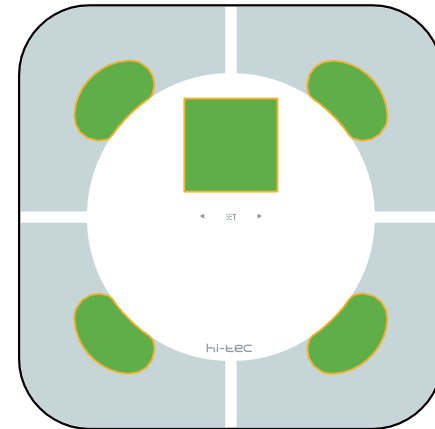


# User Manual

Body Fat Analyzer **VITALIZE**



**Optima Home Scales**  
PO Box 1526, Cumming GA 30028, United States  
T:888-688-4833 [www.optimahomescales.com](http://www.optimahomescales.com)








- Thank you very much for selecting the OHS Body Fat Analyzer VITALIZE.
- Please read the user manual carefully and thoroughly to ensure the safe usage of this product and keep the manual for further reference in case you have problems.

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♥ Safety and Usage Information

The warning signs and symbols are essential to ensure your correct and safe use of this product and protect you and others from injury. Please find the meanings of the warning signs and symbols, which you may encounter in the label and user manual, as follows:

	Symbol for "THE OPERATION GUIDE MUST BE READ"		Symbol for "COMPLIES WITH EU REQUIREMENTS"
	The Bluetooth Combination Mark		Symbol for "MANUFACTURER"
	Symbol for "MANUFACTURE DATE"		Symbol for "ENVIRONMENT PROTECTION – Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority or retailer for recycling advice"
<b>SN</b>	Symbol for "SERIAL NUMBER"		
	Symbol for "DIRECT CURRENT"		

 CAUTION

OHS's Body Fat Analyzer VITALIZE offers you a seamless way to manage your health. Please be aware that this device is designed for healthy people over 10 years old self-measuring and self-monitoring body compositions. Any information provided by this device is in no way meant to treat, cure or prevent any disease or illness from happening. If in doubt, contact your physician.

This device is not recommended for any female subject who may be suspected of or is pregnant. Otherwise, the effects of this device on the fetus are unknown.

This device is not recommended for any person who is connected to a wearable or implantable electronic device or instrument such as a pacemaker or defibrillator.

This device should not be used for anyone who is acutely or chronically ill suffering from a disease or taking medications that affect your water levels. The accuracy of readings for these patients has not been verified. Specific medical advice should be obtained from a physician.

VITALIZE is equipped with data transmission function. It may emit electromagnetic energy to perform its intended function. Nearby portable and mobile RF communications equipment can affect the performance of VITALIZE. The device can interfere with electrical equipment.

Manufacturer will make available on request circuit diagrams, component parts listed.

**WARNING:** No modifications of this equipment is allowed. This may result in increased EMISSIONS or decreased IMMUNITY of VITALIZE.

Please use the device according to the user manual. Any misuse can cause electric shock, burns, fire and other unexpected hazards.

Please use and store the device in the environment which is suggested in the user manual. Don't expose the device to extreme temperatures, direct sunlight, moist or corrosive environment.

Do not step on the scale when your body or feet are wet, especially after bathing or showering to prevent slipping.

Please keep the device out of reach of infants, children or pets, since inhalation or swallowing of small parts is dangerous or even fatal.

If you have an allergy to stainless steel, please avoid contacting the electrodes of the device.

The patient is an intended operator. The patient can measure, transmit data and charge battery under normal circumstances and maintain the device and its accessories according to the user manual.

INDICATIONS FOR USE

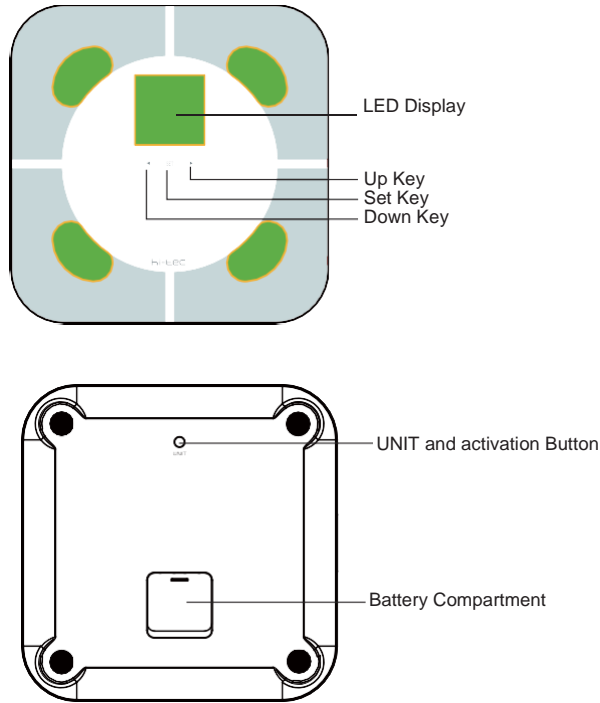
- The OHS Body Fat Analyzer measures weight and uses bio-electrical impedance analysis (BIA) technology to estimate body fat, total body water percentage, bone mass, and muscle mass in generally healthy children 10-17 years old and healthy adults.
- It is intended for use in a domestic setting only.

♥ Tips

**To ensure the accuracy of measurement, please follow below instructions when you start measurement.**

- Place the scale on a flat, hard surface. Soft surface such as carpet will affect the performance of the scale.
- Step onto the platform with bare feet. Stand still and keep full contact with the electrodes until the measurement is complete.
- Start measurement at least two hours after Getting up or Dining.
- Avoid measurement immediately after strenuous exercise, sauna or bath, drinking, and dining.
- Always start measurement in the same time slot and on the same scale located on the same flat, hard surface.
- For maximum accuracy and repeatability, it is recommended that you should use the device in the same time of the day and on the same location.
- The condition of the skin on the bottom of your feet can affect the reading. The natural effects of aging or activity can make this skin hard. Take the reading with clean, slightly damp feet for best accuracy. If you are having a problem with operating this scale, please contact customer service.
- Body fat percentage estimates will vary with the amount of water in the body, and can be affected by dehydration or over-hydration due to such factors as alcohol consumption, menstruation, illness, intense exercise, etc.

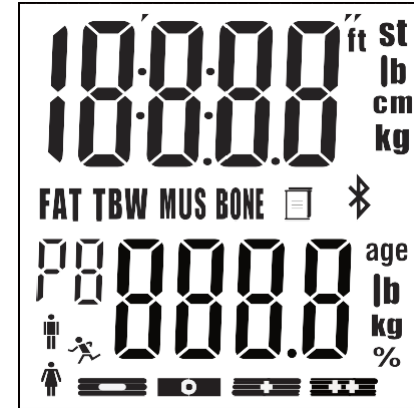
♥ Device Components



♥ List

1. Body Fat Analyzer VITALIZE
2. Four AAA-size Batteries (1.5V per each)
3. User Manual

♥ LED Display



<b>FAT</b>	Body Fat Analysis Result	%	Percentage
<b>TBW</b>	Total Body Water Analysis Result	♂	Male
<b>MUS</b>	Muscle Mass Analysis Result	♂🏃	Male Athlete
<b>BONE</b>	Bone Mass Analysis Result	♀	Female
<b>age</b>	Age	♀🏃	Female Athlete
<b>ft</b>	Foot	P8	User ID (Range from P1 to P8)
<b>l</b>		▬	Body Fat Level: Underfat
<b>lb</b>	Pound	▬○	Body Fat Level: Healthy
<b>cm</b>	Centimeter	▬+	Body Fat Level: Overfat
<b>kg</b>	Kilogram	▬++	Body Fat Level: Obese
📶	Successful Bluetooth Connection	📱	Data transmitting / pending to transmit to wireless wellness system

## ♥ General Instructions

OHS Body Fat Analyzer VITALIZE applies BIA (Bio-impedance Analysis) technology. A small amount of weak current flows through the human body to detect the bio-impedance and estimate body fat, body water, muscle mass and bone mass. The electrical current is small and may not be felt.

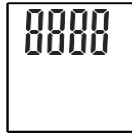
This BIA technology is inexpensive, safe, non-invasive, toxic-free and harmless. It also possesses the characteristics of simple operation and abundant information.

The current mentioned above is less than 0.5mA. However, please be aware that anyone with a wearable or implantable medical electronic instrument, such as a pacemaker, must avoid using this device.

The intended use of this device is for healthy children 10-17 years old and healthy adults.

## ♥ Insert the Batteries

- Open the battery door in the back of the scale.
- Remove insulating strip from beneath the battery (if fitted) or insert batteries (4 x 1.5V AAA) observing the polarity signs (+ and -) inside the battery compartment.  
\* The digits "8888" will be shown on the LED.



- Close the battery door and wait until the digits "0.0kg" are shown on the LED.



### CAUTION

- When the symbol "Lo" appears, the device will power off after about 4s. When this happens, replace with a new set of batteries. Please replace all four batteries at the same time. Do NOT mix the old batteries with the new one.
- Worn batteries are hazardous waste. Do NOT dispose of them with the household garbage. Please refer to the local ordinances and recycling instructions regarding disposal of the worn batteries and scrapped device.
- If you do not intend to use this unit for a prolonged period, it is advisable to remove the batteries before storing.

## ♥ Install App and Pair-Up

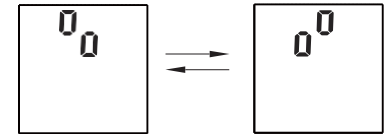
With the advanced Bluetooth 4.0 technology applied, the mobile or portable device, which are equipped with Bluetooth function in line with BLE Technical Specifications as well as BLP Protocol established by global organization Bluetooth SIG, are capable to receive your personal health data.

Just simply install the specially-designed app and pair up your scale with your mobile or portable device. Then you may enjoy the comprehensive health solution provided by OHS.

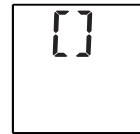
Note: It is only available for a device which supports Bluetooth 4.0 technology.

- Our free App "Medm Health" may be downloaded at App Store and Google Play, you may search and install it in your smartphone or device.
- Turn on Bluetooth and the App. Make sure both are ON when pair-up is proceeding.
- Press and hold "UNIT" button in the back of the scale to start pair-up.

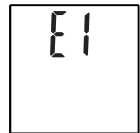
Symbol  $0^0$  and symbol  $0^0$  will be shown on the LED alternatively, indicating pair-up is proceeding.



If SUCCEED, symbol [ ] will be shown on the LED.

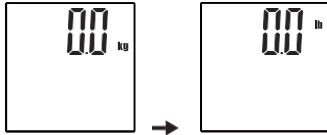


If FAIL, symbol "E1" will be shown on the LED.



## ♥ Select Measurement Unit

With batteries correctly installed, press “UNIT” button in the back of the scale to select measurement unit. The default measurement unit is “kg”. You may press “UNIT” button to choose among kilogram and pound.



## ♥ Initializing Your Scale

1. Press the platform center and remove your foot.
2. “0.0” will be displayed.



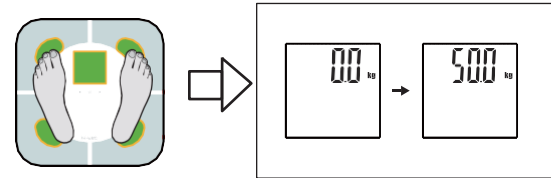
3. The scale will switch off and is now ready for use.  
This initialization process must be repeated if the scale is moved.  
At all other times step straight on the scale.

## ♥ Weight Only Operation

Your OHS Body Fat Analyzer will operate as a conventional weight - reading scale. No special programming steps are required.

Once the scale is initialized, as previously described, you may simply step on the scale to measure your current weight. For only weight reading:

1. Position the scale on a flat, hard surface. Carpeted or uneven floors may affect accuracy.
2. Step onto the scale platform and remain still while the scale computes your weight.
3. The scale will display your weight value.



4. The scale will automatically turn off after a few seconds.

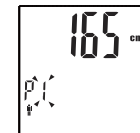
Note: The weight value won't be saved in the scale, and won't be transmitted to the APP.

## ♥ Set Up Your Profile


The body fat analyzer VITALIZE supports multiple users (Up to 8). You may follow below instructions to assign User ID and set up your own profile, including Gender, Stature, and Age.

### 1. Assigning User ID

- With batteries correctly installed, press “SET” key to enter setting mode when the scale is off, or when the LED displays 0.0, press and hold “SET” key to enter setting mode.
- The system will request User ID selection first. As pictured below, “P1” blinks. The operator may press the function key ◀ or ▶ to select User ID among P1 to P8.
- Press “SET” key to confirm User ID.

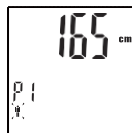


### 2. Setting Gender

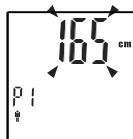
- After confirming User ID, the system will divert to Gender setting automatically.
- As pictured below, the portrait  blinks. The operator may press the function key ◀ or ▶ to select Gender. (Male/Female/Male Athlete/ Female Athlete).
- Press “SET” key to confirm Gender.

**Athlete Mode:**

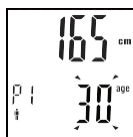
An athlete is considered as a person who does 10 hours or more per week of aerobic activity and has a resting heart rate of 60 beats per minute. These individuals should select Athlete Mode for the most accurate measurement results. The body fat analyzer is not calibrated for professional athletes or body builders.

**3. Setting Stature**

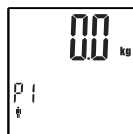
- After confirming Gender, the system will divert to Stature setting automatically.
- As pictured below, the digits “165” blinks. The operator may press the function key ◀ or ▶ increase or decrease the numeral (Ranges:100cm-220cm/3’3.5” ft - 7’2.5” ft).
- You may press and hold the function key ⏏ for fast changing the numeral.
- Press “SET” key to confirm Stature.

**4. Setting Age**

- After confirming Stature, the system will divert to Age setting.
- As pictured below, the digits “30” blinks. The operator may press the function key ◀ or ▶ increase or decrease the numeral (Range for normal mode: 10-85 years old, Range for athlete mode:15-85 years old).
- You may press and hold the function key ◀ or ▶ for fast changing the numeral.
- Press “SET” key to confirm Age.

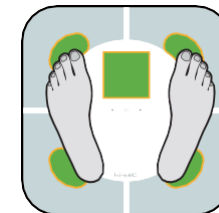


- After confirming Age, the LED will show all the settings you have done one by one and then display “0.0kg” + “User ID” + “Gender”, you can start measuring.

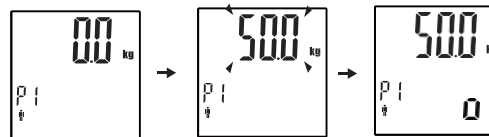
**♥ First Measurement**

- Please process the user setting before your first measurement.  
(Refer to [Set Up Your Profile](#) for more details)

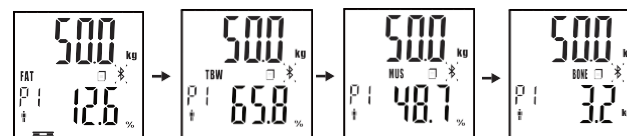
**STEP 1:** Step on the platform barefooted when the LED displays “0.0”.



**STEP2:** Stand still and the weight data will be locked with the numeral blinks twice. Keep full contact with the scale until the LED stop displaying moving “o”.



**STEP 3:** Then the measuring results will be displayed sequentially three times: Body Fat, Total Body Water, Muscle Mass, Bone Mass.



\* When the body fat percentage is displayed, the body fat level also appears on the LCD. it ranges from Underfat to Obese.



Underfat    Healthy    Overfat    Obese

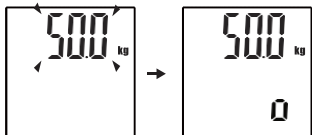
\* If it fails to complete the analysis, the LED will display the icon “Errr”.  
(To find out the solutions, please refer to [Troubleshooting](#) for more details.)

- When your scale is successfully paired with your smartphone and the Bluetooth is ON, VITALIZE will process data transmission instead.

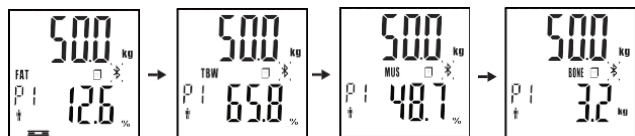
(Please refer to [Data Transmission](#) for more details.)

### ♥ Daily Measurement

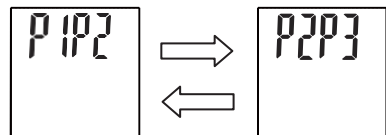
- With original SENSE ON patent technology, VITALIZE will switch on as you step on the platform barefooted.
- Stand still and keep full contact with the scale until the LED stops displaying moving “o”.



- After the weight is locked, the system will automatically identify the possible User ID with most similar history records.
- If it identifies one user, it will skip the step about user selection, then display the Body Fat, Total Body Water, Muscle Mass and Bone Mass data sequentially three times and turn off.



- If it identifies two or more users, for example, P1, P2 and P3, The LCD will display these users alternately twice. you may press **key** to choose the left User ID or press **key** to choose the right User ID. The measuring results will then be sorted into the User ID you selected and displayed sequentially three times. If you don't choose the user, it will display the weight again and turn off after a few seconds.



- If it fails to identify the possible User ID, the LED will only display the weight data.  
(To find out the solutions, please refer to [Troubleshooting](#) for more details.)
- When your scale is successfully paired with your smartphone and the Bluetooth is ON, VITALIZE will process data transmission instead.  
(Please refer to [Data Transmission](#) for more details.)

### ♥ Backlight Indicator

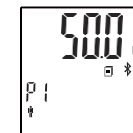
The indicator backlight will light with different color when the measuring results are shown on the LED.


Compared with the last record of the same user ID, when the current weight is increased over 0.5kg, the red backlight lights; when it is reduced over 0.5kg, the green backlight lights; when it is the same (in the range of +/-0.5kg), the blue backlight lights.


Note: when it is the first measurement for a User ID, the system default backlight is blue.



### ♥ Data Transmission

- Once the Body Fat Analyzer VITALIZE is successfully paired-up with your smartphone, please open the “Medm Health” App and turn on your Bluetooth. Keep smartphone and scale in transmission distance. Step on the scale and take a measurement. Once the measurement is finished the data is automatically transferred to the app.




- ONLY when the measuring results are attached to a specific User ID will it be transmitted to your mobile after measurement.
- The symbol  will disappear after successful data transmission, and you may check your personal health data stored in your smartphone.

- If the data transmission fails, the symbol  will remain. The pending measurement data will be temporarily kept in the scale and transmitted to your smartphone when next measurement is complete.

	Successful Bluetooth Connection
	Data transmitting to wireless wellness system: -If SUCCEED, the symbol disappears; -If FAIL, the symbol remains.



#### CAUTION





- Interference may occur near equipment marked with the following symbol . And the Analyzer may interfere with electrical equipment in the vicinity.
- To enable the data transmission function, this product should be paired to a Bluetooth 4.0 end.

#### How to mitigate possible interference?

1. The range between the Analyzer and the Bluetooth end should be reasonably close, from 1 meter to 10 meters. Please ensure no obstacles are between the Analyzer and the Bluetooth end to obtain quality connection.
2. To avoid interference, other electronic devices (particularly those with Bluetooth transmission / Transmitter) should be kept at least 1 meter away from the Analyzer.



♥ Error Prompt

Error	Description	Solution
	Overload. The device will power off.	Stop using this scale for measurement.
	Low Battery. The device will power off after about 4s.	Replace all four batteries at the same time. Please purchase the authorized batteries for replacement.
	Failure of pairing up your scale with your smartphone.	Please check below items: -Bluetooth is ON. -App Collector is ON. -Both devices are within the transmission distance of Bluetooth.
	1. The user profile set up and the scale fails to complete the analysis. 2. The weight is unstable.	Step off the platform, and measure again.

♥ When Measuring ...

Problem	Root Cause	Solution
Abnormal measuring results: - Too high; OR - Too low; OR - Huge difference between two recent measurement.	Incorrect posture	Please step on the platform barefooted and stand still.
	The device is located on the soft ground such as a carpet OR on a rugged surface.	Please place the device on a flat, hard surface.

Problem	Root Cause	Solution
Abnormal measuring results: - Too high; OR - Too low; OR - Huge difference between two recent measurement.	Your feet are too dry.	Wipe your feet with a damp cloth, keeping them slightly damp when starting measurement.
No display on LED when the device powers on.	Batteries not yet installed.	Install the batteries. (Please refer to <a href="#">Insert the Batteries</a> )
	Worn batteries.	Replace all four batteries at the same time. Please purchase the authorized batteries for replacement.
CANNOT proceed to analyze body fat, total body water, muscle mass and bone mass.	Step onto the platform wearing socks or shoes.	Please keep barefooted during the measurement and keep full contact with the scale as well.
	The system cannot identify the possible User ID with most similar data.	Please assign a User ID following the instruction in <a href="#">Set Up Your Profile</a> .
	The user fails to select the User ID from what the system found.	Please assign a User ID following the instruction in <a href="#">Set Up Your Profile</a> .
The device powers off.	Low battery.	Replace all four batteries at the same time. Please purchase the authorized batteries for replacement.

♥ When Data Transmitting ...

Problem	Root Cause	Solution
Data transmission failed.	Bluetooth is OFF.	Turn ON the Bluetooth via setting function of your smartphone.
	The App is OFF.	Press the icon to run your App.
	Out of range of Bluetooth transmission.	Place your smartphone closer to the scale.
	None of the user ID is assigned.	Please assign a User ID following the instruction in <a href="#">Set Up Your Profile</a> .

♥ Specifications

<b>Product Name</b>	Body Fat Analyzer (VITALIZE)
<b>Dimension</b>	Scale: 307x307x24mm (Approximately)
<b>Net Weight</b>	Approximately 1.82kg (Excluding the dry cells)
<b>Display</b>	Digital LED
<b>Measurement Unit</b>	Kilogram / Pound
<b>Measurement Range</b>	5kg to 180kg / 11lb to 397lb
<b>Division</b>	0.1kg / 0.2lb
<b>Accuracy</b>	50kg: ±0.3kg;                      100kg: ±0.4kg; 150kg: ±0.5kg;                      180kg: ±0.7kg
<b>Working Environment</b>	Temperature: 5°C to 40°C    Relative Humidity: ≤90% RH Atmospheric pressure: 86kPa to 106kPa
<b>Storage Environment</b>	Temperature: -20°C to 60°C    Relative Humidity: ≤90% RH Atmospheric pressure: 50kPa to 106kPa
<b>Power Source</b>	6V (Four AAA-size Batteries)
<b>Turn on Method</b>	SENSE ON technology
<b>Auto-OFF</b>	About 10s after the LED display "0.0"; About 15s when the weight value is unstable.
<b>Accessories</b>	1. Four AAA-size batteries 2. User Manual
<b>Mode of Operation</b>	Continuous Operation

About the Accuracy of This Product

- This product passes strict inspection before delivery and therefore its accuracy is guaranteed by the manufacturer. Please refer to the above table for the descriptions on accuracy.
- This product is specially designed for body fat analysis as well as weight measurement. It should NOT be used by anyone during the process of transaction for verification of goods' weight.

♥ Maintenance

When carrying out usual maintenance, please ensure practice of the following Do's and Don'ts:

- DO use a dry soft cloth to wipe the dust.
- DO use a wet soft cloth, dipped into water and wrung out, to wipe the dirt. Then use a dry soft cloth to dry up the device.
- DON'T wash the device with water or immerse it in water.
- DON'T use propellant, abrasive or other chemicals to wipe the dirt in avoidance of discolor or malfunction.
- DON'T disassemble this device. If you have any problems, please contact OHS. *(Please refer to Warranty for contact information)*
- Do not dispose of batteries in fire. Batteries may explode or leak. Remove the batteries if the scale will not be used for a long period.

♥ Warranty

- OHS warrants its products free of defects in materials and workmanship in normal use for a period of TEN years from the date of retail purchase.
- This warranty does NOT cover damages caused by misuse or abuse, including but not limited to:  
 Failure caused by unauthorized repairs or modifications;  
 Damage caused by shock or drop during transportation;  
 Failure caused by improper operation inconsistent with the instructions stated in this user manual;  
 Malfunction or damage from failure to provide the recommended maintenance;  
 Damage caused by improper use of power supply.
- Should this device require maintenance (or replacement at our option) under warranty, please deliver the original package to OPTIMA HOME SCALES prepaid. Please return the store receipt (with the retail purchase date) and a note with reasons to return on it as well.

OPTIMA HOME SCALES  
 PO Box 1526, Cumming GA 30028, United States  
 T: 888-688-4833  
[www.optimahomescales.com](http://www.optimahomescales.com)

♥ Table of Body Fat Level (Unit: %)

a) The body fat percentage (%): 5%-60%/0.1%

Standard for Men

Standard for Women

Rating	Age					Rating	Age				
	20-29	30-39	40-49	50-59	60+		20-29	30-39	40-49	50-59	60+
low	<13	<14	<16	<17	<18	low	<19	<20	<21	<22	<23
Normal	13-20	14-21	16-23	17-24	18-25	Normal	19-28	20-29	21-30	22-31	23-32
Moderately High	20.1-23	21.1-24	23.1-26	24.1-27	25.1-28	Moderately High	28.1-31	29.1-32	30.1-33	31.1-34	32.1-35
High	>23	>24	>26	>27	>28	High	>31	>32	>33	>34	>35

Source: University of Illinois Department of Food Science and Human Nutrition. Body Fat Percentage Calculator.

♥ Table of Body Water Level (Unit: %)

b) The body water percentage (%): 43%-73%/0.1%

Source: Derived from Wang & Deurenberg: "Hydration of fat-free body mass". American Journal Clin Nutr 1999,69:833-841.

	BF % RANGE	OPTIMAL TBW % RANGE
Men	4 to 14%	70 to 63%
	15 to 21%	63 to 57%
	22 to 24%	57 to 55%
	25 and over	55 to 37%
Women	4 to 20%	70 to 58%
	21 to 29%	58 to 52%
	30 to 32%	52 to 49%
	33 and over	49 to 37%

### ♥ Muscle Mass Percentage

(Source: International Commission on Radiological Protection, 1975)

Men	Approximately 40% of total body weight
Women	Approximately 30% of total body weight

### ♥ Bone Mass Percentage

(Source: Rico et al. 1993)

The average bone mass percentage for both men and women is between 4 to 5%.

### ♥ Health Tips - About Body Fat

Fat is essential for human body. It can not only store energy and protect viscera, but also regulate body temperature and maintain normal physiological function of human body. However, too much body fat is harmful to human body and may be accompanied by Fatty Liver, diabetes, coronary heart disease, etc.

Therefore, self-measuring and self-monitoring body fat level are beneficial to your health. Since we can't judge body fat level simply by our weight, this body fat analyzer VITALIZE, with BIA (Bio-impedance Analysis) technology applied, is an accurate device that offers a quick and comfortable way to obtain your body fat level.

### ♥ EMC Guidance

Table 1 Guidance and MANUFACTURER's declaration – ELECTROMAGNETIC EMISSIONS- for all ME EQUIPMENT and ME SYSTEMS

Guidance and manufacturer's declaration – electromagnetic emissions		
The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 2	The device must emit electromagnetic energy to perform its intended function. Nearby electronic equipment may be affected.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	

Table 2 Guidance and MANUFACTURER's declaration – electromagnetic IMMUNITY – for all ME EQUIPMENT and ME SYSTEMS

Guidance and manufacturer's declaration – electromagnetic immunity			
The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment			
IMMUNITY test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% $U_T$ (>95% dip in $U_T$ ) for 0.5 cycle 40% $U_T$ (60% dip in $U_T$ ) for 5 cycles 70% $U_T$ (30% dip in $U_T$ ) for 25 cycles <5% $U_T$ (>95% dip in $U_T$ ) for 5 s	Not applicable	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE $U_T$ is the a.c. mains voltage prior to application of the test level.			

Table 4 Guidance and MANUFACTURER's declaration – electromagnetic IMMUNITY – for ME EQUIPMENT and ME SYSTEMS that are not LIFE-SUPPORTING

Guidance and manufacturer's declaration – electromagnetic immunity			
The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.			
IMMUNITY test	IEC 60601 TEST LEVEL	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	Not applicable	Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. <b>Recommended separation distance</b> $d = \left[ \frac{3.5}{V_1} \right] \sqrt{P}$ $d = 1.167 \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = 2.333 \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ where $P$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and $d$ is the recommended separation distance in meters (m).  Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, <sup>a</sup> should be less than the compliance level in each frequency range. <sup>b</sup>  Interference may occur near equipment marked with the following symbol:
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	
NOTE 1	At 80 MHz and 800 MHz, the higher frequency range applies.		
NOTE 2	These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.		
<sup>a</sup>	Field strengths from fixed transmitters, such as base stations for radio (cellular / cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the device.		
<sup>b</sup>	Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V <sub>1</sub> ] V/m.		

Table 6 Recommended separation distances between portable and mobile RF communications equipment and the ME EQUIPMENT or ME SYSTEM – for ME EQUIPMENT and ME SYSTEMS that are not LIFE-SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the device.			
The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the device as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz $d = \frac{3.5}{V_1} \sqrt{P}$	80 MHz to 800 MHz $d = 1.167\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.333 \sqrt{P}$
0.01	Not applicable	0.117	0.233
0.1	Not applicable	0.369	0.738
1	Not applicable	1.167	2.333
10	Not applicable	3.690	7.378
100	Not applicable	11.67	23.33
<p>For transmitters rated at a maximum output power not listed above, the recommended separation distance <i>d</i> in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where <i>P</i> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.</p> <p>NOTE 1 At 80MHz and 800MHz, the separation distance for the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			