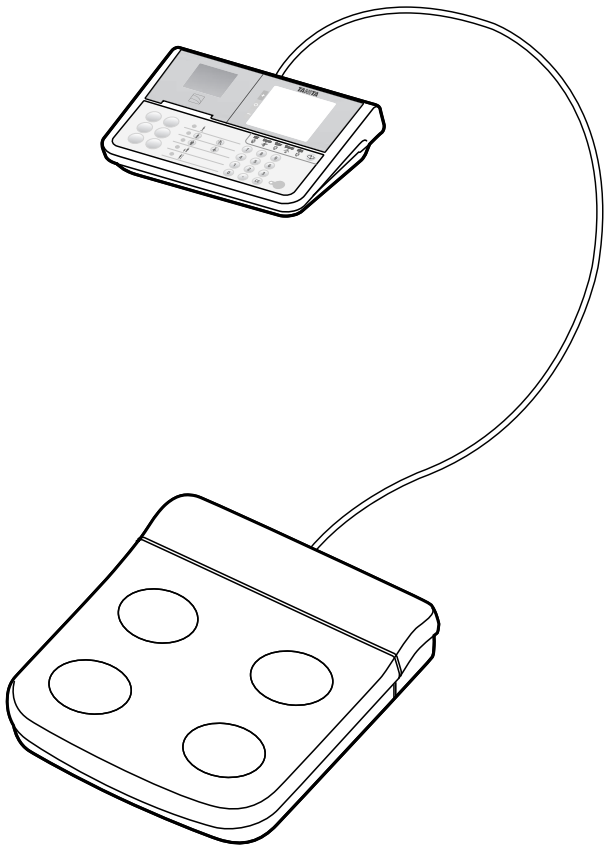
TANITA®
Monitoring Your Health

Instruction Manual

BODY COMPOSITION ANALYZER

Model No.: TBF-300WA plus



<Usage Conditions>

Temperature Range	: **41 to 95˚F / 5 to 35˚C**
Relative Humidity Range	: **30 to 80%** (non-condensing)
Max Altitude	: **6,500ft ASL (2,000m ASL)**
Atomospheric Pressure Range	: **86 to 106kPa**

<Storage Conditions>

Temperature Range	: **14 to 140˚F / -10 to 60˚C**
Relative Humidity Range	: **10 to 90%** (non-condensing)
Atmospheric Pressure Range	: **70 to 106kPa**

To avoid malfunctions, avoid storing the equipment in a place with direct sunlight, significant temperature changes, a risk of dampness, a large amount of dust or a risk of vibration or impact, or in the vicinity of flames.

Please read this Instruction Manual carefully and keep it for future reference.

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Intended Use

Tanita Body Composition Analyzers have been clinically proven to be accurate, reliable and provide highly repeatable results. Our Analyzers are used worldwide by health, research and medical professionals primarily in the following fields:
- medical screening and health assessments of adults and children
- monitoring the progress of weight loss during medical treatment relating to lifestyle diseases such as diabetes, hyperlipidemia, bariatric surgery, hypertension and fatty liver disease.
- monitoring increases of muscle mass, reduction of body fat and hydration levels as part of a fitness or training program
- assessing the true effectiveness of nutrition and physical activity programs where body mass index cannot identify key changes in body composition
- collating subject data for large cohort research studies

The Tanita Body Composition Analyzer is indicated for use in the measurement of weight and impedance, and the estimation of body mass index (BMI), total body fat percent and weight, total body water percent and weight, basal metabolic rate (BMR), and fat free mass (FFM), using BIA (Bioelectrical Impedance Analysis).
The device is indicated for use for healthy children 7 to 17 years old and healthy adults with active, moderately active, to inactive lifestyles. For subjects 17 years old and younger, only fat % is displayed.

Efficacy

This product has been specifically designed to be simple to use and required no additional user assistance to take a measurement.
Measurements can be taken in under 30 seconds for maximum convenience.

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For Your Safety

This section explains precautionary measures to be taken to avoid injury to the users of this device and others, and to prevent damage to property. Please familiarize yourself with this information to ensure safe operation of this equipment.

⚠ **Warning**	**Failure to follow instructions highlighted with this mark could result in death or severe injury.**
⚠ **Caution**	**Failure to follow instructions highlighted with this mark could result in injury or damage to property.**
⃠	**This mark indicates actions that are prohibited.**
❗	**This mark indicates instructions that must always be followed.**

⚠ Warning

Prohibited

This equipment must not be used on subjects with pacemakers or other mechanical implants.

This equipment passes a weak electrical current through the body which could interfere with and cause the malfunction of electrical medical implants, resulting in serious harm.

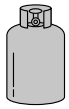


Do not handle the plug with wet hands.

This may result in electric shock, fire, or leakage.



Keep this equipment away from flammable gas and oxygen-rich environments.



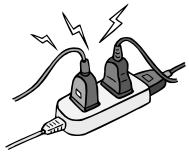
Do not modify this equipment in any way.

This can cause electric shock or injury, or affect the accuracy of analysis.



Do not use a multi-plug adapter.

This may cause fire.



⚠ Caution



Keep away from water.

Avoid using on subjects with metal allergies.

Allergic reactions may be caused by the stainless steel used in the electrodes of this device.

Do not jump on the equipment.

Do not lean on the equipment.

Do not use this equipment near other products that emit electromagnetic waves.

Do not insert fingers into gaps or holes.

Do not apply force to the display.

The screen panel may break and cause injury.

Assist persons with disabilities or children under 15 years old.

A person who is familiar with the device should assist persons with disabilities or children under 15 years old who may not be able to take measurements alone.



Clean the scale platform with appropriate disinfectant after each use.

Stand clear of the subject during measurement to ensure accuracy.

Continually monitor both the subject and the equipment for anomalies.

If an anomaly in the subject or equipment is discovered,take appropriate action, such as stopping the equipment, while ensuring the safety of the subject.

Use the included AC adapter.

Do not lean against the equipment.

Unplug the AC cord from the equipment when moving it.

Tighten the adjustable feet when moving the equipment.

Interpretation of analysis results (e.g. evaluation of measurements and formulation of exercise programs based on results) must be performed by a professional.

Weight loss measures and exercise based on self-analysis could be harmful to your health. Always follow the advice of a qualified professional.

This equipment is designated a Class B IT device (mainly for systems intended to be used in internal environments) and is CE (EMC) certified, but it may affect devices that are sensitive to electromagnetic waves.

If connecting a computer or peripheral devices to this equipment, please use devices complying with IEC60601-1 (EN60601-1). Power must be supplied from a medical isolation transformer for IEC60950 (EN60950) devices. Keep a distance of 4.9ft (1.5m) between units during operation. Failure to do so may cause electric shock to subjects or malfunction.

For Accurate Measurements

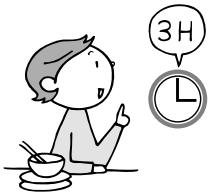
Avoid measuring after strenuous exercise.

This may cause inaccurate measurements. Please take measurements after sufficient rest.



Avoid measuring after excessive food or fluid intake or when dehydrated.

This may cause inaccurate measurements. For greater accuracy, avoid using directly after waking up. Use at the same time on each occasion, at least three hours after a meal.



Ensure inner thighs are not touching each other during measurement.
If necessary, place a dry towel between thighs.

Do not take measurements while using transmitting devices, such as mobile phones, which may affect readings.

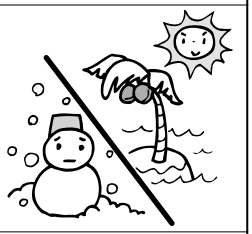
Use the equipment under the same conditions and in the same position as much as possible for accurate tracking of changes.

Readings are affected by the level of hydration and position of the body. Please use at the same time of day each time, under the same conditions and in the same body position.



Avoid measuring in multiple locations with greatly differing temperatures.

This may cause inaccurate measurements. Allow the equipment to stand for at least 2 hours before using if it is moved to a new location with a temperature difference of 36°F (20°C) or more.



Make sure the soles of feet are free of excess dirt, as this may block the mild electric current.

Bare feet should be placed correctly on the electrode platform.
Place arms straight down during measurement.

Use in a stable location.

Errors in measurements may occur if the device is used in an unstable location.

Do not wipe the equipment with corrosive chemicals (gasoline, cleaner, etc.). Please use a neutral detergent to clean the equipment.

Scheduled Maintenance

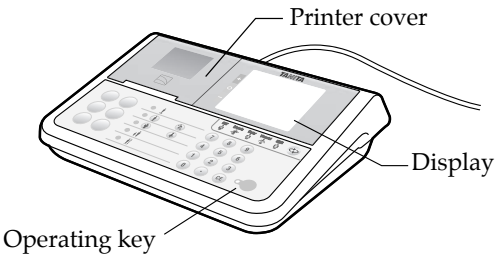
TANITA recommends that each facility conduct periodic checks of each unit.

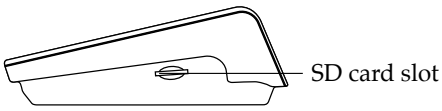
1. Check the following at least daily:
   - The unit is on a stable and level surface on a firm flooring, not on a thick carpet
   - Date and time settings
2. Visually inspect the following at least weekly:
   - The display for any damage or contamination
   - All cables, cords, and connector ends for damage or contamination
   - All safety-related labeling for legibility
   - All accessories (electrodes, etc.) for wear or damage
3. Visually inspect the following at least monthly:
   - Mounting screws on stand

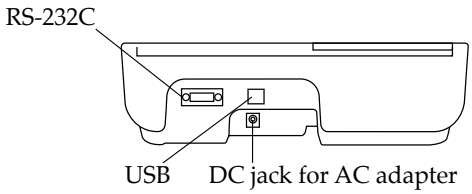
Update settings, replace items, or call for service as necessary according to the results of the visual inspections. Do not use the unit if you see any signs of damage. Equipment that has been damaged must be checked for proper operation by qualified personnel before using again.

Part Names & Connection Procedure

Control Box

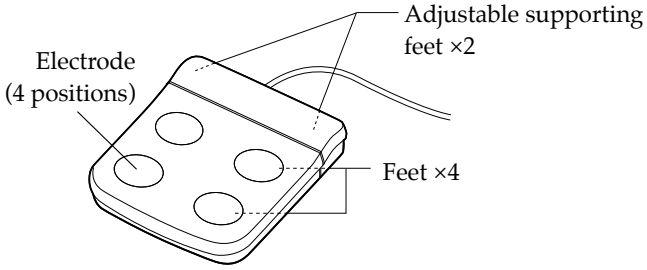




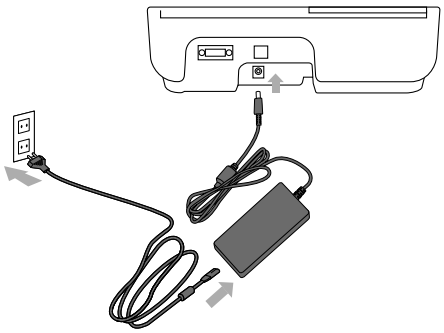


*RS-232C and USB are mutually exclusive.

Platform



Connecting to the Power Supply



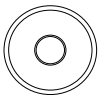
Symbols and their Meanings

⟜⊙⟜	Positive polarity	SN	Serial number
~	Alternating current	⎓	Direct current
⊖→⊕	Input, Output		WEEE - Waste Electrical and Electronic Equipment Directives
⚠	Caution Refer to the attached notes.		For indoor use only
SD	SD card		See the instructions
IOIOI	Serial interface		Manufacture

*The SD logo is a registered trademark of the SD Association.

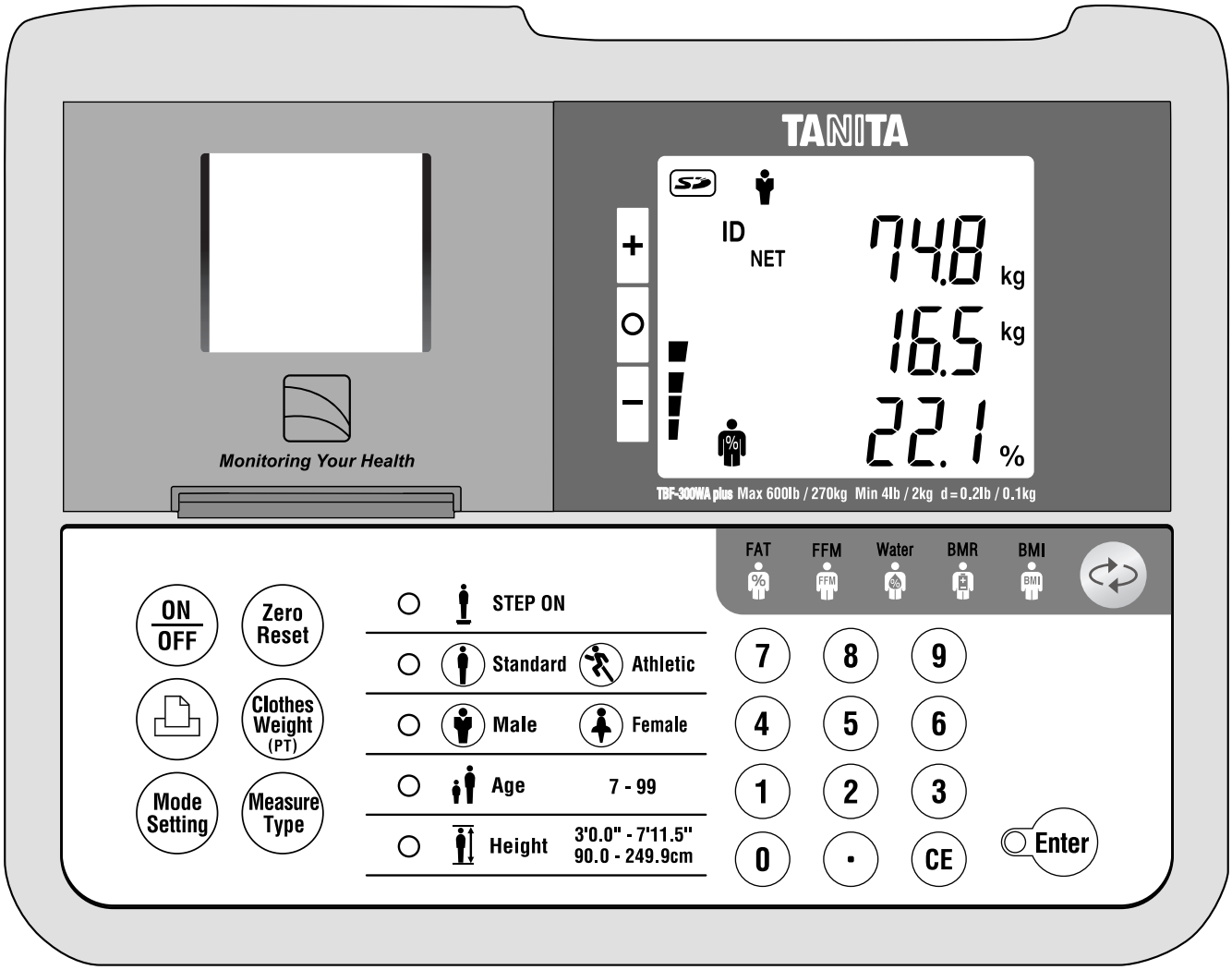
Accessories

- ☑ CD-ROM (This manual)
- ☐ AC adapter
- ☐ AC cord
- ☐ Printer paper






Display and Keys



Meanings of the LED Indicators and Keys

ON OFF	Turn ON / OFF the power
	Feeds the printer paper
Mode Setting	Set various functions
Zero Reset	Reset zero point
Clothes Weight (PT)	Set preset value (Clothes weight)
Measure Type	Select measurement mode
	Select measurement display

FAT	Display Body Fat (percentage and mass)		
FFM	Display Fat Free Mass (percentage and mass)		
Water	Display Body Water (percentage and mass)		
BMR	Display Basal Metabolic Rate	BMI	Display Body Mass Index

STEP ON	Indicate to step on
Standard / Athletic	Select the body type from "Standard mode" or "Athletic mode"
Male / Female	Select the gender from "Male" or "Female"
Age 7 - 99	Enter the age between "7 to 99 years"
Height 3'0.0" - 7'11.5" 90.0 - 249.9cm	Enter the height between "3'0.0" to 7'11.5" / 90.0 to 249.9cm"
Enter	Confirms the entered numerical value.

Setting the Printer Paper

Setting the Printer Paper

1

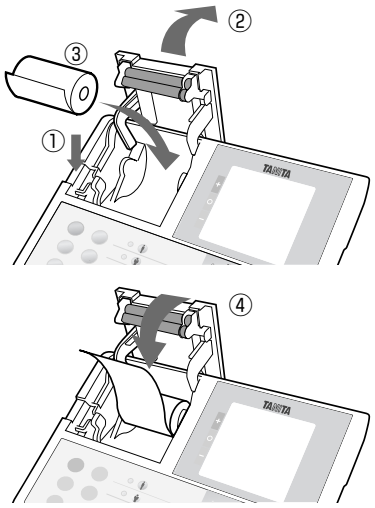
(1) Turn the power OFF and push the handle on the left hand side of the controller.

(2) Open the printer cover.

(3) Set the printer paper in place.

Peel off the adhesive and pull out approximately 4in (10cm) of paper from the printer paper.

(4) Replace the printer cover to its original place.

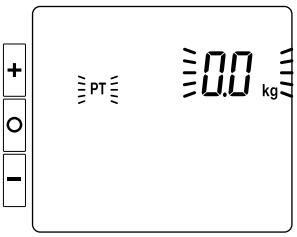


2

Press (ON/OFF) to turn on the device.

After all the indicators are displayed, 0.0kg is displayed.

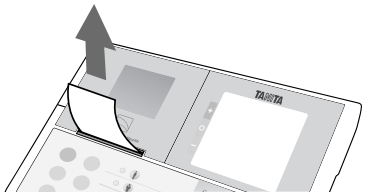
If the device is turned on with the printer cover open, COPEn is displayed.



3

Press (print). The printer paper is cut automatically, and the settings are completed.

Paper is not automatically cut when 'Auto Cut' is set to 'Off'.



Note

Cutting automatically setting → See P.14 setting 4

Setting an SD Card/ Positioning the Scale

Setting an SD Card

1 When the power is turned OFF, insert an SD card into the slot with the logo side facing upwards.

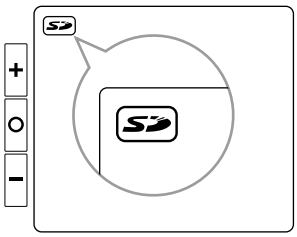
Make sure the card is facing in the correct direction when inserting it.



2 Press (ON/OFF) to turn on the device.

3 When the device detects the SD card, the mark on the right appears in the upper left corner of the screen.

Be sure to insert and remove the SD card when the device power is off to avoid damaging the SD card.

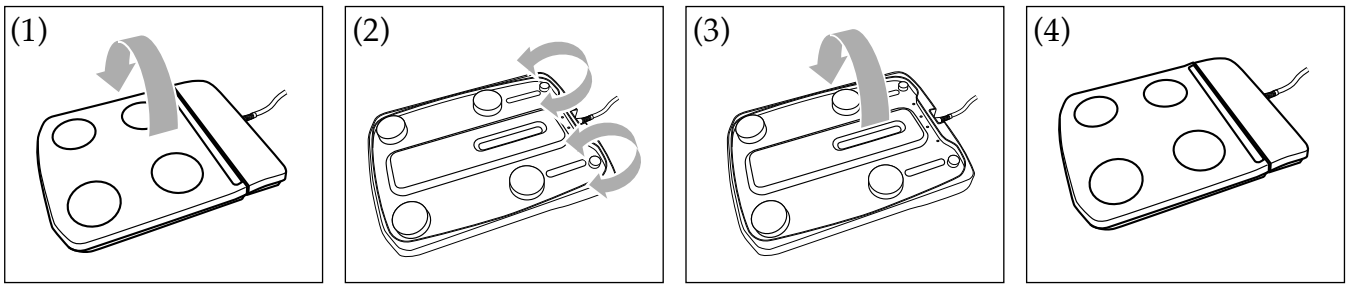


Note

Compatible with SD and SDHC memory cards
Not compatible with SDXC memory cards

Positioning the Scale

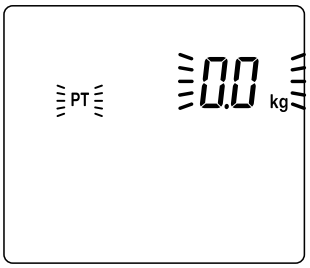
To obtain the highest level of accuracy, please make sure that all four (4) feet are touching the floor evenly.
For further accuracy and security, position the two adjustable supporting feet until they just make contact with the floor (do not overextend).



Power Supply

Turning the Main Power ON/OFF

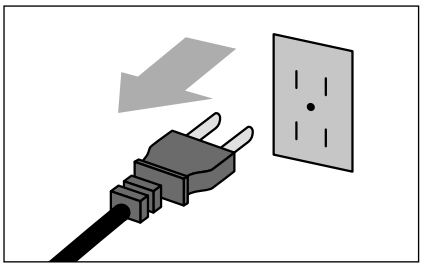
Turning the main power ON.
Press the (ON/OFF) key to turn on the power.
The initial screen is displayed.



Turning the main power OFF.
Press the (ON/OFF) key to turn on the power off.

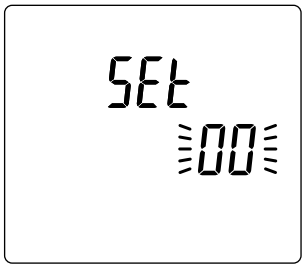
Emergency Shut Down

Keep the area around the plug socket clear during operation of the equipment in case of an emergency.



Settings

1 Press the Mode Setting key to change the mode. The setting screen is displayed.



Note

- The Mode Setting key cannot be used when the scale is measuring weight or results are displayed while standing on the platform after measurment.

2 Select the setting item from the list below. Enter numerical values and Press the Enter key.

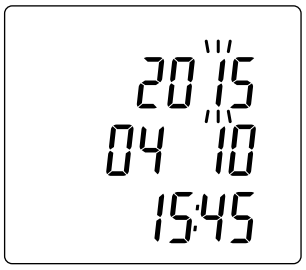
Setting item List Enter → Save changes and return

CE → Correct input number or cancel

0	Check the software version	
1	Date and time	→ See Note 1 on the next page
2	Number to be printed automatically	0-3 sheet(s) (Default: 1)
4	Cutting automatically	0: off, 1: on (Default: 1)
5	Beep sound	0: off, 1: on (Default: 1)
7	ID number (Automatic count up)	0: off, 1: on (Default: 1)
8	Measurement flow	0: Two step flow (Measure body weight first), 1: One step flow (Enter personal info first) (Default: 0) → See P.17
9	Body type selection (Athletic mode)	0: off, 1: on (Default: 1) → See P.17 & P.29
10	Height input unit	0: 0.1cm increments, 1: 1cm increments (Default: 1)
11	Automatic determination time of input information	0-9 second(s) (Default: 0, Disables this function)
16	Unit change	0: kg, 1: lb (Default: 1)
18	Target body fat ratio input	0: off, 1: on (Default: 0)
19	Printout language	1: English, 2: French, 3: Spanish (Default: 1)
20	Printout contents	1: full, 2: short (Default: 1)
21	Timeout function of result display	0: disable, 1: enable (Default: 1)
22	Wrestler Mode	0: off, 5: 5%, 7: 7% (Default: 7) → See Note 2 on the next page
23	BMR kJ unit display ON/OFF	0: off, 1: on (Default: 0)
45–68	Printing item settings	0: off, 1: on → See P.25
80	SD Card mode	→ See P.28

Note 1

Enter the year, month, day, hour and minute.
The date format is "yyyy mm dd hh:mm"
(Date input range: 2015 01 01 00:00 to 2099 12 31 23:59)

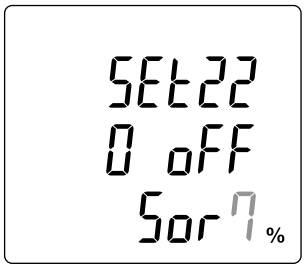


Example 3:45 pm, 10th April, 2015
"2015" "04 10" "15:45"

To enter a number with 1 digit (0 to 9), press "0" first.

Note 2

When the "Wrestler Mode" is activated, the TBF-300WA plus automatically calculates the Minimum Wrestling Weight at a predetermined minimum body fat %. The 1996 ACSM Position Stand "Weight Loss in Wrestlers" as adopted by the NCAA recommends the following MINIMUM body fat % as follows:



- 5% for Collegiate Athletes (male)
- 7% for High School Athletes (male)

The target body fat % value is completely separate from the Minimum Wrestling Weight (Min Weight) calculations. The target body fat % value may be entered as 15%, even though the Min Weight is calculated at a predetermined minimum body fat of 5 or 7%.

Wrestler Mode: Guideline for Setting the Minimum Weight

Minimum Wrestling Weight is calculated according to the methodology adopted by the NCAA (1998 Guidelines). The calculations are as follows:

Body Fat Percent (BF%) = (4.57 / Body Density - 4.142) X 100 (Brozek equation)
Fat weight (FW) = Body Weight (BW) X BF% / 100
Fat free Weight (FFW) = BW - FW
Minimum Wrestling Weight (MWW)** = FFW / Predetermined Minimum BF%*

* If the predetermined minimum BF% is 7%: MWW = FFW / 0.93
* If the predetermined minimum BF% is 5%: MWW = FFW / 0.95
** MWW appears as "Min WEIGHT" on the printout.

⚠ CAUTION

- The minimum percent body fat values used to calcuate the Minimum Wrestling Weight (MWW) are derived from the 1996 American College of Sports Medicine (ACSM) Position Stand "Weight Loss in Wrestlers", that has been adopted by the National Collegiate Athletic Association (NCAA) in their 1998 Weight Management Guidelines. Tanita Corporation is not responsible for establishing these minimum requirements and guidelines, nor for any future changes to the current standards. Tanita is providing information only, and does NOT recommend the application of the guidelines for any given individual. State wrestling associations may have standards that differ from the NCAA.
- The Minimum Wrestling Weight as calculated with the minimum body fat percent is the *MINIMUM* weight at which an athlete may be allowed to compete. The *MINIMUM* body fat percent and resulting *MINIMUM* wrestling weight may NOT be the optimal body fat or weight for a given individual athlete. Attempting to achieve these *MINIMUM* standards does NOT necessarily impact the athlete's performance, and may be unhealthy for given individuals.
- If it is necessary to set the Minimum BF% to a value other than 5% or 7%, please contact our customer service department.

Wrestler mode setting → see P.14 Setting 22

Select the Measurement Mode

Select the measurement mode by pressing the Measure Type key.

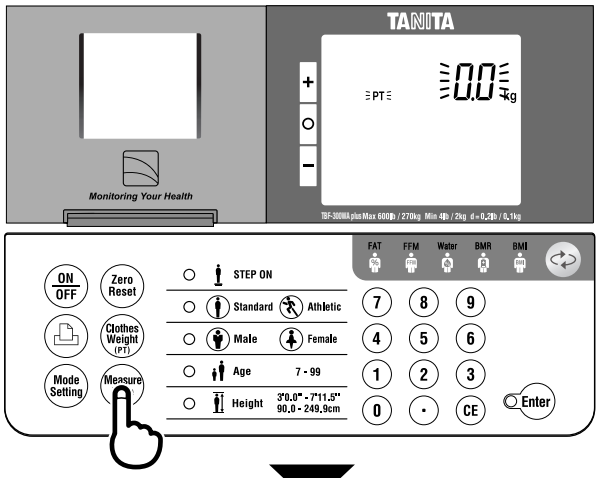
The measurement mode is switched in the following order when the Measure Type key is pressed:

"Body Composition"

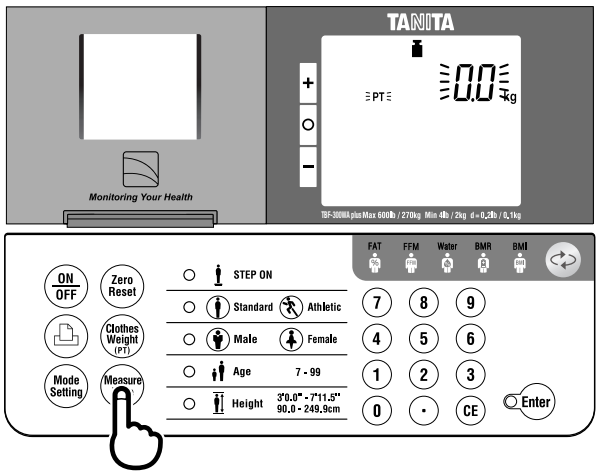
"Scale"

The "▮" mark is displayed when the scale mode is selected.

Body Composition Mode



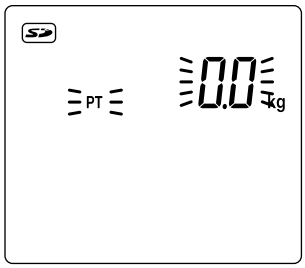
Scale Mode



Taking a Measurement

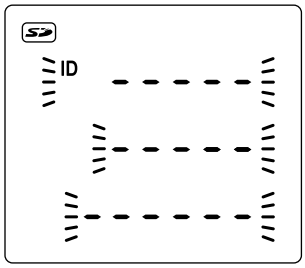
Body Composition Mode (Two step flow / Measure body weight first)

1 Enter the preset tare value (clothes weight)



Turn the power on, and check that the "**PT**" mark is displayed.
Enter the preset tare value (clothes weight)
The tare value range is 0.0 to 20.0lb (0.0 to 10.0kg)

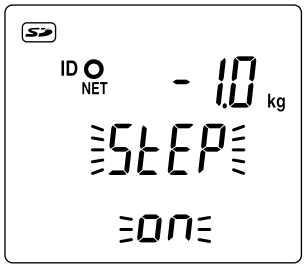
2 Enter ID number



If the ID number function is set to OFF, the scale switches directly to "Measure body weight" without requesting an ID number.
If the ID number is set to ON, ID number will be increased automatically.
To change ID number manually, press (CE) and enter the preferred ID number.
The ID number range: 0 to 9999999999999999

Note ID number setting → See P.14 setting 7

3 Measure body weight



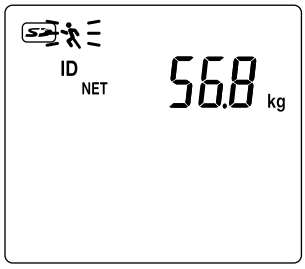
Step onto the platform with bare feet, after "**StEP on**" flashes.
"**NET**" is displayed when you have entered a tare value (clothes weight).
The "stabilized" icon (O) appears when the load is stable.

Note

When the One step flow is selected, enter personal information first.
→ See P.14 Setting 8
If the scale does not detect a load, press (Clothes Weight (PT)) to switch to "Input tare value".
If the scale detects the load, press (Clothes Weight (PT)) to display the entered tare value.

4 Select body type

Standard Athletic



If the body type selection (Athletic mode) is set to OFF, the scale switches directly to "Select gender" without requesting a body type.

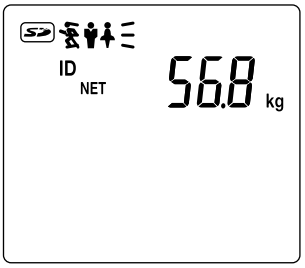
The "🏃" mark is displayed when the Athletic mode is selected.

Note Athletic mode setting → See P.14 Setting 9
Athlete condition → See P.29

Body Composition Mode

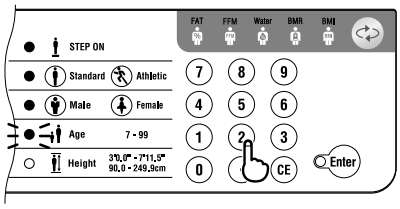
5 Select gender

Male Female

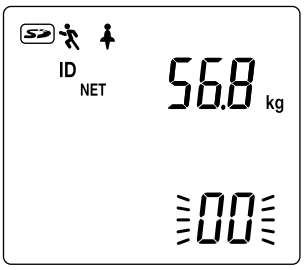


6 Enter age

Age

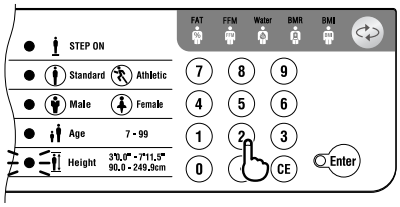


The age range: 7 to 99

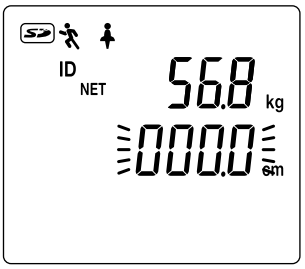


7 Enter height

Height



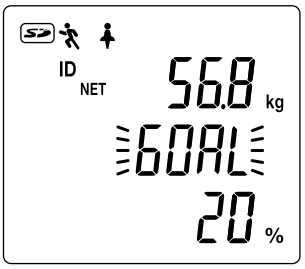
The height range:
3'0.0" to 7'11.5" / 90.0 to 249.9cm



Note Height input unit setting → See P.14 setting 10

8 Set target body fat ratio

If the target body fat ratio function is set to OFF, the scale switches directly to "Measuring impedance" without entering the target value.
The body fat ratio range: 4 to 55 %

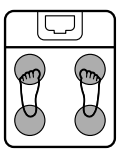


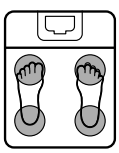
Note Target Body Fat ratio input → See P.14 setting 18

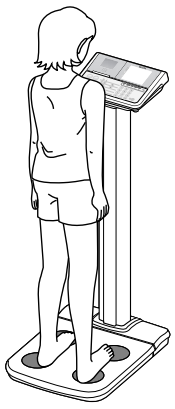
9 Measuring body composition

The scale starts measuring impedance after you have entered all of the personal information.
Wait until "**StAY**" is displayed, and remain standing while measuring.
The measurement is complete when all "**oooooo**" disappear.
The scale displays the measurement results after measuring the whole body impedance.

The next measuring starts by pressing Enter.



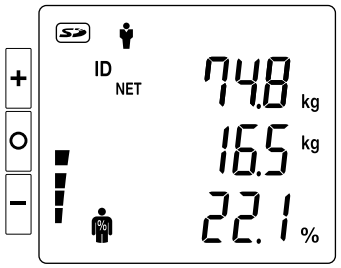




Measurement Results

Output Measurement Results (Body Composition Mode)

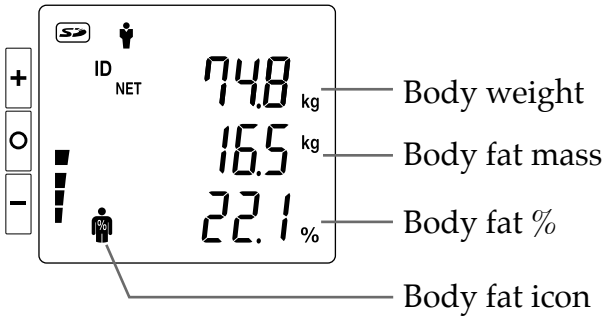
The measurement results are displayed on the LCD after measurement is completed.
The results are output to the PC immediately after measurement is completed.



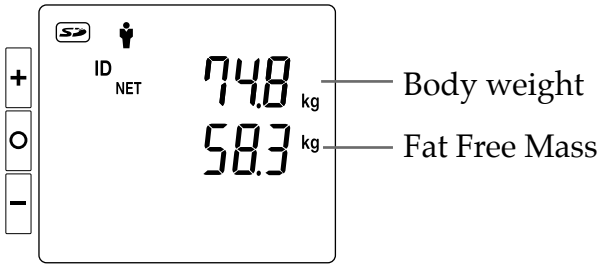
Press the ⟲ key to select the measurement display.
The measurement display is switched in the following order by pressing the ⟲ key.

→ "Fat" → "FFM" → "Body Water" → "BMR" → "BMI" ┐

Body Fat (Applicable age: 7 to 99)

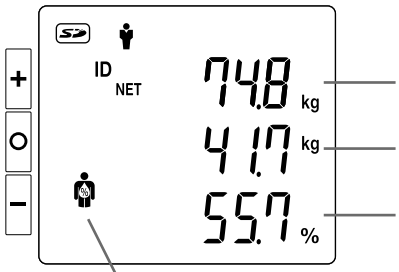


Fat Free Mass (FFM) (Applicable age: 7 to 99)



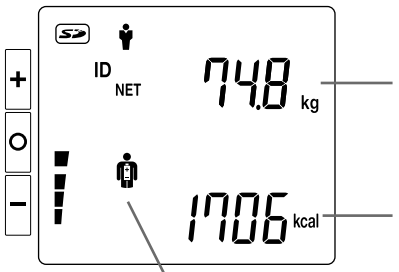
Measurement Results

Total Body Water (TBW) (Applicable age: 18 to 99)



Body weight
Body water
Body water %
Body water icon

Basal Metabolic Rate (BMR) (Applicable age: 18 to 99)

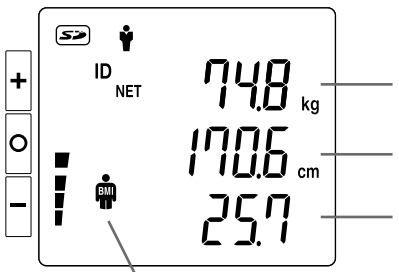


Body weight
BMR (kcal)
BMR icon

*Basal metabolic rate level compared to the general population.

Note BMR kJ unit display ON/OFF setting → See P.14 setting 23

Body Mass Index (BMI) (Applicable age: 7 to 99)

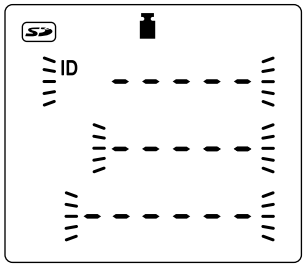


Body weight
Body height
BMI
BMI icon

Scale Mode

The "▮" icon is displayed when the scale mode is selected.

1 Enter the ID number

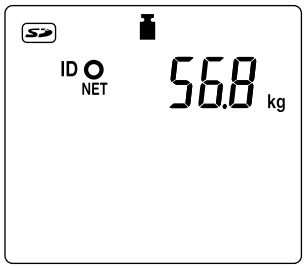


If the ID number function is set to OFF, the scale starts measuring weight immediately.
If the ID number is set to ON, ID number will be increased automatically.
To change ID number manually, press (CE) and enter the preferred ID number.
The ID number range is from 0 to 9999999999999999.

Press (Clothes Weight (PT)) to enter tare value (clothes weight).
The tare value range is 0.0 to 20.0lb (0.0 to 10.0kg).

Note ID number setting → See P.14 setting 7

2 Measure body weight



Step onto the platform, after "StEP on" flashes.

"NET" is displayed when you have entered a tare value (clothes weight).

The "Stabilized" icon (O) appears when the load is stable.
The "Stabilized" icon (O) disappears when the load is unstable.

When the load is stable, the measurement results are output via the USB port and stored on an SD card.

- What is body fat percentage? (Applicable age 7 to 99)

Body fat percentage is the amount of body fat as a proportion of your body weight.
Reducing excess levels of body fat has shown to reduce the risk of certain conditions such as high blood pressure, heart disease,diabetes and cancer. The chart below shows the healthy ranges for body fat.

Body Fat Ranges for Standard Children [1]
Body Fat Ranges for Standard Adults [2]

[1] *Susan Jebb et al. Obesity Reseach[o2] 2004;12:A156-157 "New Body Fat Reference Curves for children"*

[2] *Gallagher D et al. Am J Clin Nutr 2000,72:694-701. "Healthy percentage body fat ranges:an approach for developing guidelines based on body mass index."*

| | | Underfat | | | | | | | | | Healthy | | | | | | | | | | Overfat | | | | | Obese | | | | | | | | | |

- What is total body water percentage? (Applicable age 18 to 99)

Total Body Water Percentage is the total amount of fluid in a person's body expressed as a percentage of their total weight.
Water plays a vital role in many of the body's processes and is found in every cell, tissue and organ. Maintaining a healthy total body water percentage will ensure the body functions efficiently and will reduce the risk of developing associated health problems.

Your body water levels naturally fluctuate throughout the day and night. Your body tends to be dehydrated after a long night and there are differences in fluid distribution between day and night. Eating large meals, drinking alcohol, menstruation, illness, exercising, and bathing may cause variations in your hydration levels.

Your body water percentage reading should act as a guide and should not be used to specifically determine your absolute recommended total body water percentage. It is important to look for long-term changes in total body water percentage and maintain a consistent, healthy total body water percentage.

Drinking a large quantity of water in one sitting will not instantly change your water level. In fact, it will increase your body fat reading due to the additional weight gain. Please monitor all readings over time to track the relative change.

Every individual varies but as a guide the average total body water percentage ranges for a healthy adult are:
Female: 45 to 60%
Male: 50 to 65%
Source: Based on Tanita's Internal Research

Note: The total body water percentage will tend to decrease as the percentage of body fat increases. A person with a high percentage of body fat may fall below the average body water percentage. As you lose body fat the total body water percentage should gradually move towards the typical range given above.

- What is basal metabolic rate (BMR)? (Applicable age 18 to 99)

What is BMR?

Your Basal Metabolic Rate(BMR) is the minimum level of energy your body needs when at rest to function effectively including your respiratory and circulatory organs, neural system, liver, kidneys, and other organs. You burn calories when sleeping.

About 70% of calories consumed every day are used for your basal metabolism. In addition, energy is used when doing any kind of activity however; the more vigorous the activity is the more calories are burned. This is because skeletal muscle (which accounts for approximately 40% of your body weight) acts as your metabolic engine and uses a large amount of energy. Your basal metabolism is greatly affected by the quantity of muscles you have, therefor increasing your muscle mass will help increase your basal metabolism.

By studying healthy individuals, scientists have found that as people age, their metabolic rate changes. Basal metabolism rises as a child matures. After a peak at the age of 16 or 17, it typically starts to decrease gradually.

Having a higher basal metabolism will increase the number of calories used and help to decrease the amount of body fat. A low basal metabolic rate will make it harder to lose body fat and overall weight.

How does a Tanita body composition analyzer caluclate BMR?

The basic way of calculating Basal Metabolic Rate BMR is a standard equation using weight and age. Tanita has conducted in-depth research into the relationship of BMR and body composition giving a much more accurate and personalized reading for the user based on the impedance measurement. This method has been medically validated using indirect calorimetry (measuring the breath composition).*

* Reliability on equation for Basal Metabolic Rate: At 2002 Nutrition Week: A Scientific and Clinical Forum and Exposition Title: International Comparison: Resting Energy Expenditure Prediction Models: The American Journal of Clinical Nutrition

Output and Storage of Measurement Results

Data Output

Outputting measurement results via the USB or RS

The results are output to the PC immediately after measurement is completed.

Data is output in CSV format.

- USB connector (Type B 4 - pin female) and RS-232C are located on the back of the control box.
- Please provide your own cable as necessary as none are included.
  USB cable: Type A 4 - pin (male) - Type B 4 - pin (male)
- You must install the neccessary driver on to your PC, available download from:
  http://www.tanita.com
- RS-232C and USB are mutually exclusive.

Data Storage

Data storage of measurement results

The results are saved to the SD card immediately after measurement is completed.

The SD icon is displayed when a valid SD card is inserted.

A new file is created on the SD card for each day.

The file is created using the measurement date and time as the file name, as shown below.
“YYYYMMDD” (year, month and date)

If “error 12” is shown in the display, this indicates that there is not enough free space left on the SD card.

You can store approximately 10,000 measurement results (weight only mode) on a 2GB SD card.

- Do not remove the SD card when it is storing or reading data.
- Do not turn off the main power when the SD card is storing or reading data.

Printing Data

Number	Items	Default
45	Fat Mass	1.on
46	Fat Free Mass	1.on
48	Total Body Water Mass	1.on
50	Basal Metabolic Rate (BMR)	1.on
54	BMI	1.on
58	Desirable Range Fat % & Fat Mass	1.on
59	Total Body Water %	1.on
60	Graph Fat %	1.on
61	Graph BMI	1.on
64	Graph BMR	1.on
67	Bioelectrical data	1.on
68	TANITA Logo	1.on

Note 0: off, 1: on

Printing Measurement Results

The results are printed from the printer immediately after measurement is completed. The number of sheets that are printed is set in Mode Setting.

Lists of Contents of the Print Item Preset

Print item	Body composition analyzer						Scale
	Full			Short			
Body Type	Standard	Athletic	Child	Standard	Athletic	Child	
TANITA LOGO	✓	✓	✓	✓	✓	✓	✓
Category Name	✓	✓	✓	✓	✓	✓	✓
Model Number	✓	✓	✓	✓	✓	✓	✓
Date and Time	✓	✓	✓	✓	✓	✓	✓
ID No	✓	✓	✓	✓	✓	✓	✓
Body Type	✓	✓		✓	✓		
Gender	✓	✓	✓	✓	✓	✓	
Age	✓	✓	✓	✓	✓	✓	
Height	✓	✓	✓	✓	✓	✓	
Clothes Weight	✓	✓	✓	✓	✓	✓	✓
Weight	✓	✓	✓	✓	✓	✓	✓
Fat %	✓	✓	✓	✓	✓	✓	
Fat Mass	✓	✓	✓				
Fat Free Mass	✓	✓	✓				
Total Body Water Mass	✓	✓					
Total Body Water %	✓	✓					
Basal Metabolic Rate	✓	✓					
BMI	✓	✓	✓	✓	✓	✓	
Desirable Range	✓	✓	✓				
Target Fat %	*1	*1	*1	*1	*1	*1	
Wrestler Mode	*2	*2	*2	*2	*2	*2	
Indicator Fat %	✓	✓					
Indicator BMI	✓	✓					
Indicator BMR	✓	✓					
Bioelectrical Data	✓	✓	✓	✓	✓	✓	

See the next page for an example of preset print.

*1: These items are not default.

*2: When the wrestler mode is activated.

In the Case to Select the Print Item Preset "Body Composition Analyzer - full - Standard"

Category name

Weight
- Measured weight.

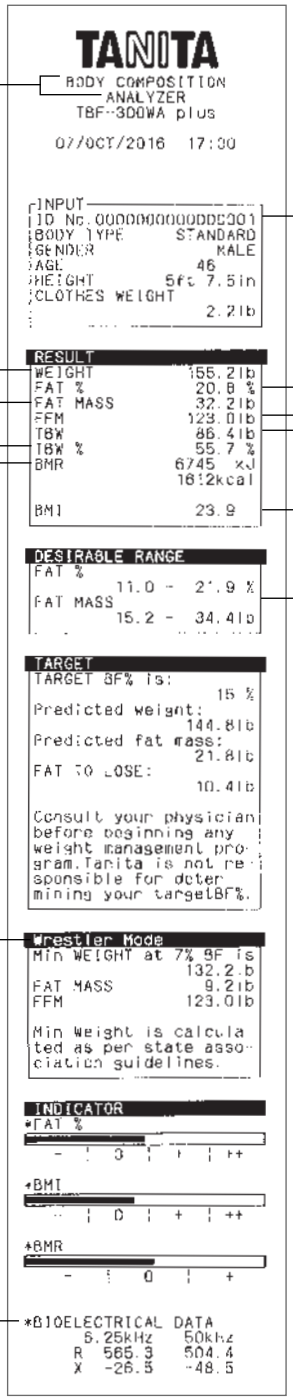
Fat mass
- Total weight of fat mass in the body.

TBW%*

BMR*
- Basal Metabolic Rate represents the total energy expended by the body to maintain normal functions at rest such as respiration and circulation.

Wrestler Mode
- This section automatically calculates the Minimum Wrestling Weight (MWW) using the methodology adopted in the 1988 NCAA Weight Management Guidelines.

Bioelectrical data
- The Resistance Reactance table indicates measurements for the impedance flow at each of the single frequency signal.



ID
- When it is set with an ID, it is printed out.

Fat %
- Fat % is amount of body fat as a proportion of body weight.

FFM
- Fat Free Mass is comprised of muscle, bone, tissue, water, and all other fat free mass in the body.

TBW*
- Total Body Water is the amount of water retained in the body. TBW is said to comprise between 50% to 70% of total body weight. Generally, men tend to have higher water weight than women due to a greater amount of muscle.

BMI
- Calculated with "weight (kg) / height(m)^2"

The desirable range is for the Standard mode. In the case of the Athletic mode, the standard value is just a reference. And for those who are 17 years old or younger, only the body fat % is displayed as the standard value.

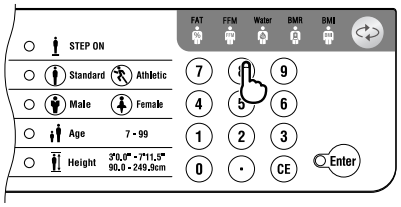
*18 to 99 yaers only

⚠ Please consult your doctor before you start a body weight management program. Tanita is not responsible for the target body fat ratio.

Reading Stored Measurement Result Data

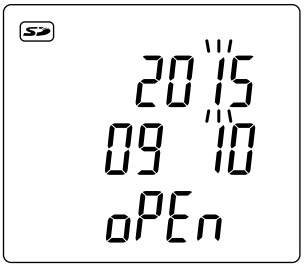
1 **Press the Mode Setting key while the display is on, and select the setting 80.**

Make sure the SD card is inserted.

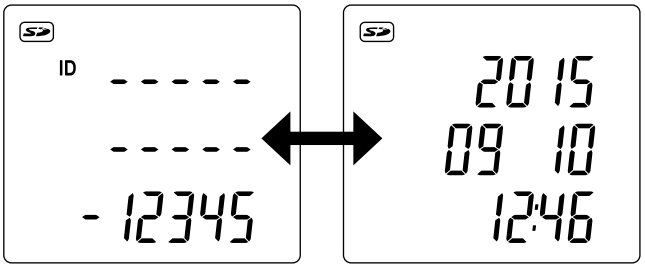


Enter the measurement date (YYYYMMDD) using the keypad, then press the Enter key and "oPEn" lights.

When there is no data matching with the entered date, "F-nonE" is displayed.

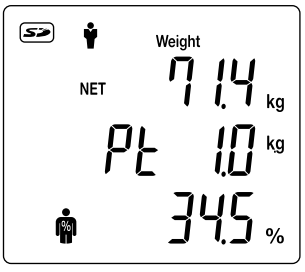


2 **When a file is present, the ID and measurement date and time of the data saved at the beginning of the file are alternately displayed.**



(1) Press the key, and the ID and measurement date and time of the data saved below are alternately displayed.

(2) Press the Enter key, and Body weight, Pt (Clothes weight) and Body Fat % are displayed.



*Press the CE key to return to one higher level.

General Instructions for Body Composition Measurement

Athletic Mode

• **Recommended for those who are 18 years or older and meet the following conditions.**
- People who carry out 12 hours or more of cardiovascular exercise a week.
- People who belong to a sport team or a sport organization with the aim of participation in competition, etc.
- People who are professional athletes.

Target Body Fat

• **A target body fat % should be set by a professional only. Tanita is not responsible for setting the appropriate target body fat % for specific individuals.**

Attention

• **Posture when measuring**
- Stand with both feet parallel on the electrodes.
- Stand without bending knees.

• **The age input range is 7 to 99 years old.**
Input age 99 for those who are 100 years or older.

Note

•Inaccurate results may be reported after excessive food/fluid intake, or after periods of intense exercise.
•If clothes weight is input, clothes weight is subtracted from the weight measurements.

Troubleshooting

Please check the following before requesting repair.

Problem		Solution
Measurement	**Error with impedance measurement "Err40" is displayed.**	• Stand barefoot on the platform for measurement. • If the soles of the feet are dry, use a dropper to apply about 0.5 mL of water before measurement. • Check the input details.
	Error with zeroing "uuuuu" is displayed.	• Turn off the power and remove anything on the platform, then turn on the power and try measuring again.
	The weight value does not stabilize.	• Is the equipment placed on a vibrating surface? • Is the measuring platform tilted? • Is something blocking the gap in the measuring platform? • Remove any inserted objects.
Display	**Nothing is displayed, even when the power is turned on.**	• Confirm that the power is connected correctly.
	"-----" is displayed.	• The measured weight exceeds weighing capacity.
Printer	**Run out of print paper "P-End" is displayed.**	• Printer paper is not supplied. ⇒Supply paper. ⇒In the case that the printer is not used, press CE key and redo the initial setting.
	Printer cover open "COPEn" is displayed.	• The printer cover is open. ⇒Properly close it. ⇒Check that the printer paper is not slanted.
SD card	**"Sd-F" is displayed.**	• Insufficient space on the SD card. ⇒Transfer or delete data from the SD card.
	"Sd-P" is displayed.	• SD memory card is write protected. ⇒Remove (unlock) the SD card protection.
	"Sd-E" is displayed.	• SD Card malfunction. ⇒Replace with a new SD card.

Body composition measurement by the BIA method.

Introduction

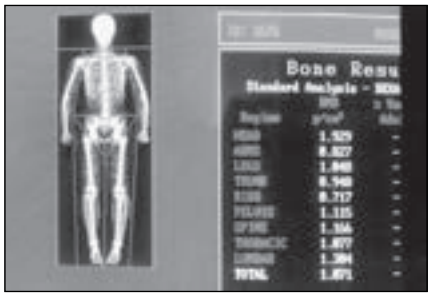
This equipment provides estimated values for each measured value of body fat percentage, fat mass, fatfree mass, muscle mass and bone mass by the DXA method, estimated value for the total body water measured value by the dilution method and estimated value for the visceral fat rating by MRI method using the Bioelectrical Impedance Analysis (BIA method).
For measurement, a mode must be selected based on body type.
1) Standard (for 7 to 99 years of age)
2) Athletic (for Athletic persons who exercise considerably more than non-athlete)
Making a distinction by body type in the measurement mode produces more reliable body composition measurements for athletic persons, whose body compositions differ from those of average persons.

- Principles of body composition measurement

BIA is a means of measuring body composition – fat mass, predicted muscle mass, etc. – by measuring bioelectrical impedance in the body. Fat within the body allows almost no electricity to pass through, while electricity passes rather easily through water, much of which is found in muscles. The degree of difficulty with which electricity passes through a substance is known as the electrical resistance, and the percentage of fat and other body constituents can be inferred from measurements of this resistance.
The Tanita Body Composition Analyzer measures body composition using a constant current source with a high frequency current (50kHz, 90μA). The 4 electrodes are positioned so that electric current is supplied from the electrodes on the tips of the toes of both feet, and voltage is measured on the heel of both feet.

- What is the DXA method?

DXA was originally designed to measure bone mineral content, but in the full-body scan mode the body fat percentage, fat mass, and fat free mass of individual body parts (arms, legs, trunk) can also be measured. The image below shows one example of body composition measurement results obtained by DXA.



Body composition measurement results obtained by DXA

- What is dilution method?

In the dilution method, a labeled substance for a known amount is given and the concentration in equilibrium diffusing evenly is measured to obtain the total amount of the solvent that dilutes the labeled substance.
To measure the total body water (TBW), deuterium oxide (D_2O) is generally used as the labeled substance. Deuterium oxide uses the overall total body water as dilution space so the total body water can be obtained.
To obtain the extracellular fluid amount, sodium bromide (NaBr) is used as a labeled substance.
Bromine (Br) is said to not enter the inside of cells, and uses extracellular fluid as the dilution space.

- Factors giving errors in measurement

In the BIA method, impedance is measured and the body composition is calculated based on the value. It is known that impedance changes by the amount of the total body water that occupies about 60% of weight and the change in its distribution and temperature change. Therefore, for the purpose of research or for daily repeating of measurements, the measurement conditions must be kept constant. Measurement under the changing conditions of temperature and total body water distribution or blood flow volume of extremities due to exercising, taking a bath, etc., affects the measurement result since the electric resistance in the body also changes.
Therefore, it is recommended to measure under the following conditions for stable measurement.

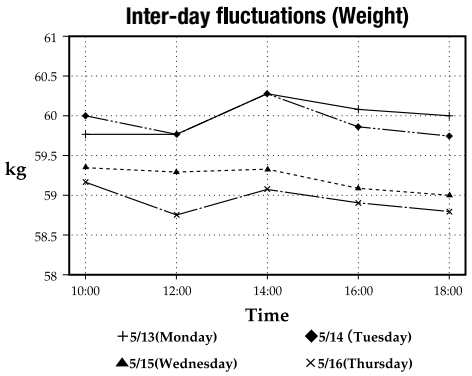
1) 3 hours have passed after getting up and normal lifestyle activities are carried out during this period. (Bioelectrical impedance remains high if you remain sitting after getting up or drive a car, etc.)
2) 3 hours or more have passed after eating. (For 2 to 3 hours after eating, the impedance has a tendency to decrease.)
3) 12 hours or more have passed after vigorous exercise for measurement. (The tendency toward changes in impedance is not stable depending on the type and rigorousness of the exercise.)
4) If possible urinate before taking measurement.
5) For repeated measurements, measure at the same hour as much as possible. (At the same time of measurement of weight, the measurements can be made more stable by measuring at the same time of the day)

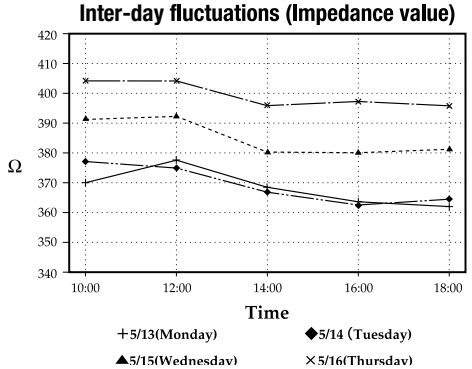
Very stable measured values can be obtained by measuring under the above conditions.
And in the development of this equipment, the following 6 items were set as conditions for the regression equation.

1) Prohibition of alcohol intake for 12 hours before measurement
2) Prohibition of excessive exercise for 12 hours before measurement.
3) Prohibition of excessive eating and drinking the day before measurement
4) Prohibition of eating and drinking for 3 hours before measurement
5) Urination just before measurement
6) Avoid measurements during menstruation (for female)

2) Inter-day changes

The diagrams below offer examples of actual measurements made of inter-day changes. A study was done to determine the degree of change in the impedance between the feet during dehydration; the first two days represent a normal daily routine, while in the latter two days a state of dehydration was induced using a sauna.
No significant inter-day change was measured in body weight, impedance between the feet, or body fat percentage during the normal daily routine. During the dehydrated state, however, a drop in body weight of 1kg was noted, with the impedance between the feet rising approximately 15Ω on the first day of dehydration and 30 to 35Ω on the second day. As a result, body fat percentage was up by around 1% on the first day of dehydration and by 1.5 to 2% on the second day.
As mentioned earlier, impedance increases when body weight is reduced (such as by dehydration), and decreases when body weight is increased through excess consumption of food and drink. The inter-day change in impedance is thus inversely proportional to the change in body weight.

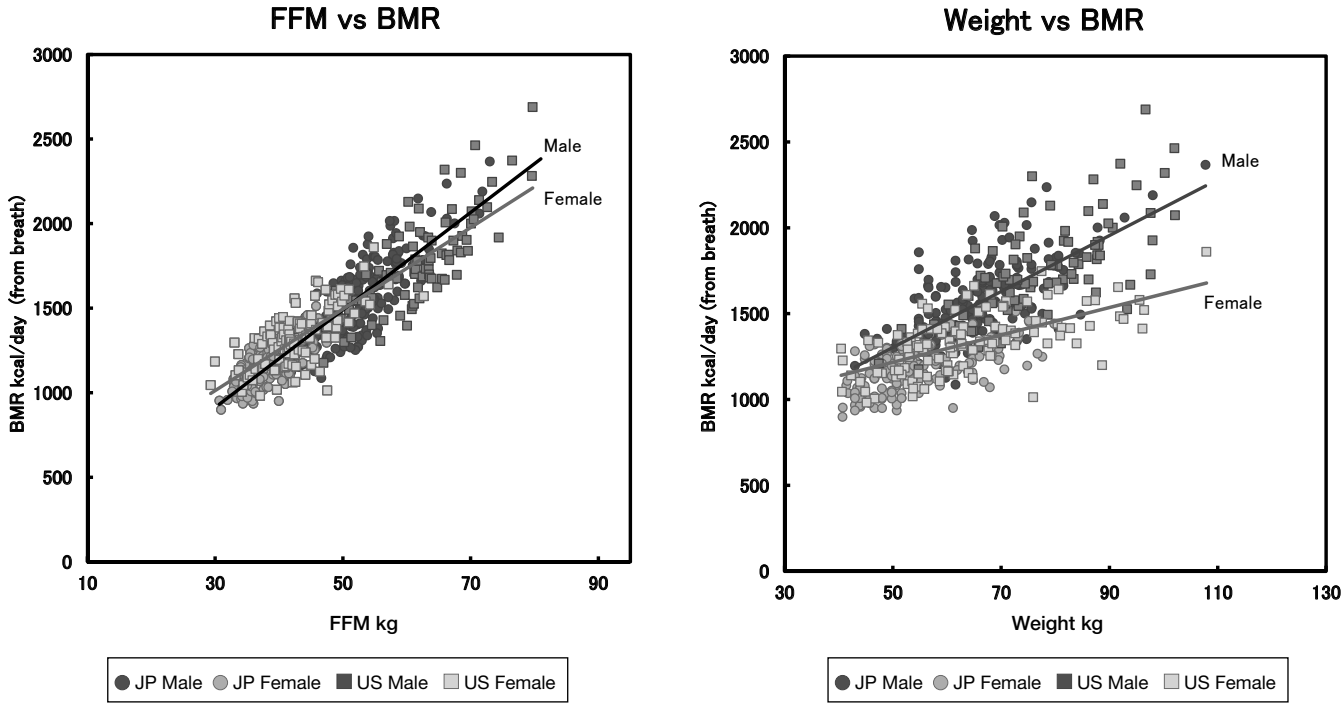




These inter-day changes stem from such causes as:
1) Temporary increases in body weight (total body water) through overeating and overdrinking
2) Dehydration due to heavy sweating during vigorous exercise
3) Dehydration due to alcohol consumption or the use of diuretics
4) Dehydration due to heavy sweating during saunas, etc.
Accordingly, it is recommended that instructions be provided to the subject to help eliminate these causes when accurate measurements are needed.

The Regression Formula for Basal Metabolic Rate (BMR)

The Basal Metabolic Rate (BMR) value is known to be closely related with the Fat Free Mass (FFM). It is also correlated with body weight, but there are issues when it is calculated from the body weight without considering body composition evaluation. This causes a greater error range to occur. In cases where people have the same body weight but different composition, values for obese people that have more body fat are overestimated, whereas those for muscular athletes are underestimated.

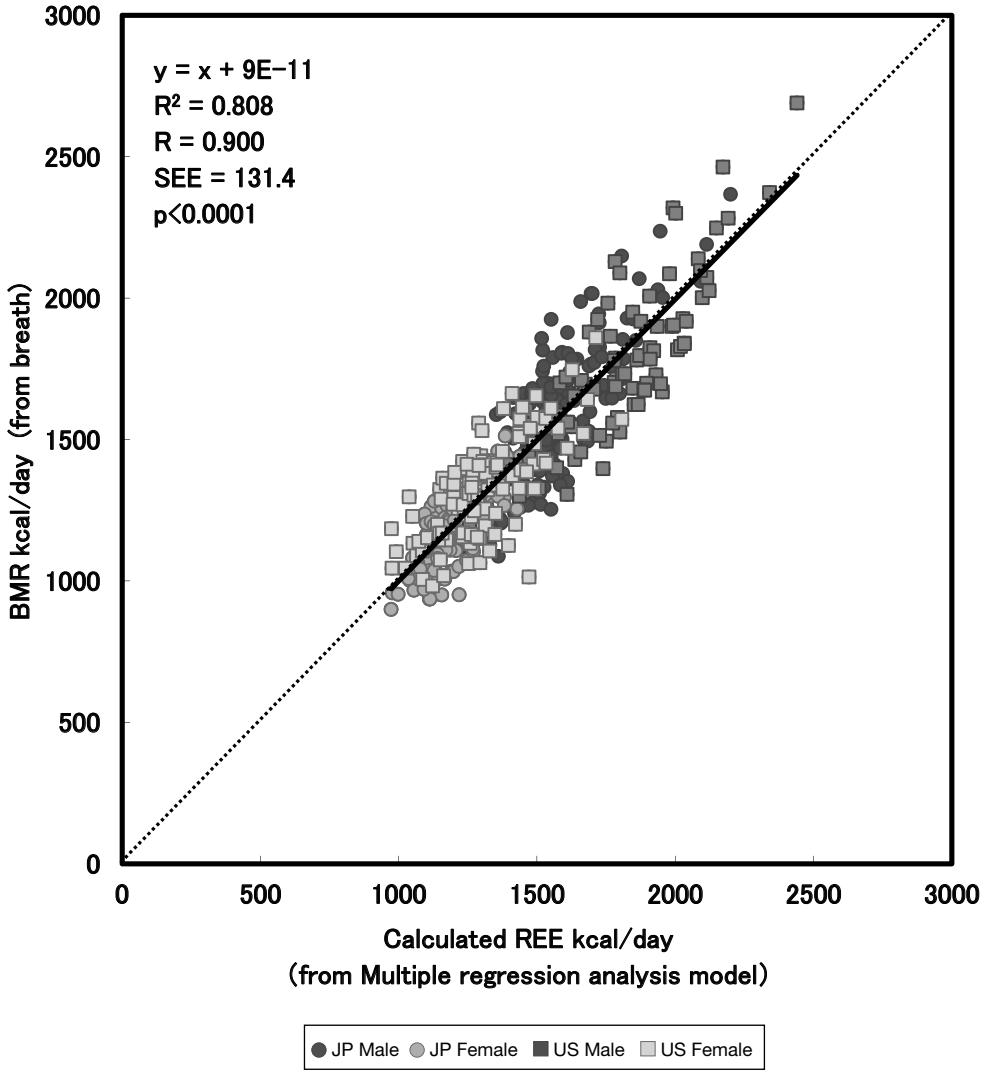


<Figure 1> Relationship of BMR from exhalation analysis with weight and FFM

Figure 1 shows that the correlation between BMR and FFM is far stronger than the correlation between BMR and weight.
The estimated regression equation for BMR developed through years of research by Tanita is extremely accurate because it reflects differences in individual body compositions and is calculated from the measured FFM. This estimated regression equation is based on the BMR measured using an exhalation analyzer, and has been checked for statistical validity.

These results were presented at the First Annual Nutrition Week (American College of Nutrition, American Society for Clinical Nutrition, American Society for Parenteral and Enteral Nutrition, North American Association for the Study of Obesity) held in 2002 in San Diego.

NOTE: This model has been calibrated for those between ages of 18 to 84. Those individuals outside of this age range may not be obtain accurate readings.



<Figure 2> Relationship of BMR and calculated REE from Tanita multiple regression analysis model
Modified based on data announced at Nutrition Week held in San Diego in 2002)

Specifications

Model Number		TBF-300WA plus
Power Source		AC adapter Input:100 – 240V Output:12V
Electric Current Range		25VA
Impedance Measurement	**Measurement System**	Single-frequency 4 electrode
	Measurement Frequency	50kHz
	Measurement Current	Up to 90μA
	Electrode Materials	Stainless steel
	Measurement Part	Between both feet
	Measurement Range	75.0 to 1,500Ω (0.1Ω increments)
	Accuracy at First Calibration	±2%
Weight Measurement	**Measurement System**	Strain gauge load cell
	Range	4 to 600lb / 2 to 270kg (including preset tare value)
	Minimum Graduation	0.2lb (0.1kg)
	Accuracy at First Calibration	±0.4lb (±0.2kg)
Display		LCD screen
Interface		USB 2.0 (Type B connector)
		RS-232C
		SD card
Usage Conditions Range	**Temperature**	41 to 95˚F / 5 to 35˚C
	Relative Humidity	30 to 80% (non-condensing)
Storage Conditions Range	**Temperature**	14 to 140˚F / -10 to 60˚C
	Relative Humidity	10 to 90% (non-condensing)
Product Weight		18.3lb / 8.3kg
Product Size	**Platform**	W15.5 × H2.6 × D15.4in / W395 × H67 × D390mm

Input Items	**Clothes Weight**	0.0 to 20.0lb (0.2lb increments) / 0.0 to 10.0kg (0.1kg increments)
	ID No.	16 digits
	Gender	Female / Male
	Body Type	Standard / Athletic *1
	Age	7 to 99 years
	Height	3'0.0" to 7'11.5" (0.5in increments) / 90.0 to 249.9cm (0.1cm increments)
	Target Body Fat %	4 to 55% (1% increments)
Output Items	**ID No.**	16 digits
	Gender	Female / Male
	Body Type	Standard / Athletic *1
	Age	7 to 99 years
	Height	3'0.0" to 7'11.5" (0.5in increments) / 90.0 to 249.9cm (0.1cm increments)
	Clothes Weight	0.0 to 20.0lb (0.2lb increments) / 0.0 to 10.0kg (0.1kg increments)
	Weight	4.0 to 600lb (0.2lb increments) / 2.0 to 270.0kg (0.1kg increments)
	Fat %	3.0 to 75.0% (0.1% increments)
	Fat Mass	0.2lb / 0.1kg increments
	FFM	0.2lb / 0.1kg increments
	BMI	0.1 increments
	Basal Metabolic Rate *2	1kcal / 1kJ increments
	TBW*	0.2lb / 0.1kg increments
	TBW%*	0.1% increments
	Bioelectrical Data	Resistance / Reactance

*1 Athletic mode can be selected only 18 to 99 years old

*2 18 to 99 years old

The product design and specifications may be changed at any time without prior notice.

USA and Canada

Federal Communications Commission and Canadian ICES Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and Canadian ICES-003. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Tanita Corporation may void the user's authority to operate the equipment.

Disposal



This equipment is an electronic device. Please dispose of this equipment appropriately, not as general household waste. Be sure to follow the regulations in your area when disposing of this equipment.

<U.S.A. representative>

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