PLU-W USER MANUAL

Electronic Scale

BS21111

2）Zero（order：0x5A）
a、Weight reading(PC—>machine）

Start bit	Order bit	Checksum		Stop bit
0x02	0x5A	0x35	0x3A	0X03

b、The machine responses（machine—>PC）

Start bit	Order bit	Checksum		Stop bit
0x02	0x5A	0x35	0x3A	0X03

3） Net weight （Order：0x57）
a、Weight reading（PC—>machine）

Start bit	Order bit	Checksum		Stop bit
0x02	0x57	0x35	0x37	0X03

b、The machine responses（machine—>PC）

Start bit	Parameter	Checksum	Stop bit
0x02	Weight and the related data	xor	0x03
1	Referred to Weight parameters and notes	2	1

Weight parameters and notes

Byte-orders		Notes and contents		
1	Stable	S（53）stable/U（55）unstable		
2	Signal	+（2B）/-（2D）		
3	Net weight	Data	high byte	
4		Data	:	
5		Data	【radix point（2E）】	
6		Data	:	
7		Data	:	
8		Data	low byte	
9		Data	low byte	
10	Unit	k（6B）	0x20	
11	Unit	g（67）	g(0x67)	
10	Alarm signal	upper：H(0X48)	lower：L（0X4C）	Normal（0X20）

Contents

1.0 Notices and alarming

Notices:

1. Please clean the display and operation panel with wet towel instead of soaking into water.
2. When the value of the scale is not zero, press[Zero], 0 will come.
3. If mobile or wireless machines are in use nearby when turning on the scale, the display will flash once, and then become normal. If doesn't, please turn it on again.
4. The provided adaptor should be used when charging.
5. After a long-time use (above one year), the rechargeable battery can't keep using for long after more than 12-hour charging, which means new one should be replaced.
6. When the display appears charge alarm, please charge or change the battery as soon as possible.

Alarming

1. **Over load alarming:**
   When the load on the platform is over 9d of maxim capacity, the display will show "------" and the load on platform should be removed immediately.
2. **Low battery alarming:**
   When 🔋 appears on the display, you're requested to recharge the scale over 12 hours.
3. **Charging light indication:**
   When the battery is charging, the charging light appears in red. When full, in green.
4. **Checking quantity alarm:**
   When the checking quantity function is on and the quantity is beyond upper or lower limitation, the alarm beeps.

Attachment: Communication protocols for PLU weighing machine

I Communication ways

1、 Continuous transfer mode
   Three frames data are transferred to pc per second when it is weighing.
2、 Instruction response transfer mode
   The machine exports the relevant data according to the instruction from PC. Every time, the machine exports data once it receives instruction. It can get the weight value, taring, zeroing and etc..
3、 Stable transfer mode
   When the weight value becomes stable, the result will be transferred to PC at a time.

II Communication format

1、 Frame format

The machine uses RS232C signal (9pins): pin5—ground，pin3—transfer，pin2—receive。 One frame consists of 10 Bit. All data is on ASCII code. The BPS is 9600bps.

Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Bit8	Bit9	Bit10

BIT1: Start bit   BIT2~BIT9: Data bit   BIT10: Stop bit

2、 Data/Control format

Byte	Start bit	Order bit	Parameter	Checksum	Stop bit
Value	02	XX	Weight and the related data	Xor	03
Length（decimal）	1	1	Referred to Weight parameters and notes	2	2

III Data order

1）Tare（order：0x54）

a、Tare (PC—>machine）

Start bit	Order bit	Checksum		Stop bit
0x02	0x54	0x35	0x34	0X03

b、The machine responses（machine—>PC）

Start bit	Order bit	Checksum		Stop bit
0x02	0x54	0x35	0x34	0X03

5.0 Error massage and main parameters

Error massage

1. When it shows "ADL——", "ADH——", "ADOVER", it means the scale under abnormal situation, and users should adjust it as follows:

   a.Make sure the pan is well installed. And doesn't touch the machine's case.

   b.Contact the supplier.

2. After self check, the machine shows "VOL 5.0", which means the scale is lack of power. Users should adjust it as follows until the scale can be turned on successfully:

   a.Insert the appropriative adapter and turn on the scale again to charge the battery until the voltage is more than 5.4v.

   b.Contact the supplier.

Main parameters

Max Capacity	There are 10 capacity selectable: 3,6,7.5,10,12,15,20, 30,50,60kg
Resolution	0.001g~50g
Response time	3~5 s
Display	LCD with backlight
Tare	Full range tare
Overload alarm	Alarm will go off if the load exceeds the max capacity by 9d
Overload tolerance	Self-protect automatically if the load is 125% of the capacity
Power Source	Rechargeable battery-DC 6V 4Ah Adaptor-AC 220V
Power	With back light 90mA; without back light70mA
Temperature	Storage -10~+50 C Work 0~+40 C
Humidity	Storage 5%~90% R.H. Work 10%~80% R.H.
Pan size	340mm X 220mm

Unit Conversion

1kg	=	1000g
1 lb	=	453.59237g
1 oz	=	28.349523125g

2.0 Display and Key
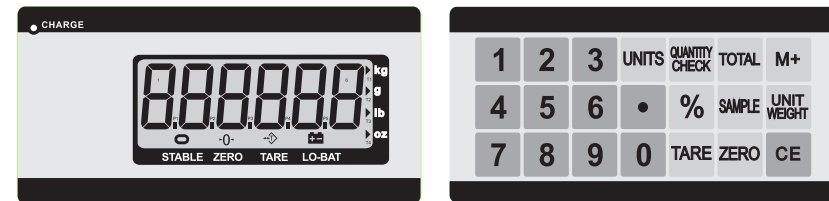
UNITS — In the weighing mode, there are four units selectable: kg g lb oz. It is used to show the unit weight in the counting mode.

QUANTITY CHECK — This is for setting upper and lower limitation in weighing mode.

SAMPLE — key the number in the weighing mode and press the key to count beyond the keyed number.

UNIT WEIGHT — key the unit weight in the weighing mode and press the key to count beyond the keyed unit weight. At setting status, this key can be used as exit key.

M+ — Accumulate counting in accounting mode and save setting in function setting mode and shift to the next function selection.

TOTAL — It is used for recalling the counts data, which restored each time and total weight, which is accumulated.

% — Press the key to enter the percentage calculation after the weight is put on the pan in the weighing mode.

TARE — Tare in the weighing mode and used as the key to increase the setting value.

ZERO — Zero in the weighing mode and used as the key to decrease the setting value.

CE — Cancel the previous numerical data and input new data in weighing mode and used to delete the accumulated total weight when it shows the total weight. And it is as the exit key in the counting and percentage mode

3.0 Operation

1. Power on:
When turning on the scale, the display shows "PLU-x.x" (x.x is the software version) for 3seconds and "VOL 6.5"(VOL 6.5 is the current battery voltage). Then it will self-check from 0-9 sequentially and will show zero, and enter the weighing mode.

2. Zeroing:
Please check if the scale is zeroing before weighing (Whether > points to zeroing sign). If the sign doesn't appear, weight may be wrong, so please press [Zero] before using.
Note: The zero range is 4% max capacity.

3. Units Selection:
Select the current unit in the weighing mode by press [UNITS] key. Kg, g, lb or oz is available.

4. Tare Function:
Put the vessel onto the scale pan and press the [TARE] key, then the LCD display will show the indicating arrow "▶", which means that the weight of the vessel has been deducted. (if the LCD display shows that the scale fails to return to zero, you're requested to press the [ZERO] key again.).It is ready to work. If user wants to cancel the tare weight, remove the vessel and the machine will show negative value. Press [Tare], the display shows o. Press [zero] and the symbol "▶" disappear and the tare is canceled.
If the weight of vessel is known already, key the weight of vessel(the machine will return to the weighing mode if there is no key operation for 5seconds) and press [TARE] to pre-tare, which means that negative tared value. Then put the vessel with goods inside on the pan, the display will show the net weight of the goods.
Note: The pre-tared weight value can't be over the max capacity of the machine.

4.6 Quantity Check mode setting
The function is used to select the quantity check mode (refer to 3.5)..
"101" means the mode 1 and "010" means mode 2. "OFF" means the function is shut off. The default value is set as "OFF". The details are shown as follows:
a Select "L1 xxx". xxx is the parameter of quantity check mode.
b. Press [TARE] or [ZERO] to select the needed weight check mode..
c. Press [M+] to confirm the revised value or press [UNITS WEIGHT] to cancel the revision and exit the function setting.
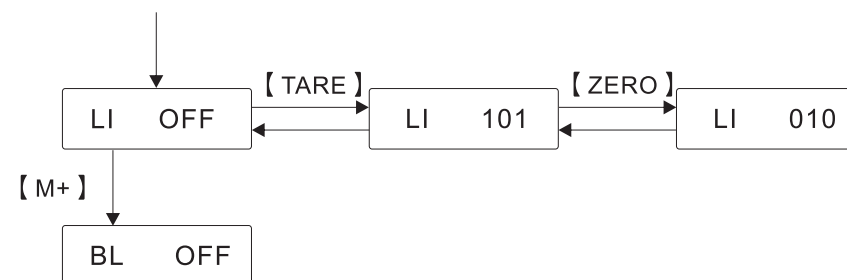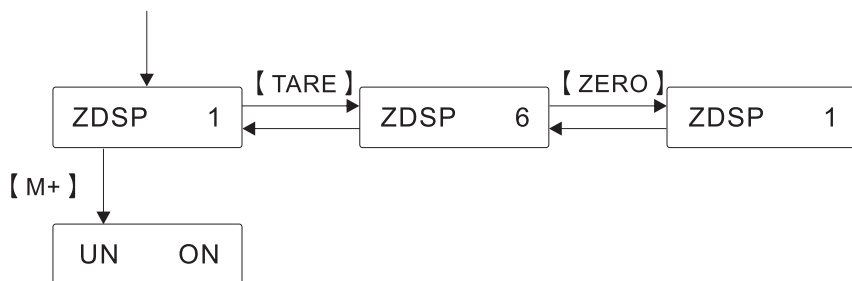

4.7 Selection of Backlight
There are three backlight parameters: "ON", "OFF", "AU". The default value is set as "AU". The details are shown as follows:
a. Select "BL xx " xx is the backlight parameters.
b. Press [TARE] or [ZERO] to select backlight parameter.
c. Press [M+] to accept the revised value or press [UNITS WEIGHT] to cancel the revision and exit the function setting.

4.4 Selection of Zero Display Range

The zero display range parameter is 1-6 (The selection only affects the indication instead of the zero value). The default value is set as "3". The details are shown as follows:
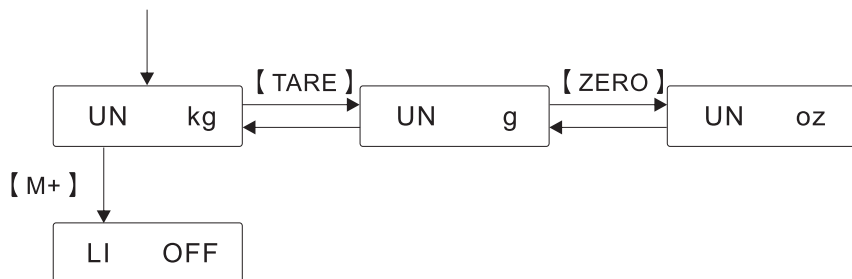
  a. Select "ZDSP x" x is the zero display range parameter.

  b. Press [TARE] or [ZERO] to select the value..

c. Press [M+] to confirm the revised value or press [UNITS WEIGHT] to cancel the revision and exit the function setting.

```
                    【 TARE 】              【 ZERO 】
   ┌──────────────┐          ┌──────────────┐          ┌──────────────┐
   │ ZDSP     1   │ ◄──────► │ ZDSP     6   │ ◄──────► │ ZDSP     1   │
   └──────────────┘          └──────────────┘          └──────────────┘
 【 M+ 】
   ┌──────────────┐
   │ UN    ON     │
   └──────────────┘
```

4.5. Selection of Unit

The setting is for the selection of unit when turn on the scale. The units of kg, g, lb and oz are selectable. The default value is set as "Kg". The details are shown as follows:

  a. Select "UN xx". xx is the unit of the weight.

  b.. Press [TARE] or [ZERO] to select the required unit.

  c. Press [M+] to confirm it. The weight will be this set unit when it is turned on again. Press [UNITS WEIGHT] to cancel the revision and exit the function setting.

```
                    【 TARE 】              【 ZERO 】
   ┌──────────────┐          ┌──────────────┐          ┌──────────────┐
   │ UN    kg     │ ◄──────► │ UN    g      │ ◄──────► │ UN    oz     │
   └──────────────┘          └──────────────┘          └──────────────┘
 【 M+ 】
   ┌──────────────┐
   │ LI   OFF     │
   └──────────────┘
```

5. Quantity check alarming:

Quantity check mode:
The mode is set in the user setting and the selectable modes are as follows:
Mode1: If the weight is over the set upper limit, the machine will give a short beep. If the weight is over the below the lower limit, the machine will give a long beep. If the weight is between the upper and lower limit(which includes the upper and lower limit value), there is no alarming beep.
Mode2: If the weight is between the upper and lower limit(which includes the upper and lower limit value), there is long alarming beep. Otherwise, there is no alarming been.
Quantity check setting:
a Press [QUANTITY CHECK] to enter the quantity check setting and the display shows "L 0".
b Key the lower limit value and press [Quantity Check] to enter the next step and the display shows "H 0"
c Key the upper limit value and press [Quantity Check] to confirm and back to the weighing mode. The quantity check setting is finished.

6. Simple counting

1)Number setting: (in case of the unknown unit weight)
a. Place the certain numbers of samples on the pan
b. Key the number of the samples and press [Sample] to finish it.
c. The machine will show "CALL—" one second, then will show the unit weight one second, which means that the sampling is finished. And the machine shows "C x.x". x.x is the number of samples. Then it is ready for counting the samples.
2) Unit weight setting (in case of unit weight is already known):
a. Key the unit weight of the samples
b. Press [UNIT WEIGHT] to finish the setting
c. The machine will show "CALL—" for one second, then will show "C 0". Then it is ready for counting the samples.
Note: Press [UNITS] to check the current unit weight in the counting mode.

7. Accumulation:

a) Press [M+] key in the weighing mode, and it would calculate the weight and display the total value. And the display will show "ACC xx". Xx is the accumulated times. The machine will return to weighing mode in 1 second.
b). Repeat the above steps to proceed muti-accumulation. The max times can be 99.

8. Accumulation Check

a). In the weighing mode, press [TOTAL] to enter the checking mode of accumulation. The display will show "ACC xx". xx is the accumulated times. The display will show the total accumulated weight in 1second. and will be back to the normal weighing mode in 5seconds.

b) Press [TOTAL] to be back to the weighing mode immediately.

c).Press [CE] to clear the accumulated times and weight.

9. Percentage

a. In the weighing mode, put the weight on the pan till it is stable and press [%] to enter the mode of percentage. The machine shows "P 100", which means that it is the full weight i.e. 100%.

b. Remove the weight from the pan and put on different less weight on the pan, the display will show different percentage. It shows "P xx.x". xx.x means different percentage of the total weight. xx.x%.

Note: The function is valid only when the weight on the pan is over 10d. The resolution is 0.1%.

4.0 User setting

In weighing mode, hold both [CE] and [Zero] to shift to user setting mode. The display shows the current selecting items and selecting value. The function of selecting items is as follows:

4.1 Selection of Anti-shake

In order to get faster responding speed or higher weighing stability, the setting can be revised, shown as the figure. The selection for anti-shake parameters is 1-6. The bigger the value is, the higher the weighing stability is and the slower the responding speed is and vice versa. The default value is set as "1". The details are shown as follows:

a. Enter the user setting and the display shows "FILT x", x is the anti-shake parameter.

b. Press [TARE] or [ZERO] to select the value..

c. Press [M+] to confirm the revised value or press [UNIT WEIGHT] to cancel the revision and exit the function setting.

【TARE】 【ZERO】
FILT   1 → FILT   6 → FILT   1
【M+】
STAB   1
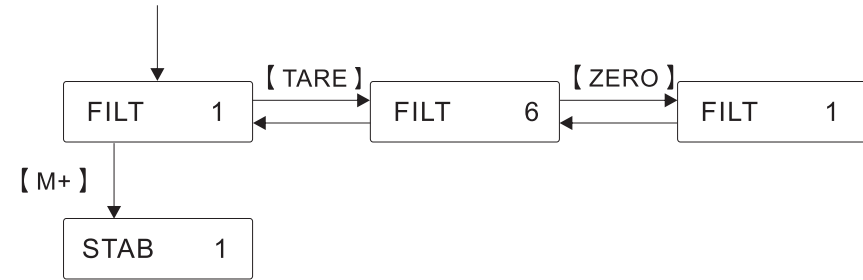
4.2 Selection of Stable Range

The stable range parameter is 1-6. The default value is set as "2". The bigger the value is, the faster the stable speed is. The details are shown as follows:

a. Select "STAB x" x is the stable range parameter.

b. Press [TARE] or [ZERO] to select the value..

c. Press [M+] to confirm the revised value or press [UNITS WEIGHT] to cancel the revision and exit the function setting.

【TARE】 【ZERO】
STAB   1 → STAB   6 → STAB   1
【M+】
ZTRC   1
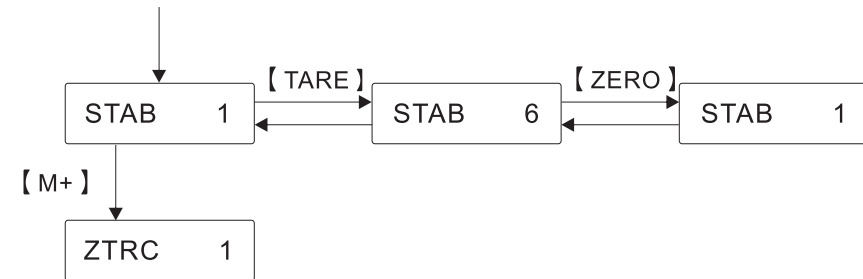
4.3 Selection of Zero Tracking Range

This is for zero tracking range selection in the weighing mode. There are 1-6 parameters selectable. The default value is set as "3". The details are shown as follows:

a. Select "ZTRC x". x is the zero tracking range parameter.

b. Press [TARE] or [ZERO] to select the value..

c. Press [M+] to confirm the revised value or press [UNITS WEIGHT] to cancel the revision and exit the function setting.

【TARE】 【ZERO】
ZTRC   1 → ZTRC   6 → ZTRC   1
【M+】
ZDSP   1