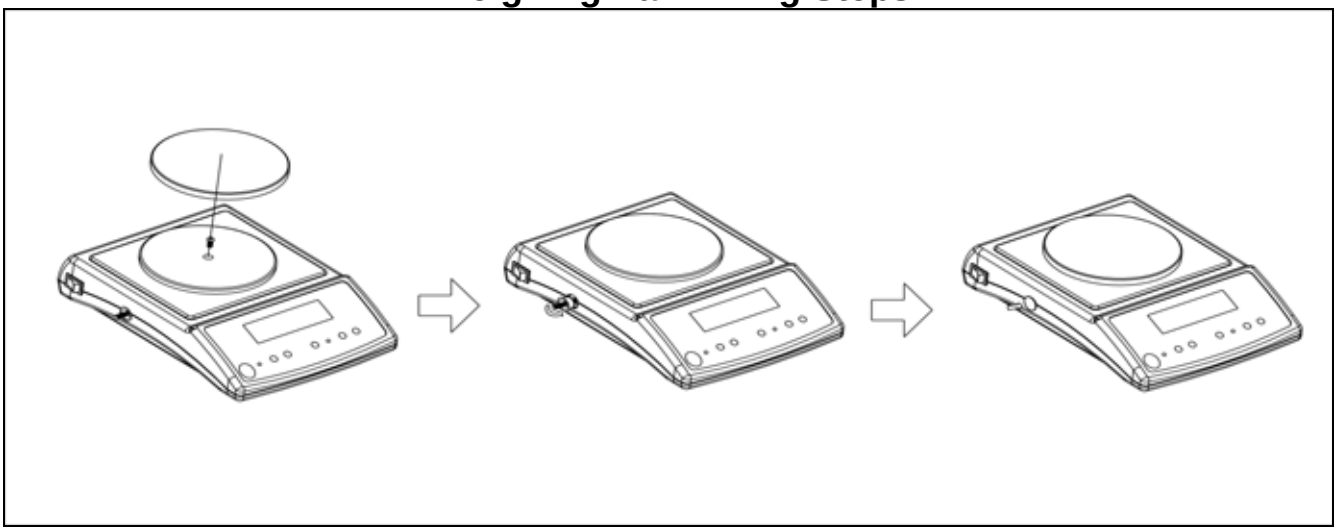
Contents

Weighing Pan Fixing Steps



1. When installing the weighing pan, tighten the fixing screw in the centre of the plastic weighing pan.

2. Unscrew and remove the shipping protection screw on the side of the scale.

3. After removing the shipping protection screw on the side of the scale, fasten the shipping protection buckle.

Protection Device Disassembly Steps

1. In the upright position, locate the shipping protection screw device on the left side of the scale.

2. Before using the scale, unscrew counterclockwise and remove the shipping protection screw.

3. Before transporting the scale, hold the shipping protection screw down inwards and tighten it clockwise.

Precautions

1. Please pay attention to the environment when performing weight calibration on the scale. Avoid wind blow and vibration.

2. Use of wrong batteries or wrong wiring may cause danger.

Descriptions of Keys

ON/OFF:	The on/off key for switching on/off the equipment.
ZERO:	The zero key for resetting the equipment, functional only when weight is within 4% of the weighing capacity.
TARE:	The tare key for deducting the weight of container on the weighing pan.
MODE:	The switching key to select weighing, counting and percentage modes in turn.
UNIT:	Weighing units switching key. (13 kinds of units)
SMPL:	In the weighing mode, the key is for switching on/off backlight; in the counting and percentage modes, the key is for sampling, by pressing which, you may select sample size of 20, 50, 100, 200 or 500 in turn.

Functional Operation of Keys

Weighing:

Press「**ON/OFF**」key, the screen will have full display and start counting down. When the screen displays 0.00 X, you can start weighing. If you need backlight, press「**SMPL**」key.

Counting:

Press「**MODE**」key, the screen will show XXXX pcs, then press 「**SMLP**」 key, and the screen will show S= 20pcs. You may select sample size of 20, 50, 100, 200 or 500 in turn by pressing「**SMLP**」in succession. After selection, put the sample on the weighing pan and start counting operation when you hear a beep sound. (Automatic averaging function is provided for simple counting)

Percentage:

Press「**MODE**」key, the screen will show XXXX %, then press 「**SMLP**」key, and the screen will show S= 20 %. You may select sample size of 20, 50, 100, 200 or 500 in turn by pressing「**SMLP**」in succession. After selection, put the sample on the weighing pan and start using the percentage function when you hear a beep sound.

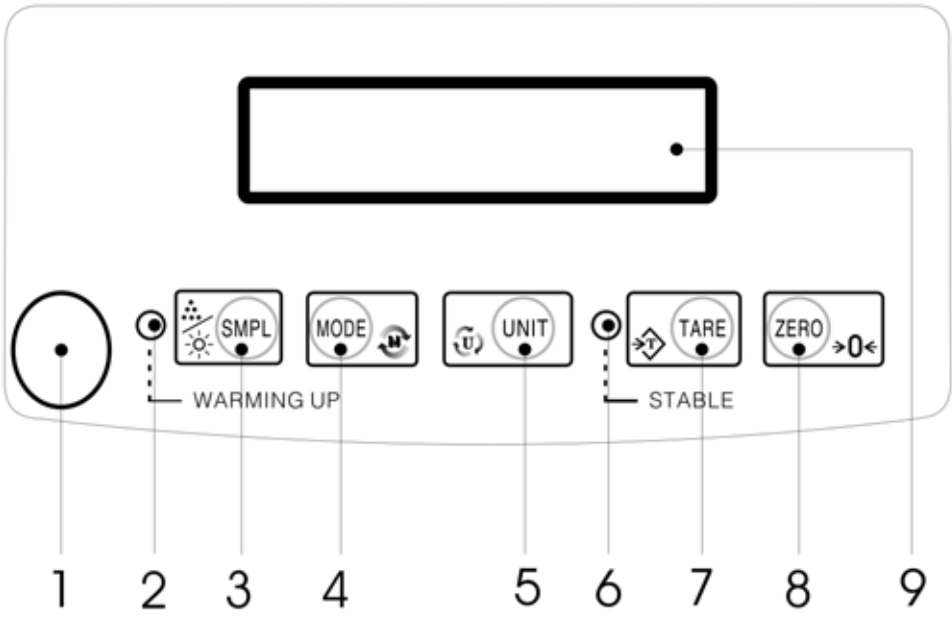
Notes:

1. Min. unit weight of sample >=1 readability (e.g.: unit weight of sample of 300g is at least bigger than 0.01g)

2. When weight is unstable, the **STABLE** indicator will go off.

3. After warming up the machine, the **WARMING** indicator will go off.

Panel Illustration



1	**Level**	**6**	**Stable indicator**
2	**Warming up indicator**	**7**	**Tare key**
3	**Sampling/Backlight key**	**8**	**Zero key**
4	**Function selection key**	**9**	**Weight display window**
5	**Unit conversion key**		

Single Point Calibration of Weight

Step 1: Power off while holding down 「**MODE**」key, and then press 「**ON/OFF**」to switch on the scale. The screen will show the following:

Count

Step 2: Press the 「**MODE**」key, the screen will show the following:

CAL

Step 3: Press the 「**UNIT**」key to start zero point calibration. Make sure there is nothing on the weighing pan. The screen will show the following:

ZEro

Please wait for the screen to show:

CAL-S

Place 1/3 of load onto the pan, the screen will show:

on1

Place 2/3 of load onto the pan, the screen will show:

on2

Place full load onto the pan, the screen will show:

on3

Step 4: Place weights of equivalent weight onto the pan, wait for a beep sound and the screen will show:

PASS

Step 5: Press 「**MODE**」and then press 「**SMPL**」, the screen will show:

busy

Step 6: After countdown, the single point calibration is completed and the scale returns to the normal weighing mode.

Linearity Calibration of Weight

Step 1: Power off while holding down「**ZERO**」**and**「**TARE**」keys, and then press「**ON/OFF**」to switch on the scale. The screen will show the following:

L-CAL

Step 2: Clear the weighing pan, then press 「**TARE**」and the screen will show the following: (zero point calibration)

on0

Step 3: Wait for a beep sound and the screen will show the following:

on1

Step 4: Place 1/3 of load on the weighing pan and press 「**TARE**」to perform 1/3 load calibration. Wait for a beep sound and the screen will show the following:

on2

Step 5: Place 2/3 of load on the weighing pan and press 「**TARE**」to perform 2/3 load calibration. Wait for a beep sound and the screen will show the following:

on3

Step 6: Place full load on the weighing pan and press 「**TARE**」to perform full load calibration. Wait for a beep sound and the screen will show the following:

PASS

Step 7: Clear the weighing pan, then press 「**TARE**」and the screen will show the following:

busy

Step 8: After countdown, the linearity calibration is completed and the scale returns to the normal weighing mode.

Parameter Setting

Hold down 「**MODE**」 key, then press 「**ON/OFF**」 key to enter the setting mode. The screen will show **Count** :

「**MODE**」**key:** To select functions;

「**UNIT**」**key:** To enter or exit function setting selection;

「**SMPL**」**key:** To end setting.

LCD Display 「**MODE**」**key**	*Function*	*Selection* 「**UNIT**」 **key**	*Selection* 「**SMPL**」**key**	*Page*
Count	Internal value display			Item 1, Page 5
↓				
CAL	Single point auto calibration			Page 3
↓				
unit	Weight unit selection	g、ct、lb、oz、dr、GN、ozt、dwt、MM、tl.j、tl.T(g/m^2)、tl.H、t(oz/yd^2)、（）for plaiting purpose	ON/OFF	Item 2, Page 5
↓				
InitU	Initial weight unit selection	g、ct、lb、oz、dr、GN、ozt、dwt、MM、tl.j、tl.T(g/m^2)、tl.H、t(oz/yd^2)、（）for plaiting purpose		Item 3, Page 5
↓				
Auto	Auto power-off selection	Au-no/5/15/30/60		Item 4, Page 5
↓				
bAud	Baud rate selection	2400/4800/9600		Item 5, Page 5
ZEro	Auto zero range selection	d0/1/2/3/4/5		Item 6, Page 5
↓				
Fil	Filter selection	Fil1/2/4/8		Item 7, Page 5
↓				
LigH	Backlight selection	onoFF/oFF/ON		Item 8, Page 5
↓				
Print	Printing mode selection	Pr-St/Co		Item 9, Page 5
↓				

Pr Fu	External device	PC/ SH-24	Item 10, Page 5
↓			
diV-Z	Display range	Zero0/1/2/3/4/5	Item 11, Page 5

1. When the LCD display shows Count, press the「**UNIT**」key, the current internal value will be displayed. Press 「**UNIT**」 to return to LCD display Count.
2. When the LCD display shows unit, press「**UNIT**」 to enter into unit selection mode, the screen will show on g or oFF g, "on" means to use the current unit displayed, "oFF" means not to use the current unit displayed. Press「**SMPL**」 to switch between ON and OFF [to use the unit displayed select "on", if you do not require the unit displayed select "oFF"]. Press「**UNIT**」to select from 13 kinds of weighing units, after selecting the unit required, press「**MODE**」to return to LCD display unit.
3. When the LCD display shows InitU , press「**UNIT**」to enter initial unit selection mode. LCD display InitU xx X means the initial unit is selected. Press「**UNIT**」 to select the unit required, then Press「**MODE**」to return to LCD display InitU.
4. When the LCD display shows Auto, press「**UNIT**」 to enter the Auto Power-Off selection. LCD display XXX X means Auto Power-off selection. Press 「**UNIT**」 to select the auto power-off time, then press「**MODE**」to return to LCD display Auto. 『***Au-no-*** *means No auto power-off,* ***5-*** *means 5 minutes,* ***15-****means 15 minutes,* ***30-****means 30 minutes,* ***60-****means 60 minutes*』 (in case of instability, the auto power-off function will not work)
5. When the LCD display shows bAud, press 「**UNIT**」 to enter the RS-232 Baud Rate selection. LCD display XXX X represents the RS-232 baud rate. Press 「**UNIT**」to select the desired RS-232 baud rate, then press「**MODE**」 to return to LCD display bAud. 『***2400, 4800, 9600***』
6. When the LCD display shows ZEro, press「**UNIT**」 to enter auto zero range selection. LCD display d X X represents the auto zero range. Press「**UNIT**」 **to** select the desired auto zero range, then press「**MODE**」 to return to LCD display ZEro。『***d0, 1, 2, 3, 4, 4***』 (the higher the value is, the wider auto zero range is)
7. When the LCD display shows FiL, press「**UNIT**」 to enter filter setting mode. LCD display FiL X X means the filter level. Press「**UNIT**」 to select the desired filter level and press「**MODE**」 to return to LCD display FiL. 『***FiL1, 2, 4, 8***』 (the higher the value is, the higher the filter level is)
8. When the LCD display shows LigH, press「**UNIT**」to enter backlight setting mode. The LCD display XXXX X represents the backlight setting. Press 「**UNIT**」to select the desired backlight setting and press「**MODE**」to return to LCD display LigH。『***onoFF-*** *means auto-backlight,* ***oFF-****means backlight off,* ***ON-****means backlight on*』

9. When the LCD display shows [Print], press 「**UNIT**」 to enter printing mode selection. LCD display [Pr-XX] X represents the printing mode. Press 「**UNIT**」to select the desired printing mode and press 「**MODE**」 to return to LCD display [Print]. 『***Pr-Co-****means continuous output,* ***Pr-St*** *–means stable output*』

10. When the LCD display shows [Pr Fu], press 「**UNIT**」 to enter external device selection mode. LCD display [XXXX] X represents external device. Press 「**UNIT**」to select the desired external device, then press「**MODE**」 to return to LCD display [Pr Fu]. 『***-PC—*** *external PC,* ***SH-24 –*** *external dot matrix mini printer*』

11. When the LCD display shows [diV-Z], press 「**UNIT**」 to enter external device selection mode. LCD display [ZEroX] X represents display range. Press「**UNIT**」to select the desired external device, then press 「**MODE**」to return to LCD display [diV-Z]。『***Zero0, 1, 2, 3, 4, 5***』(means weight displayed when the weight exceeds the capacity)

12. Before entering function setting, press 「**SMPL**」to end function setting and return to normal weighing mode. Press the 「**MODE**」key continuously to select function setting modes.

Units Conversion Table

1 ct	[MET.CARAT]	=0.1999694	g
1 lb	[AVORIRDUPOIS POUND]	=453.59237	g
1 oz	[AVORIRDUPOIS OUNCE]	=28.349523125	g
1 dr	[AVOIRDUPOIS DRAM]	=1.7718451	g
1 GN	[GRAIN](U.K)	=0.06479891	g
1 ozt	[TROY OUNCE]	=31.1034768	g
1 dwt	[PENNY WEIGHT]	=1.55517384	g
1 MM	[MOMME] (JPN)	=3.749996	g
1 tl.j	[HONG KONG JEWELRY TAEL]	=37.4290018	g
1 tl.T	[TAEL](TWN)	=37.49995	g
1 tl.H	[HONG KONG TAEL]	=37.799375	g
1 t	[TOLA] (INDIA)	=11.6638038	g
1 oz/yd^2		=0.33898306	g
1 g/m^2		=0.01	g

Cross-reference Table of Full Loads

CAP	150	300	600	1500	3000
Gram	150X0.005	300×0.01	600×0.02	1500×0.05	3000×0.1
Carat	750.34X0.02	1500.70X0.05	3001.36X0.1	7503.4X0.2	15007.0X0.5
Pound(Avoir)	0.33080X0.00002	0.66160X0.00005	1.323X0.0001	3.3080X0.0002	6.6160X0.0005
Ounce(Avoir)	5.2926X0.0002	10.5855X0.0005	21.171X0.001	52.926X0.002	105.855X0.005
Dram(Avoir)	84.685X0.005	169.37X0.01	338.72X0.02	846.85X0.05	1693.7X0.1
Grain	2315.5X0.1	4631.0X0.2	9262.0X0.5	23155X1	46310X2
Ounce(Troy)	4.8240X0.0002	9.6480X0.0005	19.296X0.001	48.240X0.002	96.480X0.005

Penny weight	96.480X0.005	192.96X0.01	385.92X0.02	964.80X0.05	1929.6X0.1
Momme	40.012X0.002	80.025X0.005	160.05X0.01	400.12X0.02	800.25X0.05
Tael (HK Jewelry)	4.0088X0.0002	8.0175X0.0005	16.035X0.001	40.088X0.002	80.175X0.005
Tael (Taiwan)	4.0012X0.0002	8.0025X0.0005	16.005X0.001	40.012X0.002	80.025X0.005
Tael (Hong Kong)	3.9696X0.0002	7.9390X0.0005	15.878X0.001	39.696X0.002	79.390X0.005
Tola (India)	12.865X0.0005	25.728X0.001	51.456X0.002	128.640X0.005	257.28X0.01
oz/yd^2	442.49X0.01	884.99X0.01	1770.27 X0.01		
g/m^2	15000.5 X0.5	30000 X1	60000 X1		

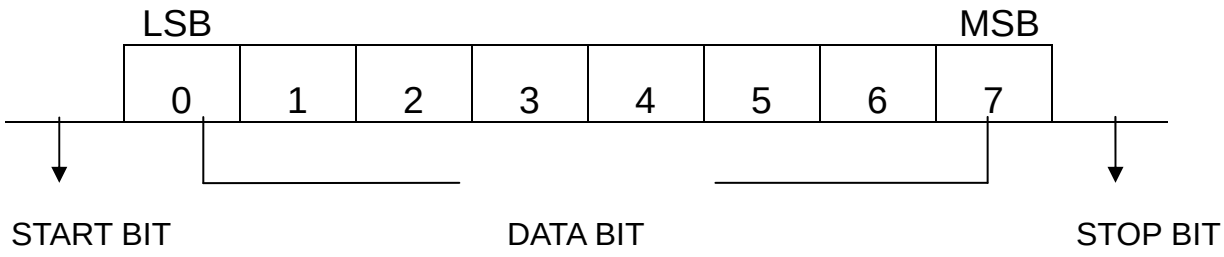
Note: Full Load = Capacity + (Readabilityx9)

RS-232 Serial Interface

The 9PIN connector at the right back is a RS-232 standard interface. Pin 3 is for output, Pin 5 is for grounding and the rest have no functions.

BAUD RATE：2400 OR 4800 OR 9600 bps
DATA BIT： 8
PARITY BIT：N（NONE）
STOP BIT：1
CODE：ASCII

BIT FORMAT：



DATA FORMAT：

S/U	T		G	W		+/-													LF	CR

SP SP WEIGHT SP UNIT

ST：STABLE
UT：UNSTABLE
GW：GROSS WEIGHT
SP：SPACE

Examples: ST GW + 150.00 g
UT NW - 80.00 ct ……..

PC Program: 10 OPEN〝COM1:9600,N,8,1,RS,DS,LF〞AS #1
(BASICA) 20 INPUT #1,A$
30 PRINT A$
40 GOTO 20
50 END