC

02 EEY KEYPAD TEST MODE

- ① Press to enter, display shows EEY 01
- ② Keypad's internal code: key = 01、 key = 31、 key = 20、 key = 30
- ③ Press key to back to the last screen, the display shows 02 EEY

03 CE r FIRMWARE VERSION DISPLAY MODE

- ① Press to enter, display shows the firmware version 02023
- ② Press key again, the display shows maintenance number 070 for 2 seconds
- ③ Press key to back to the last screen, display shows 03 CE r

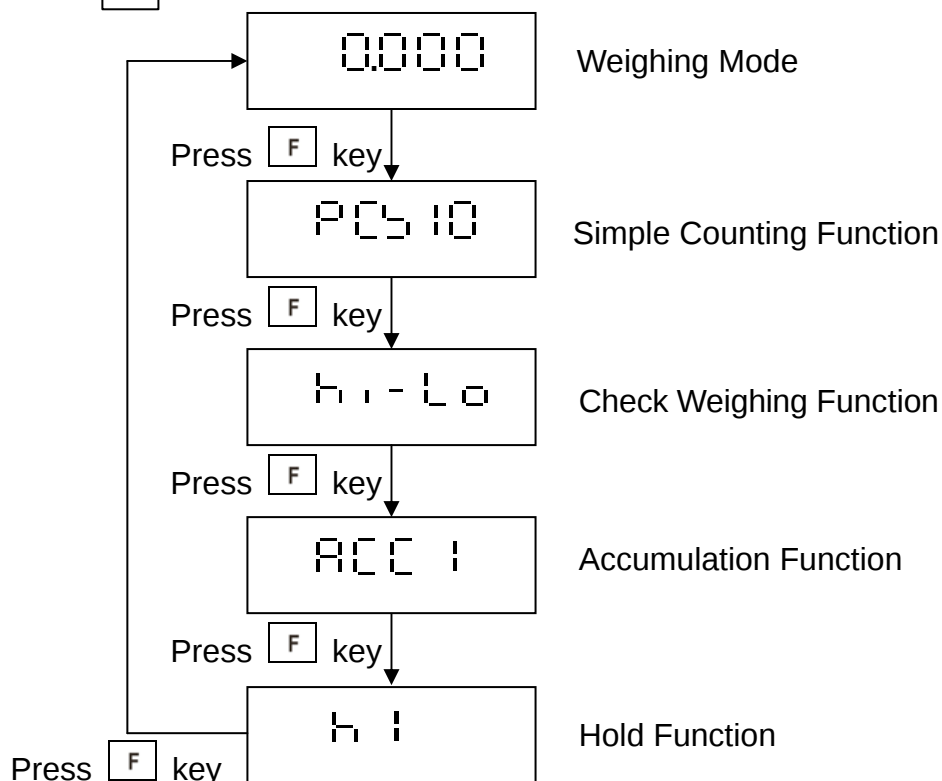
00 ES C BACK TO THE LAST SCREEN

Press key to exit self-test mode, the scale will re-power on automatically

2-3 General Function Operating

Power on the indicator and enter into the setting that you set before or weighing mode.

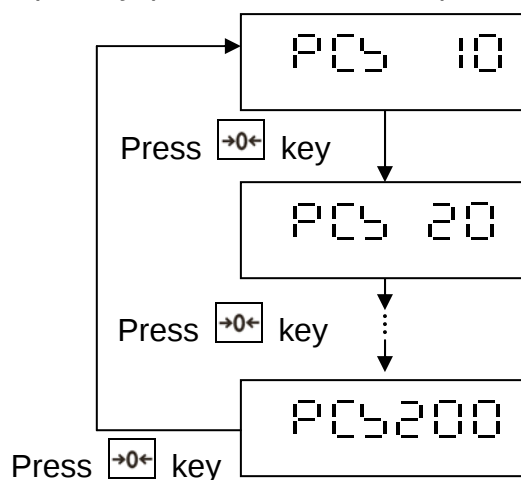
Then press to shift functions



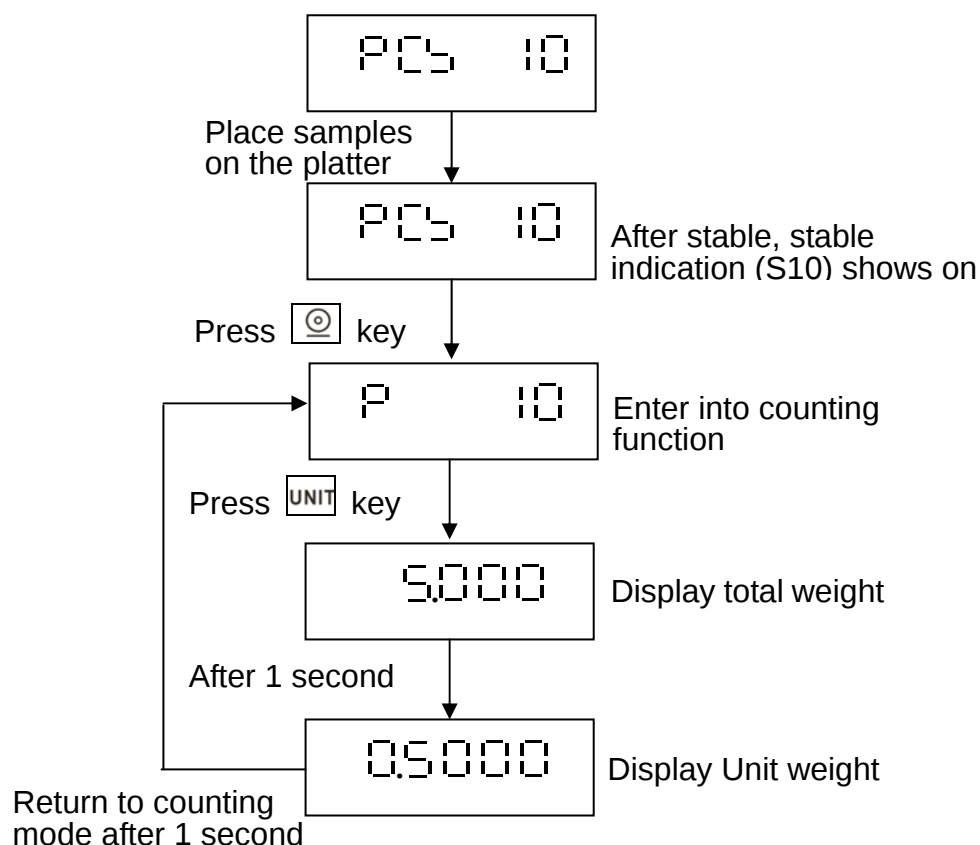


2-3-1 Simple Counting Function

1. In weighing mode, press **[F]** key to enter into simple counting function.
2. Press **[→0←]** key to select sample quantity (10, 20, 50, 100, 200)
LCD shows as right picture:



3. Select sample quantity and then place samples on the platter. After stable, press **[⊙]** key and display shows -----. After stable, the scale enters into counting mode and the display shows "P" and quantities.



4. Press **[F]** key to enter into next function.



2-3-2 Check Weighing Function

1. In weighing mode, press **[F]** key twice to enter into check weighing function.

2. Press **[UNIT]** key to enter into beeper setting.

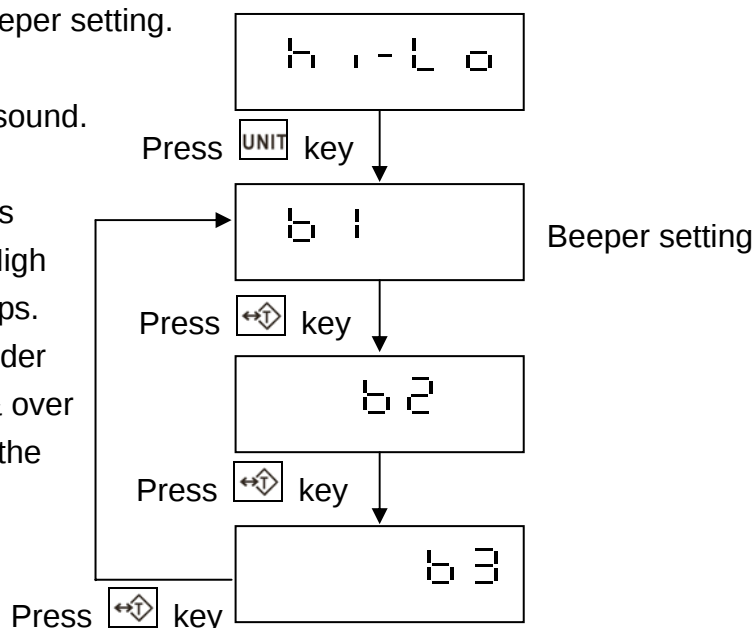
LCD shows as right picture:

3. Press **[↔]** key to select beep sound.

b 1 ⇒ No beep

b 2 ⇒ OK (when the weight is between Low limit & High limit.), the beeper beeps.

b 3 ⇒ When the weight is under or equal to Low limit & over or equal to High limit, the beeper beeps.



4. Press **[UNIT]** key to enter into Hi limit value setting

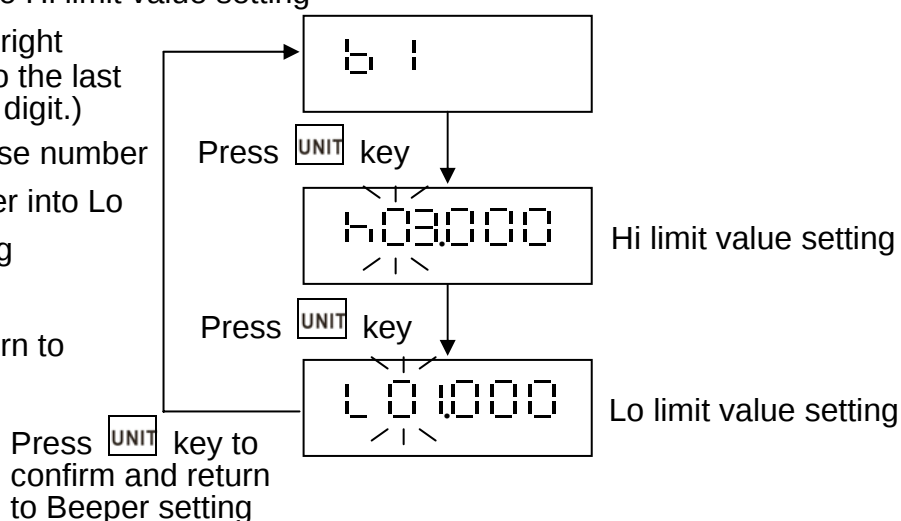
5. **[↔]** key ⇒ move cursor to right
(When the cursor arrive to the last Digit, it returns to the first digit.)

[→←] key ⇒ increase/decrease number

[UNIT] key ⇒ confirm and enter into Lo limit value setting

6. In Lo limit value setting

[UNIT] key ⇒ confirm and return to Beeper setting

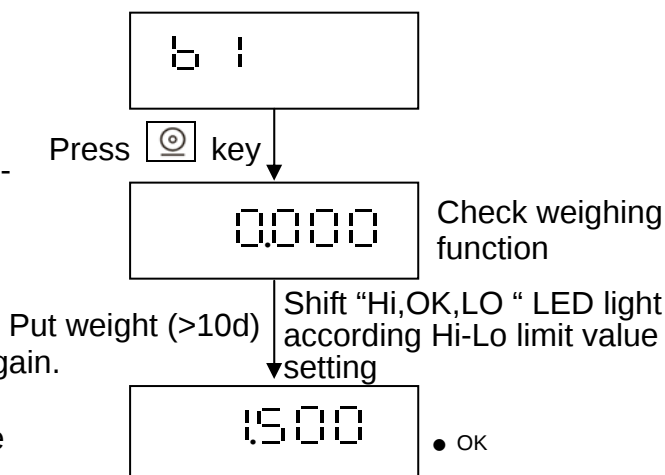


7. In beeper setting, press **[⊙]** key to enter into check weighing function. When the weight is more than 10d, check weighing function activates.

8. Press **[F]** key to exit the setting and enter into next function.

Repeat above steps to set this function again.

Units can not be shift in check weighing function. Please enter into weighing mode to shift units

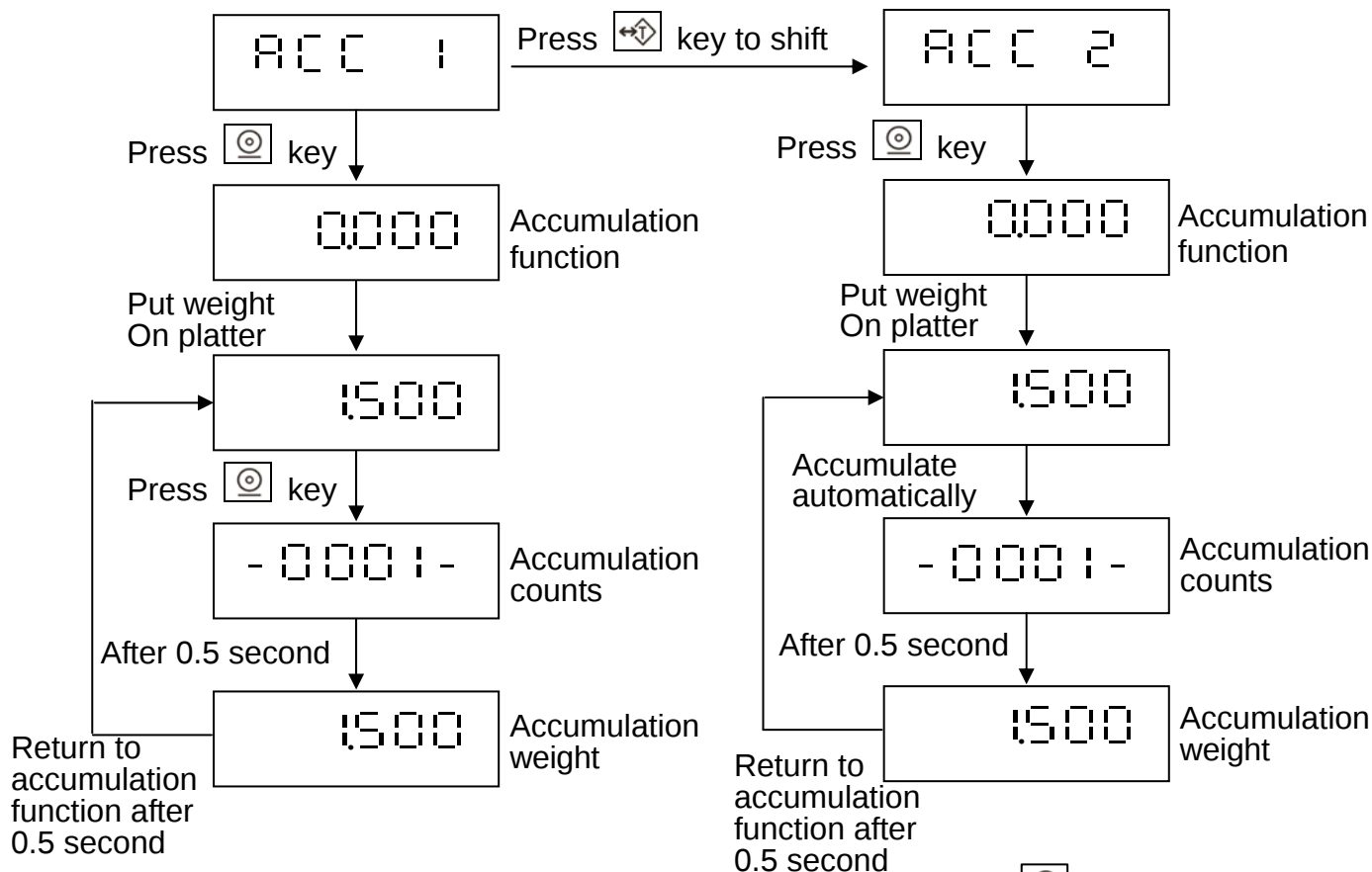




2-3-3 Accumulation Function

1. In weighing mode, press **[F]** key three times to enter into accumulation function.

LCD shows as following picture:



ACC 1 ⇒ Manual accumulation: After the weight is stable, press **[M+]** key to accumulate and “M+” indication shows up. It does the second accumulation, after the weight returns to zero.

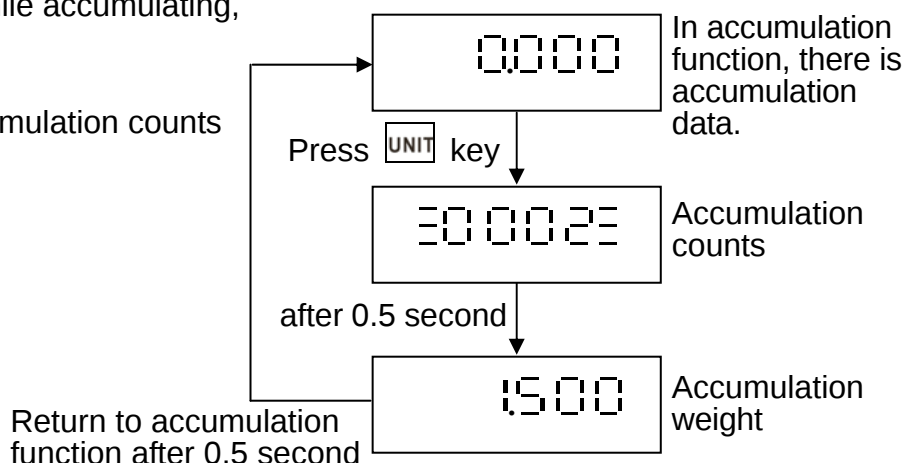
ACC 2 ⇒ Automatic accumulation: After the weight is stable, it accumulates automatically, and “M+” indication shows up. It does the second accumulation, after the weight returns to zero.

☞ If it set as **PP3**, **PP4** or **PP5** transmission mode, RS-232 outputs printing format while accumulating.

☞ The Minimum weight of accumulation: > 10d

☞ If the weight is unstable while accumulating, display shows **-Add-**.

2. Press **[UNIT]** key to see accumulation counts and accumulation weight.

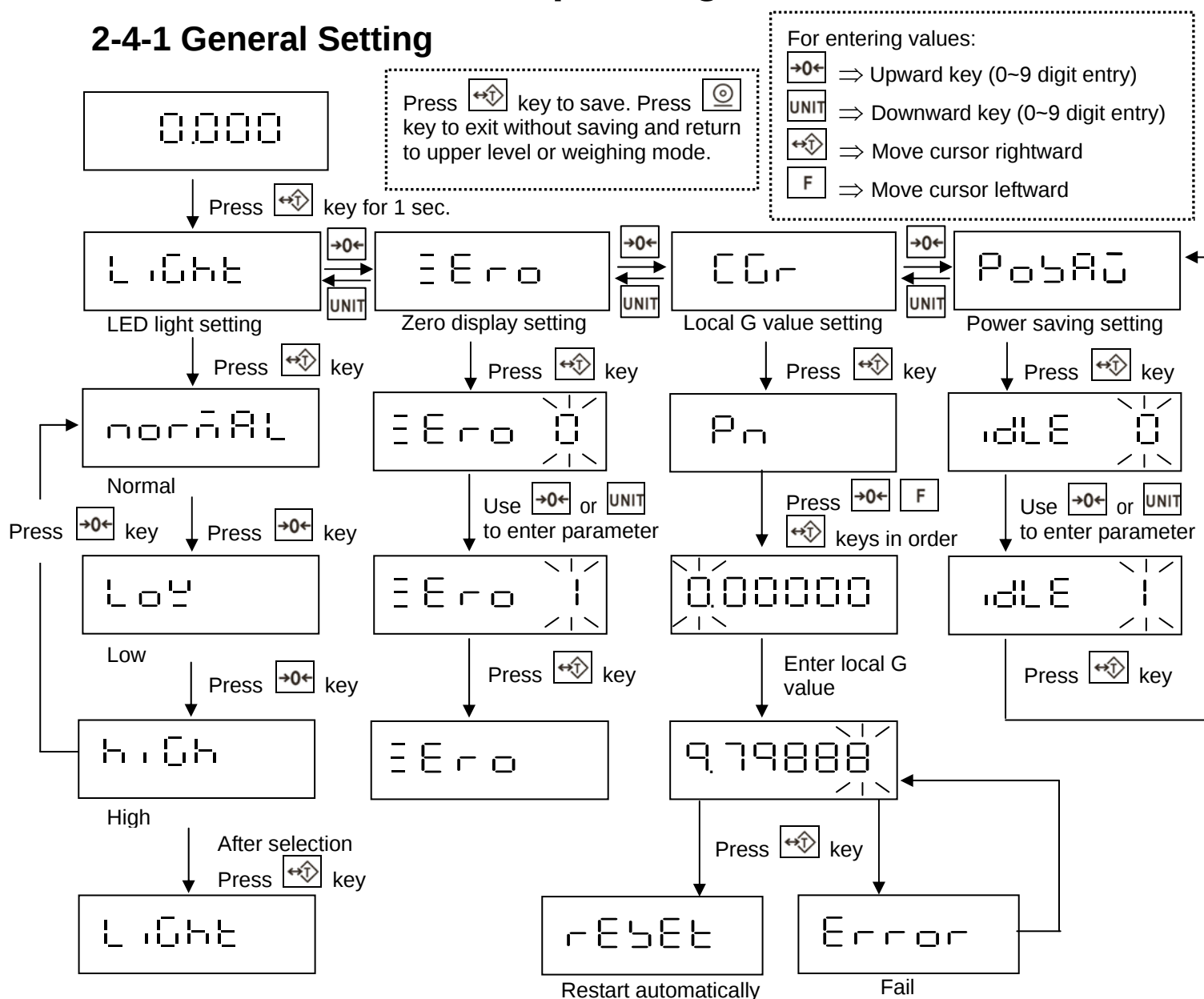






2-4 Further Function Operating

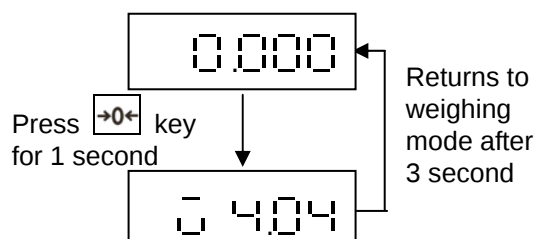
2-4-1 General Setting



- ☐ Please restart the indicator, after setting LED light.
- ☐ Zero display setting: 0~9, when the weight is within $\pm$ of the set values, it display as zero.
- ☐ Local G value conditions: The new Local G values must be within $\pm 10\%$ of the Local G value set in the factory.
- ☐ If the external weight calibration has been used, the Local G value is disable.
- ☐ In power saving setting, when the weight is within 10d or negative weight and not pressing any key, it enter into power saving mode after time is set (1~9 min).

2-4-2 Check Voltage

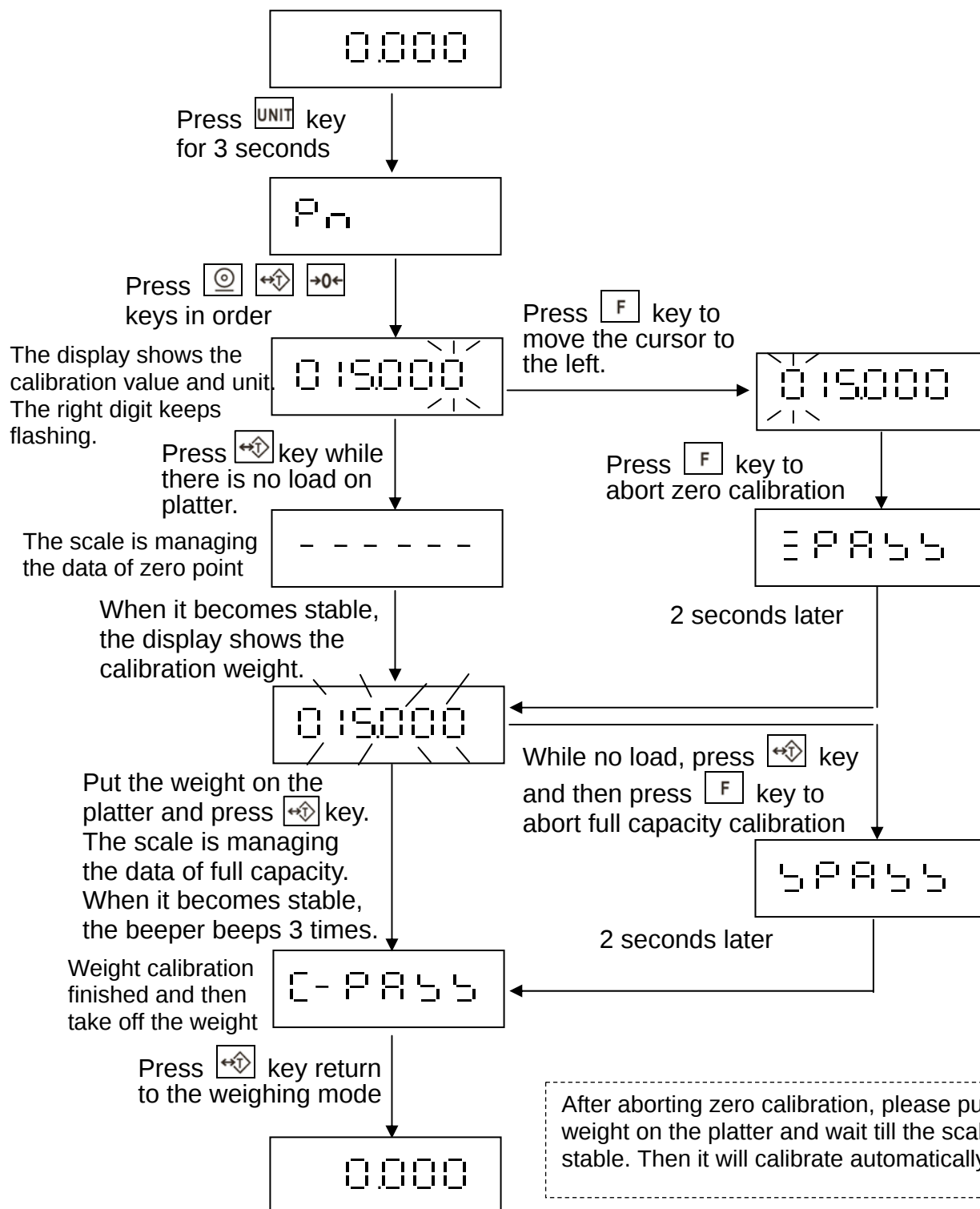
In weighing mode and the weight returns to zero, Press $\rightarrow 0 \leftarrow$ key for 1 second. It returns to weighing mode after 3 second.





2-4-3 External Weight Calibration

In weighing mode and the weight returns to zero, Press **UNIT** key for 3 second to enter into password display. Press **⊙** **↔** **→0←** keys in order and enter into External Weight Calibration. Otherwise it will returns to weighing mode.



Weight calibration conditions:

The calibration weight value placed on the platter must be over 100e, and the standard deviation of the weight must be within $\pm 10\%$.



2-4-4 Transmission Setting

1. In weighing mode, press key for 1 second to enter into transmission setting.

2. Press key to select transmission

$\overline{r} \overline{n} \overline{P} \overline{0} \Rightarrow$ No transmission

$\overline{r} \overline{n} \overline{P} \overline{1} \Rightarrow$ Stable transmission

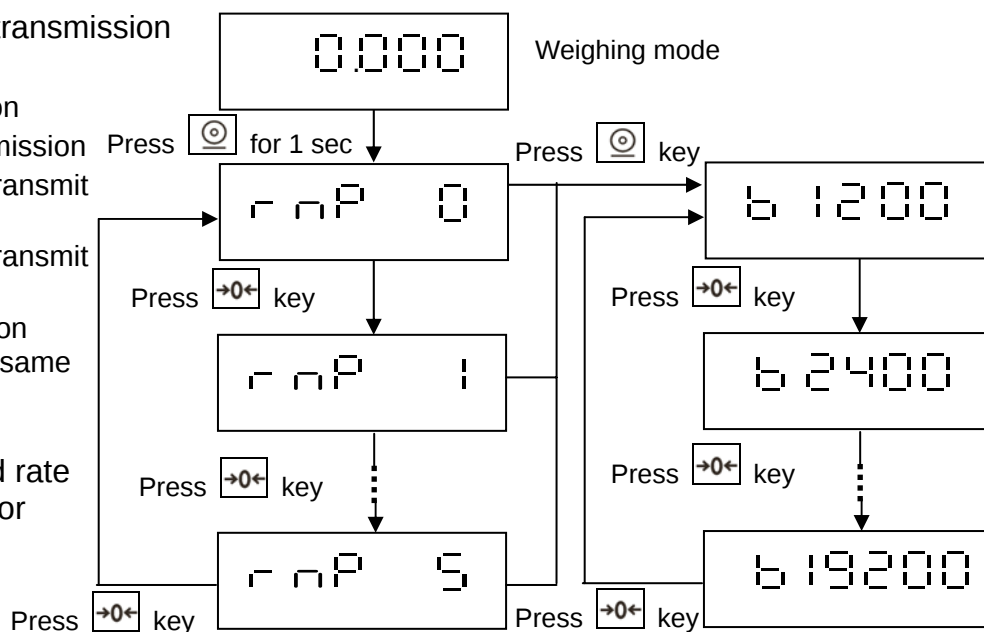
$\overline{r} \overline{n} \overline{P} \overline{2} \Rightarrow$ Continuous transmission

$\overline{r} \overline{n} \overline{P} \overline{3} \Rightarrow$ Press key to transmit (Simple mode)

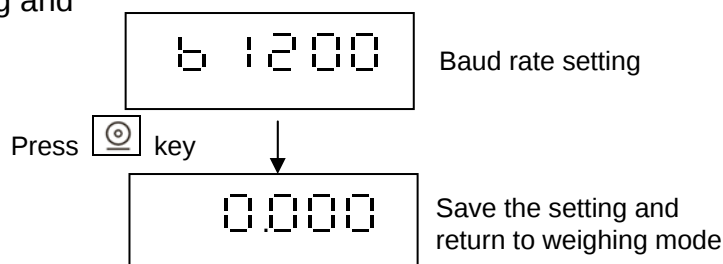
$\overline{r} \overline{n} \overline{P} \overline{4} \Rightarrow$ Press key to transmit (Complete mode)

$\overline{r} \overline{n} \overline{P} \overline{5} \Rightarrow$ Stable transmission
The format is as same as $\overline{r} \overline{n} \overline{P} \overline{3}$

3. Press key to set baud rate (1200, 2400, 4800, 9600 or 19200.)



4. Press key to save the setting and return to weighing mode



RS-232 Output Format

The output format of $\overline{r} \overline{n} \overline{P} \overline{1}$ and $\overline{r} \overline{n} \overline{P} \overline{2}$

GROSS	S	T	,	G	S	,	+	1	2	3	4	5	6	7	SP	SP	0	z	CR	LF
Net	S	T	,	N	T	,	+	.	2	3	.	4	5	6	t	l	.	g		
Plus OL	O	L	,	G	S	,	+	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		
Minus OL	O	L	,	G	S	,	-	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP		
Unstable	U	S	,	G	S	,	+	1	2	3	4	.	5	6	SP	SP	l	b		

$\overline{r} \overline{n} \overline{P} \overline{1} \Rightarrow$ Stable transmission: when the weight is more than 10d and the weight is stable, it transmit above format. It transmits next data format only when take off the weight on the platter and put it on again.

$\overline{r} \overline{n} \overline{P} \overline{2} \Rightarrow$ Continuous transmission: It always transmit above format.
Output rate: 4counts / second

⇐⇐ P 3 ⇒ Press  key to transmit (simple mode): use in accumulation mode.

- Steps:
1. Press  key and select                   <



Appendix 1 7-Segment Display Characters

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



Appendix 2 Installation

1. Please connect the Load Cell and Indicator as following

5PIN Connector

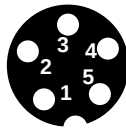
PIN 1 E+

PIN 2 E-

PIN 3 S+

PIN 4 S-

PIN 5 GND



2. Connecting way of a 9 pin RS-232 connector as following.

PIN 2 : Data inputting (TXD), position 2 in following picture

PIN 3 : Data outputting (TXD), position 3 in following picture

PIN 5 : Internal grounded (GND), position 5 in following picture

