

HƯỚNG DẪN SỬ DỤNG VÀ VẬN HÀNH

Cân sức khỏe đo chiều cao

BMI-300



HƯỚNG DẪN SỬ DỤNG VÀ VẬN HÀNH Cân sức khỏe đo chiều cao BMI-300 (Do CÔNG TY CÂN ĐIỆN TỬ THỊNH PHÁT biên soạn dựa theo tài liệu của hãng cung cấp).

Cân sức khỏe đo chiều cao BMI-300 Do Công ty Cổ Phần Cân Điện Tử Thịnh Phát có trụ sở chính tại số 57 Nguyễn Văn Thương, Phường Thạnh Mỹ Tây, TP.Hồ Chí Minh nhập khẩu và phân phối.

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1.0 Introduction

- Measuring weight/height/BMI
- AC adaptor or built-in rechargeable battery
- Auto zero tracking and zeroing function; available to communicate with printer through RS232
- Sealing membrane keys
- Big LCD display and white backlight, easy to read
- Weight unit: Kg、Lb、Oz □ Height unit :cm、ft、inch;

2.0 Specification

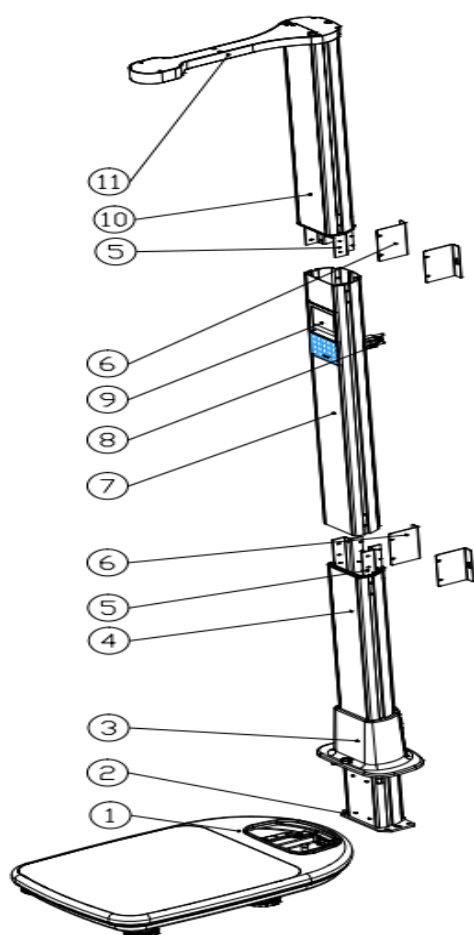
Maximum Capacity	300kg
Readability	0.05kg
Resolution	0.05kg
Repeatability (Std Dev)	0.05kg
Linearity $\pm$	0.1kg
Eccentric Loading (off-center loading)	0.1kg
Units	Unit of weight: Kg、Lb、Lb+Oz; Unit of height: cm、Inch、inch+Ft
Stabilization Time	3 seconds
Calibration	External selectable
Calibration Mass	Selectable
Height Range	80-210cm
Height resolution	1cm and 0.5cm optional
Height linear	± 1 cm
Display	3 lines- 1 for weight, 1 for height and 1 for BMI
Pan Size	430mm x 390mm
Working Temperature	0°C - 40°C / 32°F - 104°F
Power Supply	Adaptor 12VDC / 800 mA 6V 4.0AH rechargeable battery

3.0 Set Up

3.1 Notice

- Avoid to use the machine in the place with direct sunlight or with air holes; don't use the machine near the place with wind such as blower, opened door or window.
- Don't use the machine on uneven ground. The ground should be rigid and not shaking. Don't use the machine near the vibrated machinery.
- Don't use unstable power supply for the machine and don't use the machine near high power electric appliance such as welding machine and large motor.
- Don't use the machine in the place of high humidity, which may make the measuring inaccurate. Don't make the machine get wet in the rain and use the machine in the water.
- Please keep the machine clean.
- Don't stack objects on the machine when it is not used.

3.2 Installation drawing



11	Housing of Ultrasonic
10	Pole 3
9	Display
8	RS232 interface
7	Pole 2
6	Left/right pole bracket
5	Fixed plate for poles
4	Pole 1
3	Decorative cover for poles
2	Fixed bracket for poles
1	Base
S/N	Name

3.3 Display

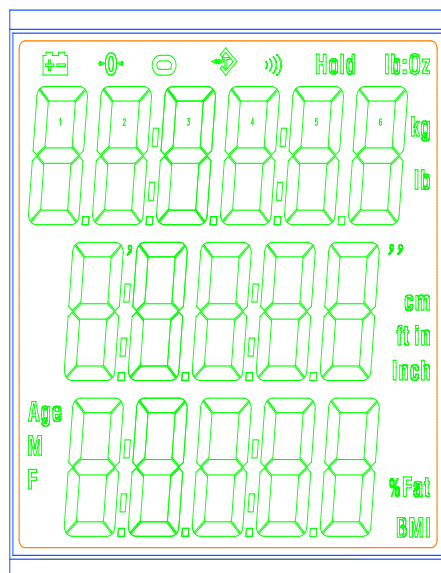


Fig1:LCD display

3.4 Keypad

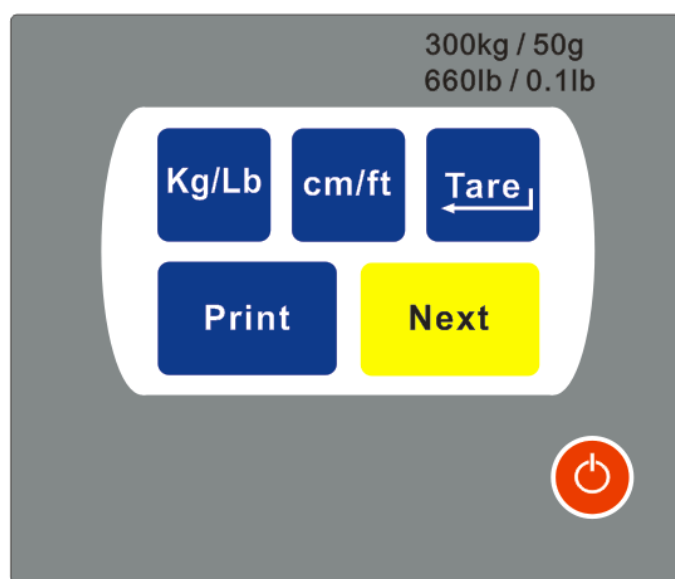


Fig2: Keypad

Form1 : Key function

Key	Basic Function	Auxiliary Function
[Kg/Lb] +	Weighing units shift	Value increasing 【+】
[Tare] ENTER	Zero	Confirmation 【ENTER】
[cm/ft] -	Height units shift	Value decreasing 【-】
[Next] →	Clear	Right shift 【→】
[Print] ←	Printing key when connecting with PC or printer	Left Shift 【←】

3.5 Battery Charging

- The machine can work with built-in rechargeable battery or AC dapator. The working time is about 12hours with backlight on when using battery.
- When the machine needs charging, there will be reminder on the LCD display. Plug in AC adaptor, there will be reminder on the left up corner showing it is during charging.

4.0 Basic Operation

4.1 Switch On

Remove the weight from the pan before switching on the machine. Press **[ON/OFF]**, CPU will warm-up for 1-2seconds and turn on. It shows the current software version number:

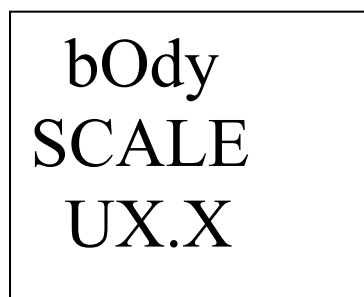
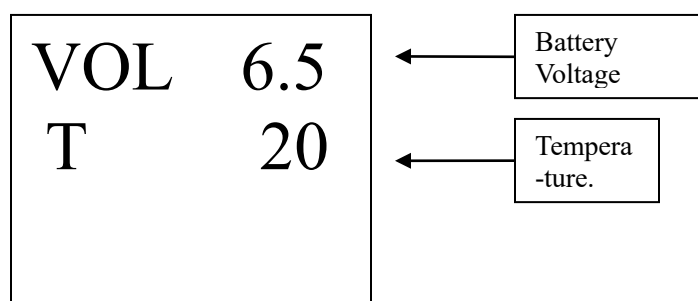
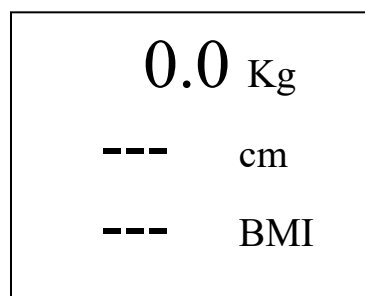


Fig3: Display when switching on

“UX.X” is the version number of software. Then it shows the battery voltage and temperature.

**Fig4: Battery status and temperature**

Then the machine auto-checks from 0-9, and enter the normal working mode. The display shows:

**Fig5: Measuring Interface**

4.2 Switch Off

In the working mode, press **[ON/OFF]**. The machine shows "OFF", then turn off.

4.3 Zeroing

- When the pan is empty, if the display doesn't show 0 and the value is less than 4% max capacity, press **[Tare]**, the machine show 0.
- It will show zero symbol **"-O-"** on the left up corner of the display after zeroing.

4.4 Weight/Height

- When the human body stands on the pan, the machine begins to measure the weight and shows the weight value on the first line of display; After the weight is more than 2kg, the machine starts activating the ultrasonic sensor to measure height and will calculate BMI according to the weight and height accordingly .
- After the weight is more than 2kg, the machine starts activating the ultrasonic sensor to measure height and will calculate BMI according to the weight and height accordingly .

- After the measuring weight and height are stable, in 3 seconds, the display will show weight, height and BMI value and the display is held if the hold function is on.

4.5 Clearing

Under HOLD mode (refer to “5.7 Hold setting”), the display is held after the measuring is finished, which makes reading easily. Press **【Next】** to clear the display and release hold.

4.6 Unit Conversion

4.6.1 Unit of Weight

In the weighing mode, press **【Kg/Lb】** to shift the unit of weight. The unit order is Kg, Lb, Lb+Oz; The setting will be saved automatically. The unit is the set one when it is turned on again.

4.6.2 Unit of Height

In the weighing mode, press **【cm/Ft】** to shift the unit of height. The unit order is cm, Inch, inch+Ft. The setting will be saved automatically. The unit is the set one when it is turned on again.

4.7 Serial Output and Format

4.7.1 Serial Output

BMI-300 has the following printing format:

- Hold ON+PRN mode:
Set Hold on (referring to “5.7 Hold(F6 HOLD)”)
And set PRN mode (referring to “5.4 Serial mode(F3 Ser)”)
Under this mode, when one measuring is finished, the display is held.
Press **【Print】** to print.
- Hold ON+Auto mode:
Set Hold on (referring to “5.7 Hold(F6 HOLD)”)
And set Auto mode (referring to “5.4 Serial mode(F3 Ser)”)
Under this mode, when one measuring is finished, the display is held and the measuring result is printed automatically.
- Hold OFF+Auto mode:
Set Hold off (referring to “5.7 Hold(F6 HOLD)”)
And set Auto mode (referring to “5.4 Serial mode(F3 Ser)”)

Under this mode, when the measuring is stable, print the measuring result once automatically. Only when there is new measuring and stable, printing can be carried out again.

• Hold OFF+PRN mode:

Set Hold off (referring to “5.7 Hold(F6 HOLD)”)

And set PRN mode (referring to “5.4 Serial mode(F3 Ser)”)

Under this mode, when the measuring is stable, press **【Print】** to print.

4.7.2 Output Format

Body Mass Index Report	
Clinic Name: _____	
Date: 23/07/2015	Time: 17:17
Weight:	74.3 Kg
Height:	173 cm
BMI:	24.8
WHO Reference,	
BMI<=18.4	Developing problem of nutrition
18.5<=BMI<=22.9	Healthy
23.0<=BMI<=27.4	Risk for developing heart disease, high blood pressure, stroke and diabetes
BMI>=27.5	High risk, discuss with doctor
S Weighing System Pte.Ltd.	

4.8 BMI

BMI (Body mass index) : It is used to measure the fitness of human body. It is calculated according to the following formula:

$$BMI = \text{Weight} / \text{Height}^2;$$

Weight : unit: Kg;

Height: unit: m;

BMI: unit: Kg/m²

BMI Reference: 1) Problem of nutrition: BMI <= 18.4Kg/m² ;

2) Healthy: 18.5 Kg/m² <= BMI <= 22.9Kg/m²;

3) Risk for developing disease:

23.0 Kg/m² <= BMI < 27.4 Kg/m²;

4) High risk: BMI >= 27.5 Kg/m²

5.0 Parameters

5.1 Enter the setting

- Turn on the scale. When the scale is during self-checking, press **[Kg/Lb]** to enter the parameters setting mode.
- The display shows "F1 EL"

5.2 Backlight (F1 EL)

- When the backlight is off, the consumption can be decreased. The battery life can be maximum.
- Options:
EL AUTO: The backlight will be on automatically when there is weight on the pan.
EL OFF The backlight is always off.
EL ON The backlight is always on.
- When the display shows "F1 EL", press **[Tare]** to check the options.
- Press **[Print]** to change the parameter.
- Press **[Tare]** to save the setting and exit.
- Press **[cm/ft]** to cancel the setting and exit.

5.3 Auto-off (F2 OFF)

- Under the interface "F1 EL", press **[Kg/Lb]**, and the display shows "F2 OFF". Press **[Tare]** to enter auto-off time setting.
- Options:
0 ----- Auto-off function is not available;
5 ----- The scale will be auto-off in 5minutes without using.
10 ----- The scale will be auto-off in 10minutes without using.
20 ----- The scale will be auto-off in 20minutes without using.
30 ----- The scale will be auto-off in 30minutes without using.
- Press **[Print]** to change the parameter.
- Press **[Tare]** to save the setting and exit.
- Press **[cm/ft]** to cancel the setting and exit.

5.4 Serial mode (F3 Ser)

Under the interface "F2 OFF", press **[Kg/Lb]**, and the display shows "F3 SEr". Press **[Tare]** to set the first printing parameter.

5.4.1 Printing Format

- Press **[Print]** to cycle choose;
- Options:

PRN: When the testing is finished, press [Print] to transfer the datas.

AUTO: When the testing is finished, the datas is transferred automatically.

- Press **[Tare]** to save the setting and enter BPS setting.
- Press **[cm/ft]** to cancel the setting and exit.

5.4.2 BPS

- Press **[Print]** to cycle choose;

- Options

600

1200

2400

4800

9600

The default value is 9600;

- Press **[Tare]** to save the setting and exit the setting;
- Press **[cm/ft]** to cancel the setting and exit;
- The default serial communication format is:8bits, no parity, one stop bit.

5.5 Optional Printing Detail Control (F4 PtSel) (The Reserved Set)

5.6 Ultrasonic Parameter (F5 ULtrA)

Under the interface “F4 PtSeL”,press **[Kg/Lb]**, and the display shows “F5 ULtrA”.

5.6.1 Ultrasonic Correction Parameter

Under the interface “F5 ULtrA”, press **[Tare]**to check the untrasonic correction parameters.The display shows “AdJUST x” (x is the value between -127cm ---- 127cm) , this is for the fine-turning of height value.

- Press **[Print]** to increase the value of x;
- Press **[Next]** to decrease the value of x;
- Press **[Tare]** to save the setting and enter the next setting;
- Press **[cm/ft]** to cancel the setting and exit;

5.6.2 Ultrasonic Standard Height Setting

Under the interface: “AdJUST x” , Press **[Tare]**to enter the setting of Ultrasonic standard height.The display shows “bASE-H x” (x is the

distance between ultrasonic sensor and pan. The unit is cm);

- Press **[Print]** to increase the value of x;
- Press **[Next]** to decrease the value of x;
- Press **[Tare]** to save the setting and return to the previous menu.
- Press **[cm/ft]** to cancel the setting and exit;

5.6.3 Ultrasonic Accuracy

Under the interface “bASE-H x” , press **[Tare]** to enter the setting of ultrasonic accuracy. The display shows “DIV-H” (1 means 1cm; 0.5 means 0.5cm) :

- Press **[Print]** to shift the accuracy;
- Press **[Next]** to shift the accuracy
- Press **[Tare]** to save the setting and return to the previous menu.
- Press **[cm/ft]** to cancel the setting and exit;

5.7 Hold (F6 HOLD)

Under the interface “F5 ULtrA”, press **[Kg/Lb]** to enter Hold setting. The display shows “F6 HOLD”. Press **[Tare]** to enter the hold parameters selection and the display shows “HOLD XX” (XX = ON or XX = OFF) .

When Hold = ON, the measuring weight and height will be held when the testing is finished. Under the situation, user can choose the function of auto-clearing:

STATE 1 means that the datas will be cleared only after **[Next]** is pressed.
STATE 2 means the datas will be cleared when the measured weight is not on the pan anymore.

When Hold = OFF, the measuring weight and height will not be held.

- ☐ Press **[Print]** to modify the parameter;
- ☐ Press **[Next]** to enter the interface of STATE.
- Press **[Tare]** to save the setting and exit;
- Press **[cm/ft]** to cancel the setting and exit;

5.8 Date and Time (F7 D-T)

Under the interface “F6 HOLD”, press **[Kg/Lb]** to enter the setting of date and time. The display shows “F7 d-t”.

5.8.1 Date Setting

Under the interface “F7 d-t”, press **[Tare]** to enter the setting of date:
LCD display:

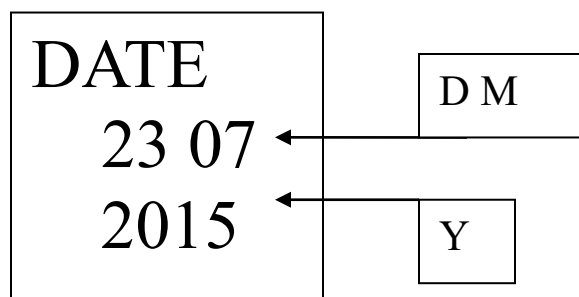


Fig6 : Date setting interface

- ☐ Press **[Print]** or **[Next]** to modify digits.
- ☐ Press **[Kg/Lb]** to modify the value.
- Press **[Tare]** to save the setting and enter the next setting;
- Press **[cm/ft]** to cancel the setting and exit.

5.8.2 Time Setting

Under the setting interface of date, press **[Tare]** to enter the setting interface of time.
LCD display:

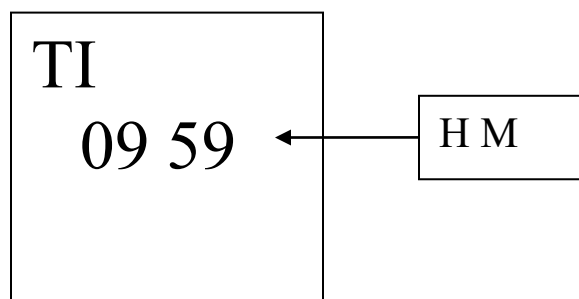


Fig7: Time setting interface

- ☐ Press **[Print]** or **[Next]** to modify digits.
- ☐ Press **[Kg/Lb]** to modify the value.
- Press **[Tare]** to save the setting and enter the next setting;
- Press **[cm/ft]** to cancel the setting and exit.

5.9 Weighing Parameters (F8 SETUP)

Under the interface “F7 d-t”, press **[Kg/Lb]** and the display shows “F8 SEtUP”. This is for user to set the weighing parameters:

- Press **[Zero]**, the display shows filter parameter “FILT x” (the value of x can be 1-6) ,

Press **[Print]** to modify the value,

Press **[Kg/Lb]** to save and enter the setting of **zeroing display**;

Press **[cm/ft]** to cancel the setting and exit;

- The display shows **zeroing display** parameter “ZEro x” (the value of x can be 1-6) ,

Press **[Print]** to modify the value;

Press **[Tare]** to save and enter the setting of **stable tracking**;

Press **[cm/ft]** to cancel the setting and exit;

- The display shows **stable tracking** parameter “StA x” (the value of x can be 1-6)

Press **[Print]** to modify the value;

Press **[Tare]** to save and enter the setting of zero tracking;

Press **[cm/ft]** to cancel the setting and exit;

- The display shows zero tracking parameter “Ztr x” (the value of x can be 1-6)

Press **[Print]** to modify the value;

Press **[Tare]** to save and back to the filter setting;

Press **[cm/ft]** to cancel the setting and exit;

5.10 Weighing Correction and Calibration (F9 TECH)

Under the interface “F8 SEtUP”, press **[Kg/Lb]** and the display shows “F9 tECH”. This is for user to modify the technical parameters and calibration.

- Press **[Zero]**, the display shows “Pin ” ;

Input pin code: (**[Next]** + **[Print]** + **[cm/ft]** + **[Zero]**) ,

The display shows linear correction “Lid x” (the value of x can be 0-5)

Press **[Print]** to modify the parameters.

Press **[Tare]** to save and enter the setting of linear correction;

- The display shows “LiN x” (the value x can be -8 - 8) ,

Press **[Print]** to modify the parameters.

Press **[Tare]** to save and enter the setting of standard weight.

- The display shows “CAL x” (x is the value of standard weight, it can be 50Kg、100Kg、150Kg、200Kg、250Kg or 300Kg)

Press **[Print]** to modify the parameters.

Press **[Tare]** to save and enter the collecting of zero AD counts;

- The display shows “Z-Ad x” (x is Ad counts, at the moment, please assure there is no weight on the pan) ;
Press [Tare]to save AD counts and enter the loading interface of standard weight;
- The display shows “LOd x” (x is AD counts). Load the standard weight.
Press [Tare]to save and return to the weighing mode. If permitted, the calibration information can be printed after it is finished.

6.0 Simple Calibration

6.1 Enter Calibration Mode

- Turn on the machine. During auto-checking, press **[Next]** to enter the setting mode.

6.2 User Calibration

- The display shows "CAL X"(x is standard weight value. It can be 50Kg、100Kg、150Kg、200Kg、250Kg、300Kg
Press **[Print]** to modify the value;
Press **[Tare]**to save and enter the collecting of zero AD counts.
- The display shows zero AD counts “Z-Ad x” (x is AD counts, at the moment, please assure there is no weight on the pan).
Press **[Tare]**to save AD counts and enter the loading interface of standard weight.
- The display shows “LOd x” (x is AD counts).
Load on the standard weight.
Press **[Tare]**to save and return to the weighing mode.
If permitted, the calibration information can be printed after it is finished.
The error of standard weight should be in $\pm 5\%$, otherwise, the calibration can't be done and error message appears. Please refer to 7.0 Error Message.

7.0 Error Message

- Err : Height is above 210cm
Under: Height is below 79cm
-----: Overload is above 9d.
ADO: AD counts is above normal value
ADL: AD counts is below normal value.
LOD-H: The standard weight is too much, the real weight is over 5% selected value.
LOD-L: The standard weight is too less, the real weight is less than 5%

selected value.

8.0 Communication

8.1 RS-232

Standard interface parameter:

Definationon:

RS-232 output
ASCII code
BPS:600、1200、2400、4800、9600
8bits、no parity、1stop bit

Connector: 9 pin d-subminiature socket
Pin 3 Output
Pin 2 Input
Pin 5 Signal Ground

8.2 Connecting Printer

- When connecting with printer, BMI-300 can print:
Company name, date, time, weight, height,BMI and reminder information
- When BMI-300 is connected with printer, BPS has to be 9600 only.

9.0 Power Supply

- The Power supply for BMI-300 are 12V800mA adaptor and built-in 6.4V4.0Ah rechargeable battery. It can work with any of the above power supply.
- After working a period time with battery, the battery power will be used up. The display will show low battery symbol. Please charge the battery at this moment. If not, the battery voltage will decrease continuously. To protect battery, BMI-300 will turn off automatically.
- In charging, the charging light is red; As the charging time, the light will turn yellow, then green. When the light turns green fully, the charging is finished.