Weighing Indicator User and Service Manual

Model: SWB6

Please read this manual carefully before operation
----Important Safety Information
----Warranty

GRAVITY MEASUREMENT, INC.

Important Safety Information

READ ALL INSTRUCTIONS BEFORE USING SCALES TO ENSURE MAXIMUM SAFETY, BEST PERFORMANCE, AND TO GAIN KNOWLEDGE OF OUR SCALE, IT IS ESSENTIAL THAT YOU OR ANY OTHER OPERATOR OF THE SCALE READ AND UNDERSTAND THE CONTENTS OF THIS MANUAL BEFORE OPERATING THE DEVICE.

When using an electrical device, basic precautions should always be followed, including the following:

1. Please use only the original power cord or DC adapter supplied with the scale. Other cords or adapters may damage the scale.
2. DC adaptor is only used to charge the battery. The scale can operate without DC adaptor.
3. Avoid using long power extension cords – this may cause interference
4. Do not use the electrical device on surfaces or in areas where vibration, air movement or temperature change. Do not place the device in direct sunlight or near air conditioning vents.
5. Avoid high humidity (greater than 80%) that might cause condensation, and keep the electric device away from direct contact with water and other corrosive chemicals.
6. Static may influence the result of the weight. To reduce the static, wipe the pan and scale with anti-static wipes.
7. Don't impact or drop heavy objects on the scale – this may affect accuracy, or cause damage. Do not stack material on the scale when it is not in use.
8. Battery should be removed if the scale is not used for a long period of time. Battery should be recharged every 3 months.
9. Place items to be weighed as close to center of the pan as possible
10. Only use fingers to operate the keypad. Do not press the keypad with hard or sharp objects.

Warranty

Gravity Measurement, Inc. (Schenectady, New York) offers one-year limited warranty (parts and labor) for the components failed due to defects in materials or workmanship. Warranty starts from the date of delivery.

During the warranty period, should any repairs be necessary, the purchaser must inform its supplier or Gravity Measurement. The company or its authorized technician reserves the right to repair or replace the components at any of its workshops depending on the severity of the problems. However, any freight involved in sending the faulty units or parts to the service center should be borne by the purchaser.

The warranty will cease to operate if the equipment is not returned in the original packaging and with correct documentation for a claim to be processed. All claims are at the sole discretion of Gravity Measurement.

This warranty does not cover equipment where defects or poor performance is due to misuse, accidental damage, exposure to radioactive or corrosive materials, negligence, faulty installation, unauthorized modifications or attempted repair or failure to observe the requirements and recommendations as given in this User Manual. Additionally, rechargeable batteries (where supplied) are not covered under warranty.

Repairs carried out under the warranty does not extend the warranty period. Components removed during the warranty repairs become the company property.

## What is inside Box

AC/DC adaptor (110V)

SWB6 indicator

Two wire seals. The wire seal is used usually by the inspector of Department of Weight and Measure or authorized dealer. The wire seal is threaded through a metal rode that protrudes through the bottom of the device and also through a hole in the scale base adjacent to the metal rode.

Set up the Scale

Place the scale on a stable, level surface out of the way of air currents. The scale must be level during use. Adjust the feet and use the integrated bubble at the front of the scale to achieve level. Be sure that scale does not rock back and forth. Ensure no weight is on the pan when turning on the scale. Scale is operated using the rechargeable battery. AC adaptor is used to charge the battery, and scale can operate without DC adaptor.

LCD Display
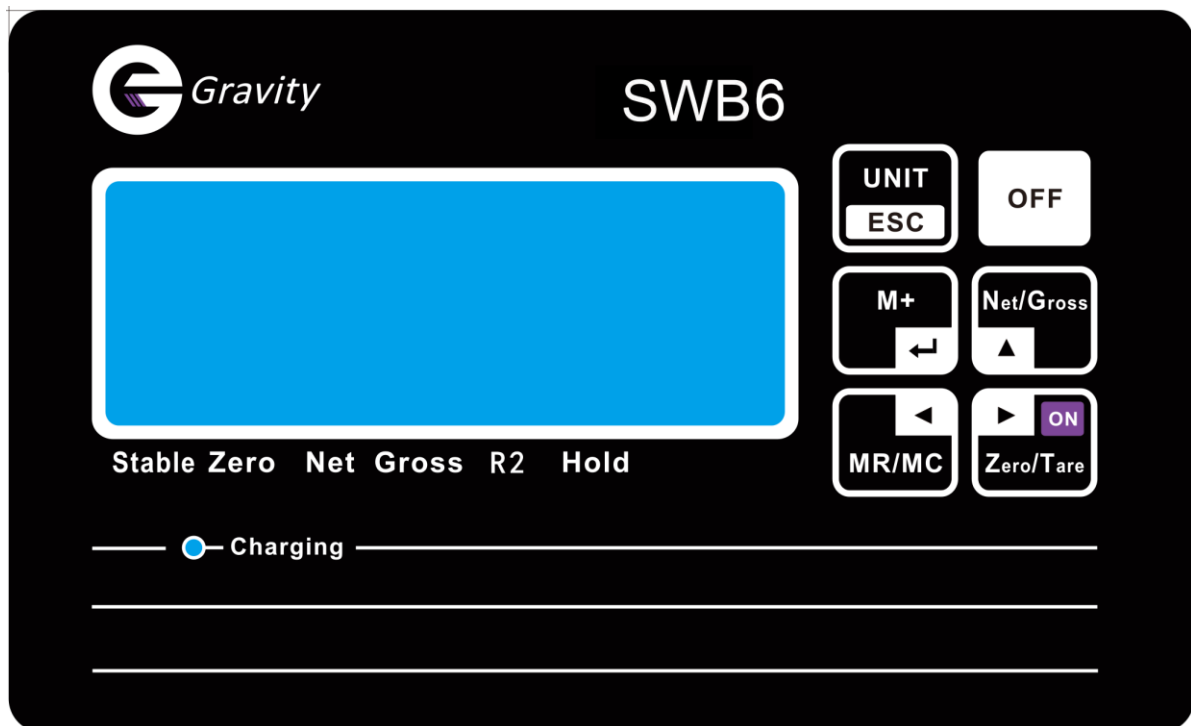
KEY DESCRIPTION

Switch on / Zero/Tare / Move right (parameter setting). 【ON/T】in the manual

Accumulation review/ Remove accumulation / Move left. 【MR/MC】in the manual.

Net/Gross weighing / Increasing digits. 【N/G】in the manual
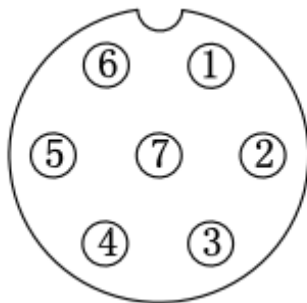
Accumulating / Printing / Enter. 【M+】in the manual

Unit Exchange / Exit the programming mode. 【UNIT/ESC】in the manual
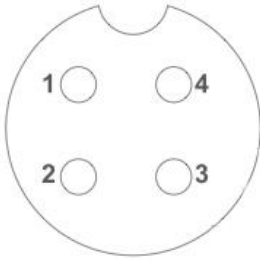
Switch off. 【OFF】in the manual

CONNECTIONS

Connection of the load cell to indicator

INDICATOR		LOAD CELL
1	------------	+Excitation
2	------------	+Sense
3	------------	-Excitation
4	------------	-Sense
5	------------	+Signal
6	------------	(GND) shield
7	------------	-Signal

Connection of RS232 to PC or Printer

```
INDICATOR        PC/PRINTER
    1    ------------    RXD
    2    ------------    TXD
    3    ------------    GND
    4    ------------    NC
```

BASIC OPERATIONS

Make sure that the equipment is connected correctly, and parameters set right. In addition, the scale has already been calibrated by professionals or local authority.

1 Switch on and switch off

Press 【ON/T】 to turn on the indicator
Press 【OFF】 for 2 seconds to turn off the indicator

2 Zero/Tare

1 If the display is not zero after power on, press【ON/T】to zero the scale (< 2% F.S.).

2 Weigh with a container by putting it on the scale (>2%F.S.) and press【ON/T】to subtract the weight of the container.

3 Remove the tare. Remove the container and press 【ON/T】 to clear the tare value and zero the scale.

3 Net/Gross Weighing

With the container on the scale (tare operation made), press 【G/N】 to display the gross weight or net weight

4 Accumulating

Put the first commodity on the scale and after the weight stable, press 【M+】 to accumulate the weight, it will display the accumulating time - -0001- and the accumulated weight for 2 seconds, remove the first commodity and put the second

commodity on the scale, press 【M+】 to accumulate it, it will display –0002- and the total accumulated weight for 2 seconds….

Note: Each weighing can be accumulated one time

5 Accumulating Recall and Clear

Press 【MR/MC】 to display the total accumulated times and the accumulated weight, it will display the total times and total weight for 2 seconds, during the display of the total accumulated weight, press 【MR/MC】 again to clear the accumulated values.

6 Units Exchange

Press 【UNIT/ESC】 to exchange the weight units (Kg/ Lb)

Use SWB6 as a weighing scale
SWB6 is set to use as a weighing scale by default.

Use SWB as a counting scale
Press 【UNIT/ESC】 to select PCS to use as a counting scale. LCD display shows 0 Pcs. Put your objects on the scale and use 【N/G】 to select corresponding number as 10, 20, 50, 100, and 200. Next, press enter key to confirm. Put new objects on the scale and the number will be shown on the display.

Check Weighing is performed by setting UF-2 (See below)

User Functions (UF1 -- UF9)

Press 【M+】 key and 【ON/T】 at the same time, it will display *UF-1*, press 【ON/T】 (right arrow key) or 【MR/MC】 (left arrow key) to upward or downward from *UF-1* to *UF-12* .Press 【M+】 to enter and configure it. Press 【N/G】 (up arrow key) to change the values (0-12)

"✲" This flag indicates that the function is locked when "Approval Version".

Table: List of User Functions

Display	Function	Description
UF-1	Internal value/ display battery voltage	Press 【M+】 key view internal A/D value of the scale, such as *39714*. Press 【M+】 key again to display the voltage of the battery *bAt 6.2*. Press 【UNIT/ESC】

to quit and back to normal weighing mode.

UF-2	Hi/Lo/OK check weigh function	Press 【M+】 to set the Lo value (the lower limitation) **0000.00L** *lb*. Use arrow left and right to move the digit and up key to change the value. Press 【M+】 to set the low value (the low limitation). Repeat this to set the high limit. Press 【M+】 to change the options of buzzer of Hi/Lo/Ok. The default setting is **o 002** *Remark* **o 000** **o ABC** A=0 Stable but no need to buzz A=1 Stable to buzz B No function, keep it at zero C=0 Buzzer off C=1 It beeps when the weight is ok (Lo<weight<Hi) C=2 It beeps when the weight is out of range (weight< Lo or weight>Hi) ● Low limit set as 0 will clear all check weigh values. ● This function is locked when *UF-5* is set as "*HoLd 1*"
UF-3	Auto power-off	Press【M+】key to enter，**AoFF 10** (factory default, 00 means auto power-off is off). Use up arrow key to change auto power-off time in minutes. Use left or right arrow keys to change the digits. Press the【M+】 key to confirm.
UF-4	Backlight	Press【M+】key to enter. Use 0 ~2 keys to select backlight mode **L it A**：Auto (factory default) **L it on**：backlight on **L itoFF**：backlight off。 Press 【M+】key to confirm.
UF-5*	Hold Function (animal weighing)	Press【M+】key to enter. Use up arrow key to select hold conditions. Press the 【M+】 key to confirm： **Ho ld 0** (factory default) 0 --- Deactivated 1 --- Animal weighing (refer to remark below) 2 --- Peak hold (press any key to exit except for【M+】key) 3 --- Stable hold (press any key to exit except for

【M+】 key)
4 --- Stable hold (exit automatically when the weight is removed)

Remark
When choose hold = 1, it need to set the following two parameters:
1: Number of Pieces (PCE) ▉PCt0 10▉
The number ranges from 001 to100, the bigger number means more accurate weight, but longer weighing time, the smaller number means fast weighing (shorter stabilizing time) but not so accurate result. It can be chosen depending on the weighing condition of the scale.
2: Number it can repeat during the holding period
▉t inE 2▉
it can be 1/2/4/8/16/32/64

UF-6	RS-232 output	Press【M+】key to enter. Use up arrow keys to select RS232 format from 0 to 13. Press【M+】key to confirm, and show ▉b 9600▉ Use up arrow key to select the baud rate and【M+】key to confirm.
	Modes	
	▉232 0▉	RS232 disabled
	▉232 1▉	Stable output format 1
	▉232 2▉	Stream output format 1
	▉232 3▉	Keyboard (M+ key) output format 1
	▉232 4▉	Stable Output format 2
	▉232 5▉	Steam Output format 2
	▉232 6▉	Keyboard (M+ key) output format 2
	▉232 7▉	Accumulated output format 3
	▉232 8▉	Auto-accumulation output format 3
	▉232 9▉	Accumulated output format 4
	▉232 10▉	Auto-accumulation output format 4
	▉232 11▉	LP50 printer is used
	▉232 12▉	
	▉232 13▉	
	Baud Rate	
	▉b 1200▉	Baud rate: 1200
	▉b 2400▉	Baud rate: 2400
	▉b 4800▉	Baud rate: 4800
	▉b 9600▉	Baud rate: 9600
	▉b 19200▉	Baud rate: 19200

Remarks:

Format 1 output example :

ST, GS, +   1.0001b

Format 2 output example :

+   1.0001b

Format 3 output example :

```
S/N     WT/1b
_____

0001      2.205
0002      2.205
_____

0002      4.410
```

Format 4 output example :

```
TICKET NO.0001
G         3.0001b
T         1.0001b
N         2.0001b


TOTAL NUMBER
OF TICKETS 0001
TOTAL
NET       2.000
```

Format 3 and format 4 if you want to print the total

weight, press 【M+】 key twice, and the accumulative

weight will be removed

Detailed information for formats 1-4 is only available in
Service Manual Appendix

UF-7∗	A/D update rate	Press 【M+】 key to enter. Use up arrow key to select one of the following:

SPEEd 1 : Standard speed (factory default)

SPEEd2 : Fast speed

SPEEd3 : Slow speed

The faster response, the more time for stability. The
slower speed, the shorter time for stability. Press
【M+】 key to confirm, and press 【UNIT/ESC】 key to
exit.

UF-8∗	Display condition at zero/ Zero tracking	Press 【M+】 key to enter. Use up arrow key to select one of the following:

2P   0 :   deactivated.

2P   1 :   1 division (e) not to display at zero (factory
          default)

2P   2 :   2 division not to display at zero

2P   3 :   3 division not to display at zero

`2P   4`： 4 division not to display at zero

`2P   5`： 5 division not to display at zero

Press 【M+】 key to confirm.

Example: For 1e zero track (if e= 20 g), the scale will show 0 until it's more than 20 g (1e).

UF-9   G-value   Press 【ON/T】【MR/MC】【N/G】to move and change the digits. Press 【M+】to enter the set of local gravity and change it accordingly- `9.79423`

Advanced Function (Service Manual)

Warning: The following functions are only for trained scale dealers and distributors, not for the end users.

For end users, do not modify it by yourself. Please consult our distributors or your local authorized metrology workers. Wrong operation may cause the compliance issue or wrong performance of the scale.

Display the version number

Keep pressing the【M+】key (not release) and turn on the indicator, after the finish of self-checking it will display the version number - `100911`, Release the 【M+】key and the indicator will turn off automatically.

Configuration

Keep pressing the【ON/T】key (not release) while turning on the indicator. After self-checking finishes, it displays `P 0000`. Input the password `P 0020`, and then press 【M+】to enter the parameter setting mode

*Press【ON/T】key or【MR/MC】key to shift between functions LF-1 ~ LF-8.

*Press 【ON/T】【MR/MC】【N/G】to move and change the digits

*Press 【UNIT/ESC】to quit and the indicator will restart for normal weighing mode

Approval Calibrations and Functions Setup (Lock section):

`LF1`   Weight Calibration

`LF2`   Parameter Setting

`LF3`   Linearity Calibration

`LF4`   A/D Converting Speed

LF5   Zero Tracking
LF6   Approval Version
LF7   Gravity Adjustment
LF8   Zero

CAL switch has to be ON
Password required when CAL switch is OFF

LF1   Weight Calibration

Press【M+】key to enter zero calibration **CAL2**   .
Make sure nothing on the platform of the scale and press 【M+】to finish zero calibration
Display the full capacity **0300.00** lb
Full capacity weights recommended for calibration of the scale, or at least 60% F.S. to assure the accurate weighing, it's not allowed to do with 1% F.S weight or more than 100%F.S.weight.
Change the display value to be the same as the test weight.
Press 【M+】, the digits will twinkle
Place the test weights on the platform (example of 300 lb)
Press【M+】until the indicator recognizes the weight correctly.
Finish of calibration.

LF2   Parameter Setting

Press【M+】key to enter parameter setting mode and it will display the internal A/D value (not fixed).
Press【M+】key to set the weight units **110002** (both kg and lb units are enabled with calibration using unit lb)
110002
ABCDEF

A   0= disabled   1=Kg 2=Ton   3=g
B   0= disabled   1=lb   2=lb/oz
C   0= disabled   1=TW Kg   2=HK kg   3=VISS
D   0= disabled   1=PCS off   2=PCS ON
E   0= disabled   1=Multi interval   2=Multi range
F   1=Calibration In Kg 2=Calibration in lb

Press【M+】key to set the capacity of the scale (e.g.300 lb) **030000**
Press【M+】key to set the decimal point **dP   0.00**

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Using【ON/T】key or【MR/MC】key to shift it from 0.0 until 0.00000

Press【M+】key to set the division **d.ᵁ 01**

Using【N/G】key to shift it between 01/02/05/10/20/50

The above setting indicates a maximum capacity of 300 lb, with a minimum of 0.01 lb. (division=30000). After you set the LF2, indicator automatically resets to LF1 for weight calibration.

LF3 Linearity Calibration

Press【M+】key to set the linearity calibration **11 0**

Press 【ON/T】key to enter next step **11 1**

Put 1/3F.S. test weight and press【ON/T】to enter next step **11 2**

Put 2/3F.S. test weight and press【ON/T】to enter next step **11 3**

Put 100%F.S. test weight and press【ON/T】to enter next step **11 4**

Press 【M+】key to exit and back to **LF-3**

LF4 A/D Converting Speed

The same operation as Weighing Speed

*It was blocked when UF-5 set of HOLD 1

*1=15Hz 2=30Hz 3=7.5Hz

LF5 Zero Tracking

The same operation as **UF 8** Zero Track

*It was blocked when **UF-5** set of HOLD 1(animal weighing)

LF6 Type Approval

nonE is for non-certified scales, and **o.ᵁL** is for NTEP (United States) or OIML (Europe)

LF7 Gravity Adjustment

The same operation as **UF 9** Gravity Adjusting

LF8 Zero

Press【M+】key to set the initial zero function **SEt2 Y**

Y Reset of the zero point each time when the scale switches on

n Disable resetting zero when switching on the scale

Error Messages and Troubleshooting

Error Display	Meaning	
hhhhhh	Overload	Weight on pan exceeds maximum capacity
LLLLLL	Weight is too low	Weight is too low at the negative
------	Price is out of range	Total price exceeds 999999
Err n	Weight unstable	Vibration or varying load on the pan during switch-on
Err H	Initial zero too high	Scale turned on with weight > 10% of maximum capacity already on the pan
Err L	Initial zero too low	Scale turned on with upward force > 10% of maximum capacity acting on the pan
Battery symbol visible	Battery voltage is lower than 5.6 V	Battery neds charging. Connect to main adaptor. Press 【 T 】 and 【 6 】 together to view battery voltage. Press 【CE】 to return to weighing mode
Battery symbol flashing	Battery voltage is lower than 5.5 V	Battery needs charging. Connect to main adaptor
Scale automatically shuts off	Battery voltage is lower than 5.4 V	Battery needs charging. Connect main adaptor

Accessory and Spare parts
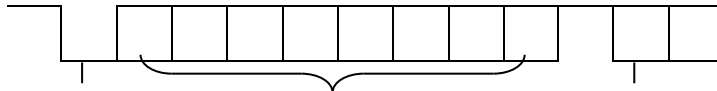
Appendix

Format 1 2 3 4

Communication Protocol

UART signal of EIA-RS232 C

Data Format：

1. Baud Rate: 2400 / 4800 / 9600/19200/38400 BPS

    2. Data Bit: 8 BITS
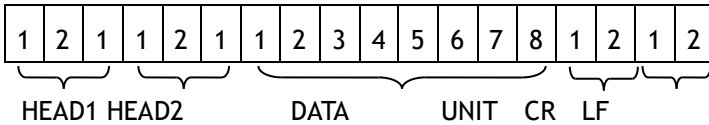
    3. Parity Bit: None
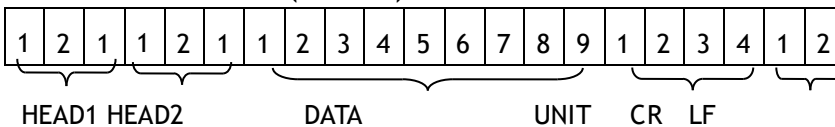
    4. Stop Bit: 1 BIT

Start BitData BitStop Bit

Format1 (232 1 ~ 3) :

HEAD1 (2 BYTES)		HEAD2 (2 BYTES)	
OL	- Overload		
ST	- Stable	NT	- Net Weight
US	- Unstable	GS	- Gross Weight

Fixed18 BYTES ASCII   (kg g t lb)

1	2	1	1	2	1	1	2	3	4	5	6	7	8	1	2	1	2

HEAD1 HEAD2   DATA   UNIT   CR   LF

Fixed21 BYTES ASCII   (tl.Tlboz)

1	2	1	1	2	1	1	2	3	4	5	6	7	8	9	1	2	3	4	1	2

HEAD1 HEAD2   DATA   UNIT   CR   LF

Fixed19 BYTES ASCII   (pcs)

1	2	1	1	2	1	1	2	3	4	5	6	7	8	1	2	3	1	2

HEAD1   HEAD2   DATA   UNIT   CR   LF

Output examples :

1. Example +0.876 kg Stable net weight :

S	T	,	N	T	,	+	0	0	0	.	8	7	6	k	g	0D	0A

2. Example -1.568 lb unstablegrossweight :

U	S	,	G	S	,	-	0	0	1	.	5	6	8	l	b	0D	0A

3. Example+ 1.15.40TaiwanJinStable net weight:

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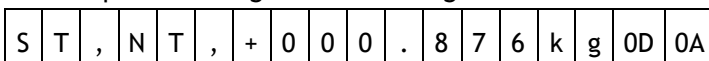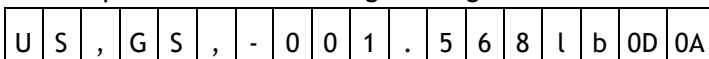
S	T	,	N	T	,	+	0	1	.	1	5	.	4	0	t	l	.	T	0D	0A

4. Example -20. 5.40 lb oz unstablegrossweight:

S	T	,	G	S	,	-	1	0	.	0	5	.	4	0	l	b	o	z	0D	0A

5. Example +1000 pcsstable net weight :

S	T	,	N	T	,	+	0	0	0	1	0	0	0	p	c	s	0D	0A

Format 2 (232 4 ~ 6) **:**

Fixed12 BYTES ASCII (kg g t lb)

1	2	3	4	5	6	7	8	1	2	1	2

DATA   UNIT   CR   LF
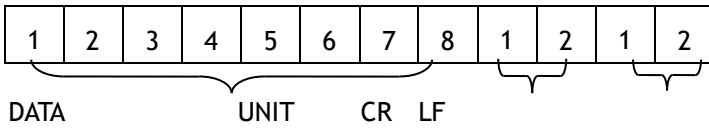
Fixed15 BYTES ASCII (tl.Tlboz)

1	2	3	4	5	6	7	8	9	1	2	3	4	1	2

    DATA   UNIT   CR   LF

Fixed13 BYTES ASCII (pcs)

1	2	3	4	5	6	7	8	1	2	3	1	2

 DATA   UNIT   CR LF
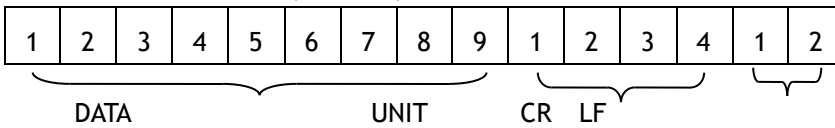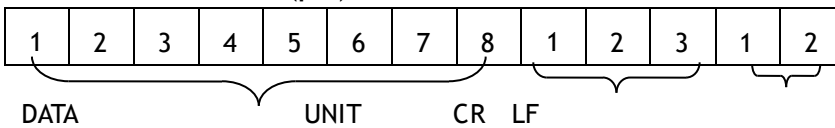
Output examples :

1. Example +0.876 kg stable net weight :

+	0	0	0	.	8	7	6	k	g	0D	0A

2. Example -1.568 lb unstablegrossweight :

-	0	0	1	.	5	6	8	l	b	0D	0A

3. Example+ 1.15.40TaiwanJinStable net weight:

+	0	1	.	1	5	.	4	0	t	l	.	T	0D	0A

4. Example -20. 5.40 lb oz unstablegrossweight:

-	1	0	.	0	5	.	4	0	l	b	o	z	0D	0A

5. Example +1000 pcsstable net weight :

+	0	0	0	1	0	0	0	p	c	s	0D	0A

※ *Factory default : 232 0 - RS232 OFF*

Format3 (232 7-8) :

Printing Output

S/N   WT/Kg   S/N   WT/pcs

0001	*85.5*	*0001*	*15*
0002	*75.2*	*0002*	*20*
--------------		--------------	
0002	*160.7*	*0002*	*35*

Format4 (232   9-10) :

Printing Output

TICKET No. 0005		*TICKET No.0005*	
G	*5.2Kg*	*G*	*5pcs*
T	*1.2Kg*	*T*	*0pcs*
N	*4.0Kg*	*N*	*5pcs*
TOTAL NUMBER		*TOTAL NUMBER*	
OF TICKETS 0005		*OF TICKETS 0005*	
TOTAL		*TOTAL*	
NET 4.0		*NET 5*	

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