

# ACCUNIQ BC380

## User Manual

[www.accunIQ.com](http://www.accunIQ.com)





The device bears the CE label in accordance with the provisions of Medical Device Directive 93/42/EEC.

THE PERSONS RESPONSIBLE FOR PLACING DEVICES ON THE EC MARKET UNDER MDD 93/42/EEC



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# INTRODUCTION

We thank you for choosing the BC380.

Please familiarize yourself with these instructions before using this product and always keep them on hand for easy reference. If you are not sure about an operation, or you experience problems while using the product, please contact our service center.

We will provide you with detailed instructions.

## 1. INTENDED USE

This device measures impedance by bioelectrical impedance analysis method and provides lots of information using measured impedance and inputted personal data (height, age, gender, weight).


It shows body composition of MBF, LBM, SLM, SMM, TBW, protein mass, mineral mass, etc. and information regarding BMI, PBF, BMR, abdominal analysis, Target to control, segmental analysis, Body composition change, etc.


## 2. WORD DEFINITIONS


To ensure safe operation and long term performance stability, it is essential that you fully understand the functions, operating and maintenance instructions by reading this manual before operating your unit.

Particular attention must be paid to all warnings, cautions and notes incorporated herein.

The following conventions are used throughout the manual to denote information of special emphasis.

<b>Warning</b>	“Warning” indicates important information about the presence of a hazard which may cause severe personal injury, loss of substantial property, damage if the warning is ignored.
	

<b>Caution</b>	“Caution” indicates important information about the presence of a hazard which may cause minor personal injury or property damage if the caution is ignored.
	

<b>Note</b>	“Notice” indicates important information in order to notify installation, operation or maintenance of this device. “Notice” is important but not hazard-related. Hazard warnings are not included here.
	






### 3. CLASSIFICATION AND COMPLIANCE

- 1) This device is classified as;
  - Class 1 type-BF against electric shock
  - Ordinary equipment without protection against ingress of water
  - Equipment not suitable for use in presence of a flammable anesthetic mixture by standard of EN 60601-1:2006/A1:2013(Basic safety and essential performance of Medical Electrical Equipment)
- 2) This device is complied with Class A for Noise-Emission, Level B for Noise-immunity, by standard of EN 60601-1-2:2007/AC:2010(Electromagnetic Compatibility Requirements).

### 4. SAFETY PRECAUTIONS

This device is designed and manufactured with consideration of the safety of the operator and subject and also the reliability of the unit.

The following warnings, precautions and notes must be observed for safety;

<b>Warning</b> 	During measurement of the body composition, a microcurrent of 180 $\mu$ A flows through the body. Individuals who have any kind of implanted active medical devices, such as pacemakers, should not use this equipment because the microcurrent can cause malfunction in the implanted device.
<b>Warning</b> 	To prevent fire hazard, use only a correctly wired (100-240VAC) outlet, and do not use a MSO(Multiple Socket Outlet) with other device that is not in compliance with EN 60601-1.
<b>Warning</b> 	To reduce the risk of electric shock or product damage, never plug-in or plug-out with wet hands.
<b>Warning</b> 	Physically disabled persons should not attempt to take measurements alone, but instead should have their caretakers assist them in using the device.
<b>Caution</b> 	The unit must be operated only by, or under supervision of a qualified person with our company or our distributors.

**Caution**

If you have experienced any trouble with the unit, switch it off immediately, and contact our company or its authorized dealer for assistance.

**Caution**

If you plan to connect any device from other manufacturers electrically or mechanically to the unit, contact our company or its authorized dealer for instructions before doing so.

When you connect computer or other system to the unit (RS-232C), the attached systems should be those certified by IEC 950 or equivalent standards for data processing equipment.

Configurations shall comply with the system standard EN 60601-1:2006/A1:2013.

Everybody who connects additional equipment to the signal input part or signal output part configures a medical system by standard EN 60601-1:2006/A1:2013.

If in doubt, consult the A/S department of local distributor.

**Caution**

Avoid the following environments for storage;

- Where the ambient temperature falls below  $-25^{\circ}\text{C}$  or exceeds  $70^{\circ}\text{C}$ .
- Where the atmospheric pressure falls below 70kPa (700mbar) or exceeds 106kPa (1060mbar).
- Where the humidity is over 93% non-condensing.
- Where the unit is exposed to spray or splashing water.
- Where the unit is exposed to dust.
- Where the unit is exposed to water vapor.
- Where the unit is exposed to salty atmosphere.
- Where the unit is exposed to explosive gas.
- Where the unit is exposed to excessive shocks or vibrations.
- Where the angle of inclination of mounting surface exceeds 10 degrees.
- Where the unit is exposed to direct sunlight.

**Caution**

This device needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.

**Caution**

Cross contamination is possible because this equipment is used with bare hands and feet. Refer to the cleaning and disinfecting methods in this manual.

**Caution**

Measurements may be impaired if this device is used near televisions, microwave ovens, X-ray equipment or other devices with strong electrical fields. To prevent such interference, use the meter at a sufficient distance from such devices or turn them off.

**Prohibition**

Do not disassemble or alter the device under any circumstances, as this could result in electric shock or injury as well as adversely affect the precision of measurements. This device is specified as Class 1 type BF unit under the standard EN 60601-1:2006/A1:2013(Basic safety and essential performance of Medical Electrical Equipment). Therefore, patients must not touch or handle inner side of the system at any time.

**Prohibition**

Do not to touch signal input, signal output or other connectors, and the patient simultaneously.

**Prohibition**

The unit has previously been adjusted in the factory for optimum performance. Do not attempt to adjust switches or any other things except those specified in this manual for operation.


**Prohibition**


Never pour any liquid directly on the scale platform, as it may leak and cause internal damage.


**Prohibition**


Never jump on the Weighing Platform, there may be a risk of stumbling and malfunction of the equipment.




<b>Note</b>	<p>This equipment has been tested and found to comply with the limits for medical devices according to EN 60601-1-2:2015. These limits are designed to provide reasonable protection against harmful interference in a typical medical 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 other devices in the vicinity. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to other devices, 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:</p> <ul style="list-style-type: none"> <li>- Reorient or relocate the receiving device.</li> <li>- Increase the separation between the equipment.</li> <li>- Connect the equipment into an outlet on a circuit different from that to which the other device(s) are connected.</li> <li>- Consult the manufacturer or field service technician for help.</li> </ul>
	

<b>Note</b>	<p>Place the Weighing Platform on a level and stable surface. If the equipment is used when the Weighing Platform is unstable because not all feet are on the surface, there may be a risk of stumbling or inaccurate measurement.</p>
	

<b>Note</b>	<p>Note that portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQUIPMENT.</p>
	

<b>Note</b>	<p>Consult a physician or a trained health professional for interpretation of measurement results.</p>
	

<b>Note</b>	<p>In case of patients who have certain diseases, the estimates might be different.</p>
	

**Note**

Incorrect operation or failure of user to maintain the unit spares the manufacturer or his agent of the responsibility for system's non-compliance with specifications or responsibility for any damage or injury.

This manual is made for informational purposes and this manual and product are not meant to be a substitute for the advice provided by your own physician or other medical expert. You should not use the information contained in the product for diagnosis or treatment of health problems or prescription of medication by yourself. If you have or suspect that you have a medical problem, consult with your physician promptly.

Defective units or accessories must be packed in the replacement cartons to be shipped off from you to our company.

Shipping and insurance costs for return of defective unit must be prepaid by the users.

**Warning**

Do not modify this equipment without authorization of the manufacturer.

**Warning**

Connect the earth placed on the backside of this device to terminal plate to prevent any electric shock from leakage current or a potential difference.

**Warning**

To avoid the risk of electric shock, this equipment must only be connected to supply mains with protective earth.

**Caution**







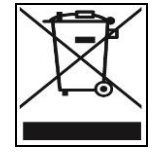

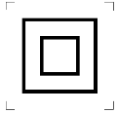
Do not put anything other than the main unit and Selvas's blood pressure monitor within 1.5 m from the patient.




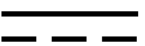









**Caution**




Do not touch any other devices other than those specified by the manufacturer.

## 5. SAFETY SYMBOLS AND INFORMATION

The International Electro-technical Commission (IEC) has established a set of symbols for medical electrical equipment which classify a connection or warning of any potential hazard. The classifications and symbols are shown below. Save these instructions for your safety.

	<p>Degree of protection against electric shock: TYPE BF</p>
	<p>Please observe operating instructions</p>
	<p>General warning sign</p>
	<p>General prohibition sign</p>
	<p>General mandatory action sign</p>
	<p>Caution</p>
	<p>Waste Electrical and Electronic Equipment (WEEE) The device could be sent back to the manufacturer for recycling or proper disposal after their useful lives. Alternatively the device shall be disposed in accordance with national laws after their useful lives.</p>
	<p>“ON / OFF” key : Turn the power ON / OFF</p>
	<p>Class II equipment</p>

	<p>This symbol is used inside system.</p> <p>Identifies the point where the safety ground of the system is fastened to the chassis.</p>
	<p>Do not open. This is for factory only.</p>
	<p>Alternating current</p>
	<p>Direct current</p>
	<p>Date of manufacture</p>
	<p>Manufacturer</p>
	<p>Non-ionizing radiation</p>
	<p>CE mark</p>
	<p>Serial No.</p>
	<p>Authorized representative in the European community.</p>
	<p>Keep dry</p>
	<p>This way up</p>
	<p>Fragile</p>

	Use no hooks
	For indoor use only
	RoHS2

## 6. Guidance for Electromagnetic compatibility (EMC)

Details about the electromagnetic compatibility (EMC) of the ACCUNIQ BC380 are given below. Before using the ACCUNIQ BC380, be sure to read and understand the following information.

### 1) Guidance and manufacturer's declaration – electromagnetic emissions

The ACCUNIQ BC380 is intended for use in the electromagnetic environment specified below. The customer or the user of the ACCUNIQ BC380 should assure that it is used in such an environment.


<b>Emissions test</b>	<b>Compliance</b>	<b>Electromagnetic environment – guidance</b>
RF emissions CISPR 11	Group 1	The ACCUNIQ BC380 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The ACCUNIQ BC380 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Compliance	

## 2) Guidance and manufacturer's declaration – electromagnetic immunity

The ACCUNIQ BC380 is intended for use in the electromagnetic environment specified below. The customer or the user of the ACCUNIQ BC380 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	±6kV: Contact ±8kV: Air	±6kV: Contact ±8kV: 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 transition/burst IEC 61000-4-4	±2kV: Power supply lines ±1kV: Input/output lines	±2kV: Power supply lines ±1kV: Input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage drops, dips, and fluctuations of input power supply line IEC 61000-4-11	<5 % <i>UT</i> (>95 % dip in <i>UT</i> ) for 0,5 cycle 40 % <i>UT</i> (60 % dip in <i>UT</i> ) for 5 cycles 70 % <i>UT</i> (30 % dip in <i>UT</i> ) for 25 cycles <5 % <i>UT</i> (>95 % dip in <i>UT</i> ) for 5 sec	<5 % <i>UT</i> (>95 % dip in <i>UT</i> ) for 0,5 cycle 40 % <i>UT</i> (60 % dip in <i>UT</i> ) for 5 cycles 70 % <i>UT</i> (30 % dip in <i>UT</i> ) for 25 cycles <5 % <i>UT</i> (>95 % dip in <i>UT</i> ) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the ACCUNIQ BC380 requires continued operation during power mains interruptions, it is recommended that the ACCUNIQ BC380 be powered from an uninterruptible power supply or a battery.

Magnetic field of commercial frequency (50/60Hz) IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
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<b>Note</b>	
	<i>U</i> T is the a.c. mains voltage prior to application of the test level.


### 3) Guidance and manufacturer’s declaration – electromagnetic immunity 2

The ACCUNIQ BC380 is intended for use in the electromagnetic environment specified below. The customer or the user of the ACCUNIQ BC380 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	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the ACCUNIQ BC380, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.  <b>Recommended separation distance</b>
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	$d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 80 MHz to 900 MHz $d = 2.3\sqrt{P}$ 900 MHz to 2,5 GHz  where <i>P</i> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <i>d</i> is



			<p>the recommended separation distance in meters (m).</p> <p>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></p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
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<b>Note</b>	<p>1. At 80 MHz and 900 MHz, the higher frequency range applies.</p>
	<p>2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p> <p><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 ACCUNIQ BC380 is used exceeds the applicable RF compliance level above, the ACCUNIQ BC380 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the ACCUNIQ BC380.</p> <p><sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.</p>

#### 4) Recommended separation distances between portable and mobile RF communications equipment and the ACCUNIQ BC380

The ACCUNIQ BC380 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the ACCUNIQ BC380 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the ACCUNIQ BC380 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 $d = 1.2\sqrt{P}$	80 MHz to 900 MHz $d = 1.2\sqrt{P}$	900 MHz to 2,5 GHz $d = 1.2\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

<b>Note</b>	<ol style="list-style-type: none"> <li>At 80 MHz and 900 MHz, the separation distance for the higher frequency range applies.</li> <li>These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</li> </ol>
	

# ABOUT BODY COMPOSITION

## 1. Body Composition

Human body consists of body fat mass and lean body mass. Lean body mass refers to non-fat components of human body like body water, muscles, minerals, etc.

Body water consists of both intra- and extra-cellular water, and the ratio between them is controlled and maintained within a certain range. Body fat is stored beneath the skin and between abdominal organs. Body fat is hydrolyzed to make energy needed to perform normal physiological functions when energy supply through food intake is not sufficient, but excessive fat in the body is a type of disorder, often caused by adverse lifestyle conditions.

Healthy people maintain a steady proportional balance of body composition, but unhealthy people fail to keep this balance. When the balance in body composition is compromised, diseases like obesity, malnutrition, osteoporosis, etc. can result.

## 2. Obesity

Various methods can be used to assess obesity, but the key factor in obesity assessment is the amount of fat accumulated in the body.

In general, obesity is defined as the state of, not only excessive weight compared with height (visible obesity), but also excessive body fat compared with weight (invisible or visible obesity).

Strictly speaking obesity is the state in which body fat occupies a considerably high proportion as compared to weight.

## 3. Necessity of Body Composition Analysis

Body Composition Analysis is a useful indicator for identifying possible health problems. Body composition analysis enables professionals to detect obesity or imbalance in body composition at an early stage and helps subjects keep their body healthy.

## 4. Waist to hip ratio

Waist to hip ratio (W.H.R.) shows the distribution of fat stored in one's abdomen and hip. It is simple but useful to assess body fat distribution. Body fat is stored in two distinct ways. They are often categorized as 'apple' and 'pear' types. Apple type indicates a larger waist than hip and pear type is characterized by a larger hip than waist. If body fat in the abdomen increases, the risk of cardiovascular diseases, diabetes, etc. becomes higher.

## 5. Abdominal Fatness

Body fat consists of subcutaneous fat and visceral fat. Visceral obesity is considered to be a critical risk factor along with Percentage of body fat.

Lipoprotein lipase can be easily activated in visceral fat, and it causes visceral fat to be dissolved easily. Dissolved visceral fat goes into liver through the blood vessel and causes a fatty liver or increases lipid in the blood. It also elevates the risk of hyperinsulinemia, hypertension, and cardiovascular disease.

Visceral fat generally occupies 10 ~ 20 % of body fat. Visceral obesity is assessed based on the indicators below.

- the cross sectional fat area between L4 ~ L5 is 100 cm<sup>2</sup> and over
- the visceral fat to subcutaneous fat ratio is 0.4 and over
- the waist to hip ratio (W.H.R.) is over 0.9 (male) / 0.85 (female)
- the circumference of waist is over 102 cm/40 inches (male) \_ 88 cm / 35 inches (female)

Visceral fat increases after 30s in men and after Menopause in women. It is more common in men than women and the old than the young. Visceral fat tends to increase with aging. Because the combustion rate per minute of visceral fat is higher than that of subcutaneous fat, visceral fat can be easily reduced by exercise or dietary control in case of abdominal obesity. W.H.R. is the ratio of waist to hip circumference and has relation to one's figure.

## 6. Segmental Analysis

This device analyzes soft lean mass and mass of body fat in five body segments: trunk, right arm, left arm, right leg, and left leg. This function can be used as an assessment tool to evaluate the result of exercise or rehabilitation treatment.

## 7. Age Matched of Body

It is the estimated physical age of the subject considering the body composition analysis result, gender, and biological age. This is calculated by comparing the optimal body composition based on the gender and biological age of the subject with the actual analyzed body composition. It can be used to evaluate the subject's health and body development.

# TERM AND FUNCTION OF EACH PART

## 1. Basic Package

The package of the ACCUNIQ BC380 includes the following components:

Name	Specification	Quantity
Main body		1EA
<b>Accessories</b>		
User manual	CD or Paper	1EA
Adapter	DC 12V, 5A	1EA
USB Cable	3m	1EA
Data management program	ACCUNIQ Manager (CD)	1EA
Bolts	6X20mm	2EA
L-wrench	4mm	1EA
Body Cover		1EA



※ Model or specification of accessories can be changed according to market supply and demand.

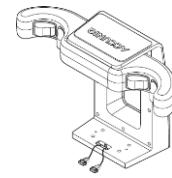
## 2. Accessory Options

### 1) Ankle electrodes AE-202

Convenience: can measure with one's socks or stockings on.

- ① Selectivity: can choose either plate electrode or ankle electrode.
- ② Hygienic: protects from mold or bacteria
- ③ High accuracy: analyzes more accurately for the person whose sole is corneous

Ankle electrode



### 2) Professional health counseling support software

This program helps manage body composition easily and systematically. It shows the core items needed to control body composition. The items include measured body composition, dietary control plan, exercise plan, etc. If the device is connected to our blood pressure monitor, it also indicates the user's blood pressure.

Health counseling support software



### 3) A4 result sheet for children

It shows the children growth curve to help users easily understand the growth status of children.

A4 result sheet for children



### 4) Automatic Blood Pressure Monitor

If SELVAS's automatic blood pressure monitor for hospital is connected to this device, the user can easily check his/her blood pressure.

Detecting the patient with hypertension may help better manage his/her blood pressure through weight control.

Automatic Blood Pressure Monitor



### 5) USB memory

So that measurement data can be saved and checked on the PC.

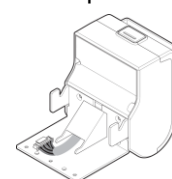
USB memory



### 6) Thermal Printer

Thermal printer allows quick and convenient printing.

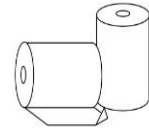
Thermal printer



7) Thermal Paper

Measured result is presented in a simple and easy format.

Thermal Paper



8) Bluetooth Dongle

It allows wireless communication with a PC or mobile device.

Bluetooth



9) Wi-Fi Dongle

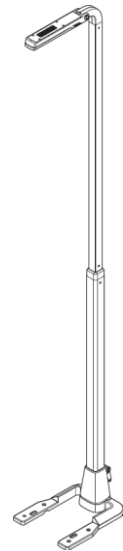
Wi-Fi Dongle



8) Height Meter

This is an instrument to measure subject's height more accurately and quickly. It employs standoff determination method using ultrasonic sensor.

Height meter



**Note**



Height measurement in the morning averages 1~2cm higher than in the evening. Vertebral cartilage is compressed by evening due to gravity and the user's weight.

※ The accessories can be changed according to market supply and demand.

### 3. Appearance of the device

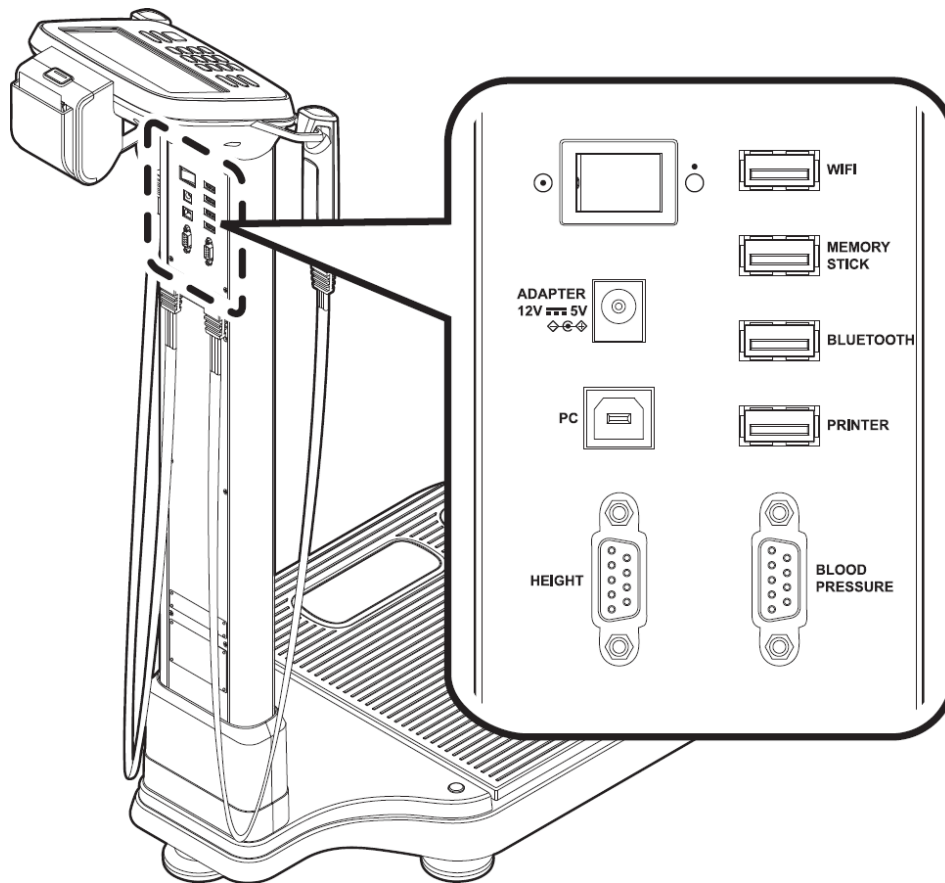
#### ④ Front Face



- Color LCD panel as touch screen.  
It displays the procedure and results.
- Handle Electrode  
Handle Electrode measure the impedance by sending harmless electric current to the body.  
Hold them with the hands during measurement.

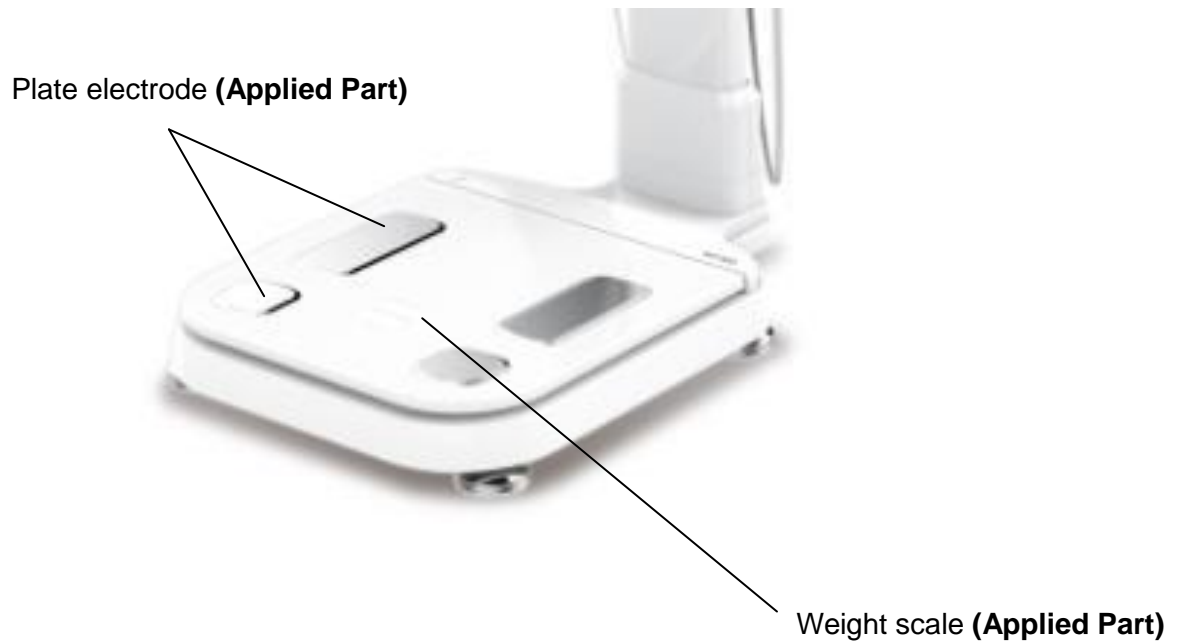


## 2) Rear Panel



- Power switch (POWER): Use to turn on/off the power.
- Adapter port (ADAPTER): Connect power adapter.
- PC port: Connect to a computer.
- Height port: Connect the external height meter. (OPTIONAL)
- Wi-Fi port: Connect the Wi-Fi Dongle. (OPTIONAL)
- USB port: Connect a USB drive. (OPTIONAL)
- Bluetooth port: Connect via Bluetooth. (OPTIONAL)
- Printer port: Connect SELVAS Thermal Printer. (OPTIONAL)
- Blood pressure port: Connect SELVAS Healthcare blood pressure monitor (OPTIONAL)

### 3) Unit Base

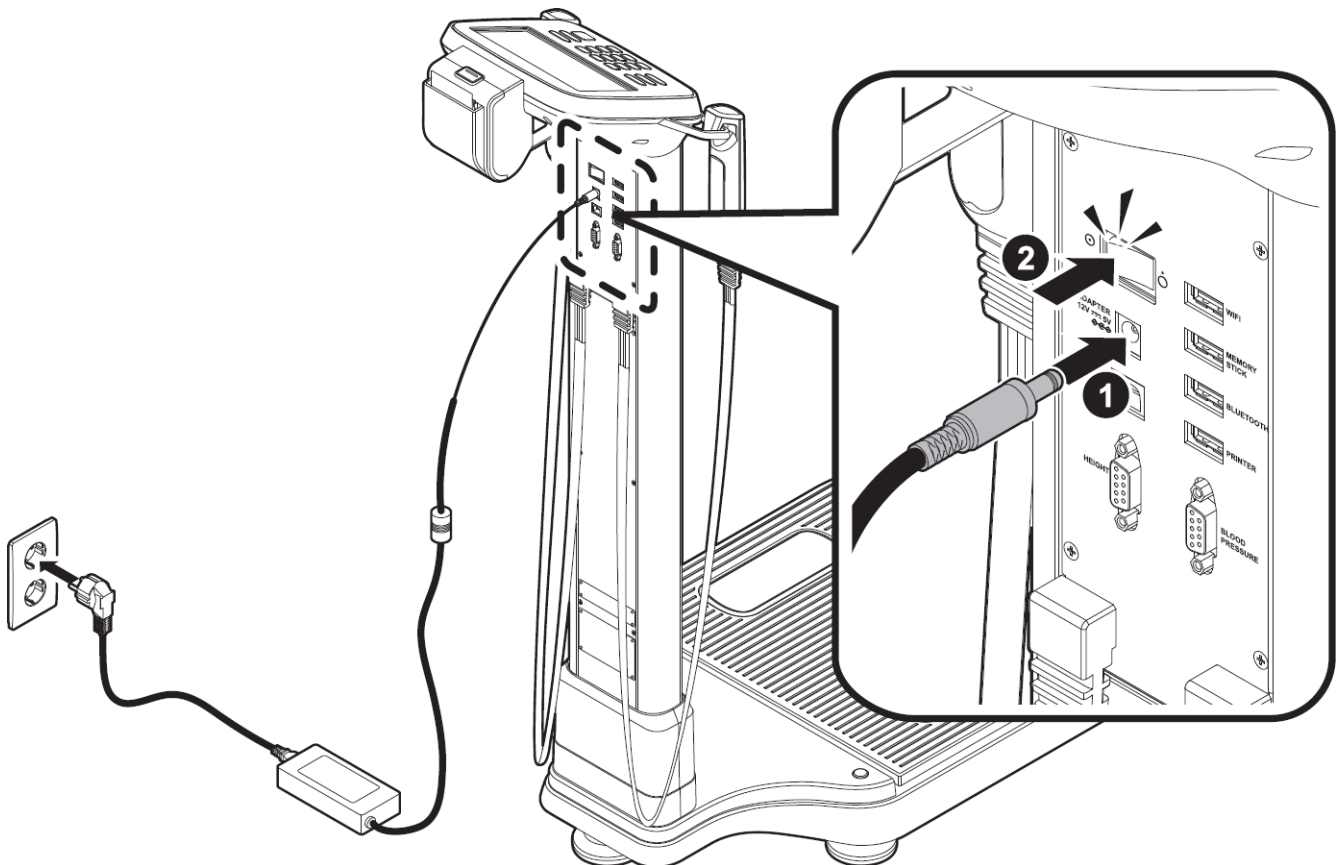


- Weight scale: Consists of four plate electrodes and measures weight.
- Plate electrode: Measures the impedance. The user should step on it with bare feet.

# INSTALLATION

## 1. Power Supply

Connect the power cable to the 'ADAPTER INPUT' located on the lower back panel of the device. Connect the cable. Turn on the power switch located next to the Power input, and after a moment initial screen animation is displayed.



### Caution

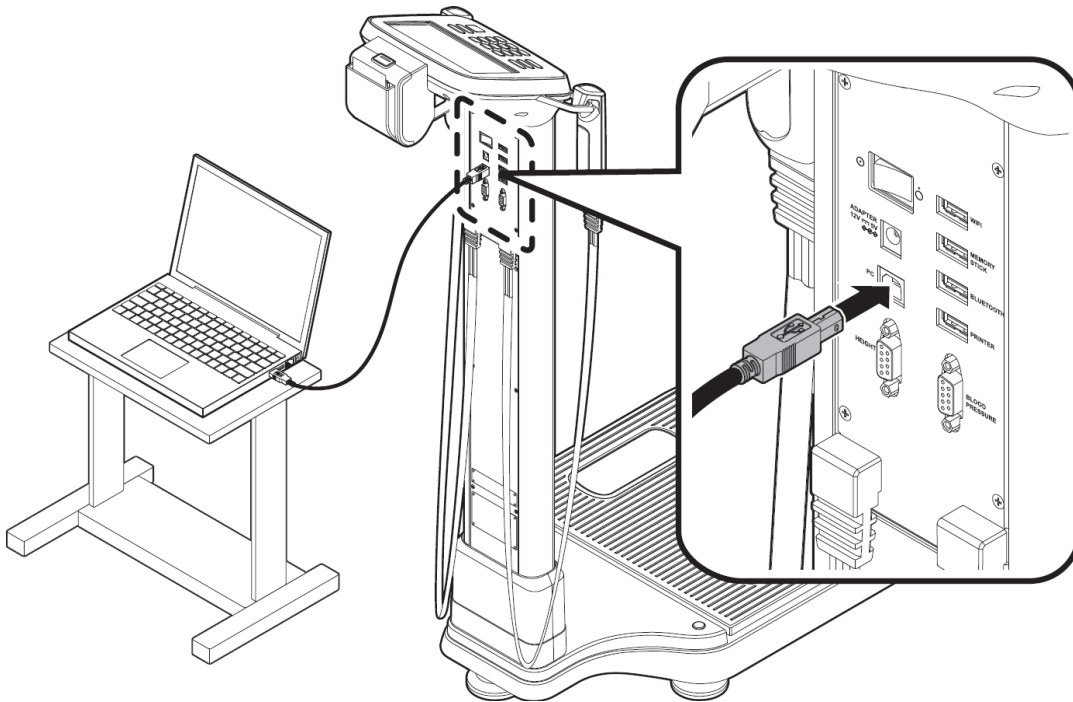


1. Before connecting a peripheral device to the unit, the power should be turned off. Otherwise both devices may be damaged by electric shock or malfunction.
2. When the unit and the peripheral devices are connected, the BC380 should be powered on first to preserve proper function and ensure safe operation of all devices.
3. This device should be powered only using the cable provided by SELVAS Healthcare.
4. Be careful not to touch the base part of the scale when switching on the device, as any weight on the plate electrode during power on can cause measurement errors with the scale's zero point.
5. Do not install the equipment where power can not be disconnected.

## 2. Peripheral Device Installation

### 1) Connecting to a Computer

Connect the “PC” port located on the rear panel of this device to the USB port on your computer using the USB cable. Or you can connect through Bluetooth (optional).



#### Note



1. If using the USB port, the cable should be connected to the computer port on the BC380.
2. Before using the computer port, the USB driver should be installed.  
For more information, please refer to the manual and software CD.

#### Note



1. In order to save, search and retrieve the users' data, the user should connect the BCA to a computer with our free data management software installed. Printing is done via the computer in this case.
2. The professional consulting software provides various options for printouts. When using the software, the pre-printed result sheet is not used.
3. Refer to the user's manual for installation of the software supplied on the CD.

#### Caution

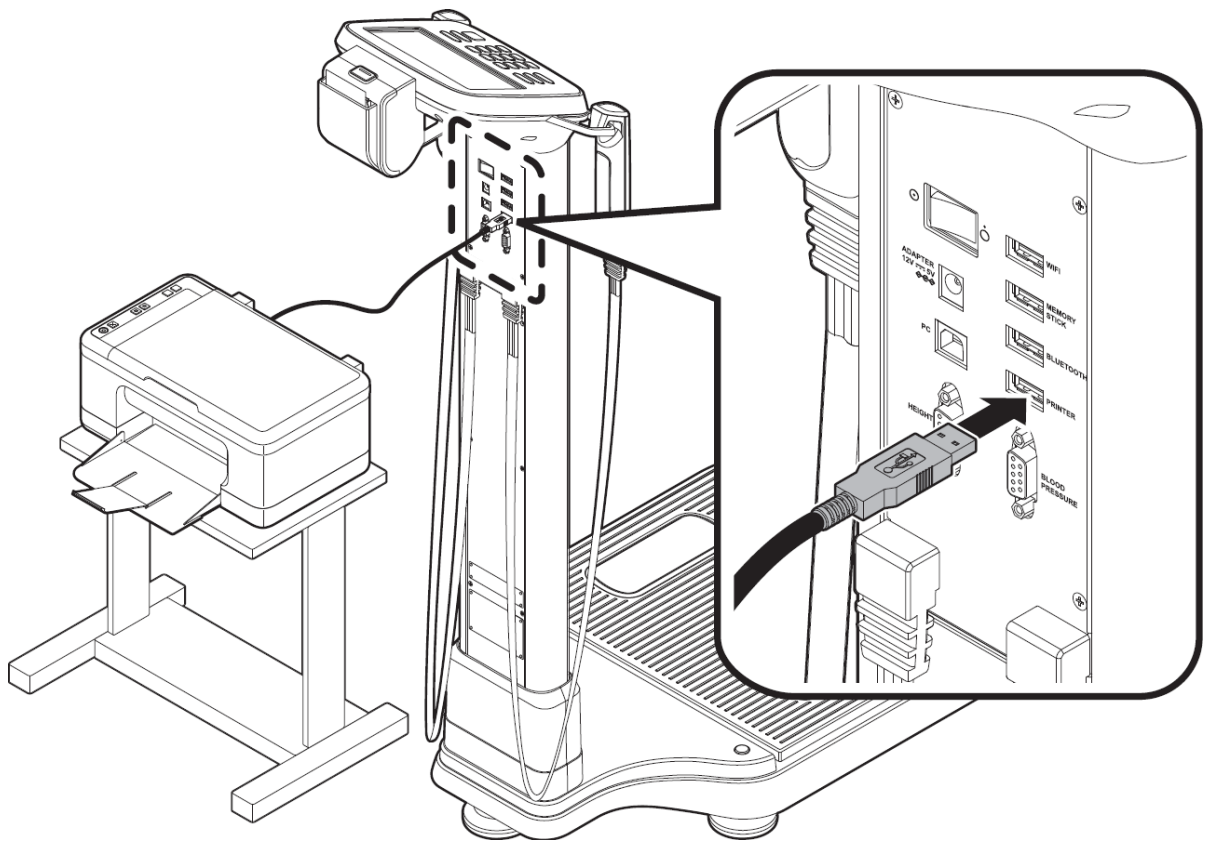


The PC that connects to the device must comply with IEC60950-1.

## 2) Connecting a Printer

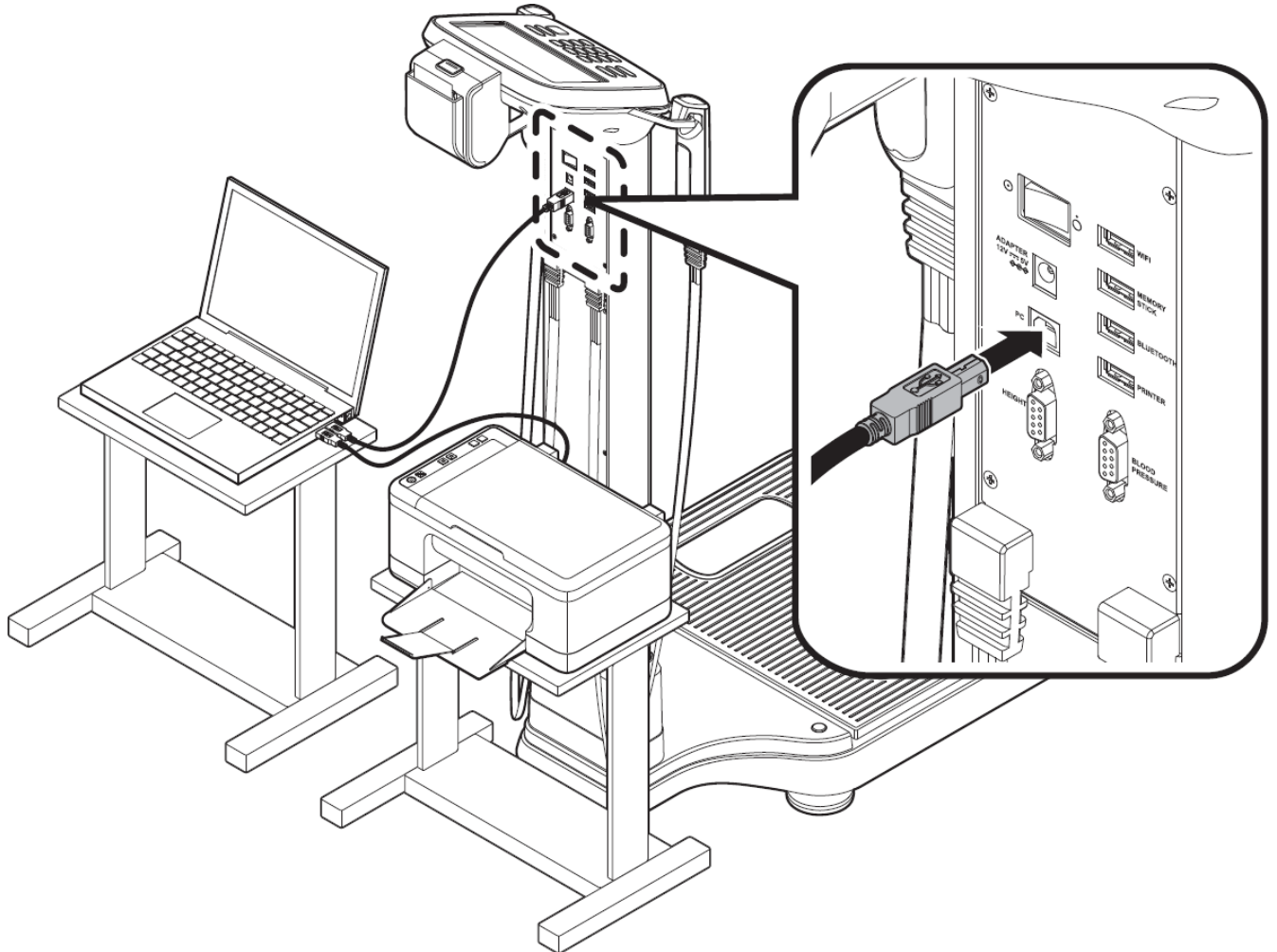
### ① Connecting the device and the printer directly

Connect the A4 printer offered with this device to the “PRINTER” port located on the rear panel of this device via a USB cable.



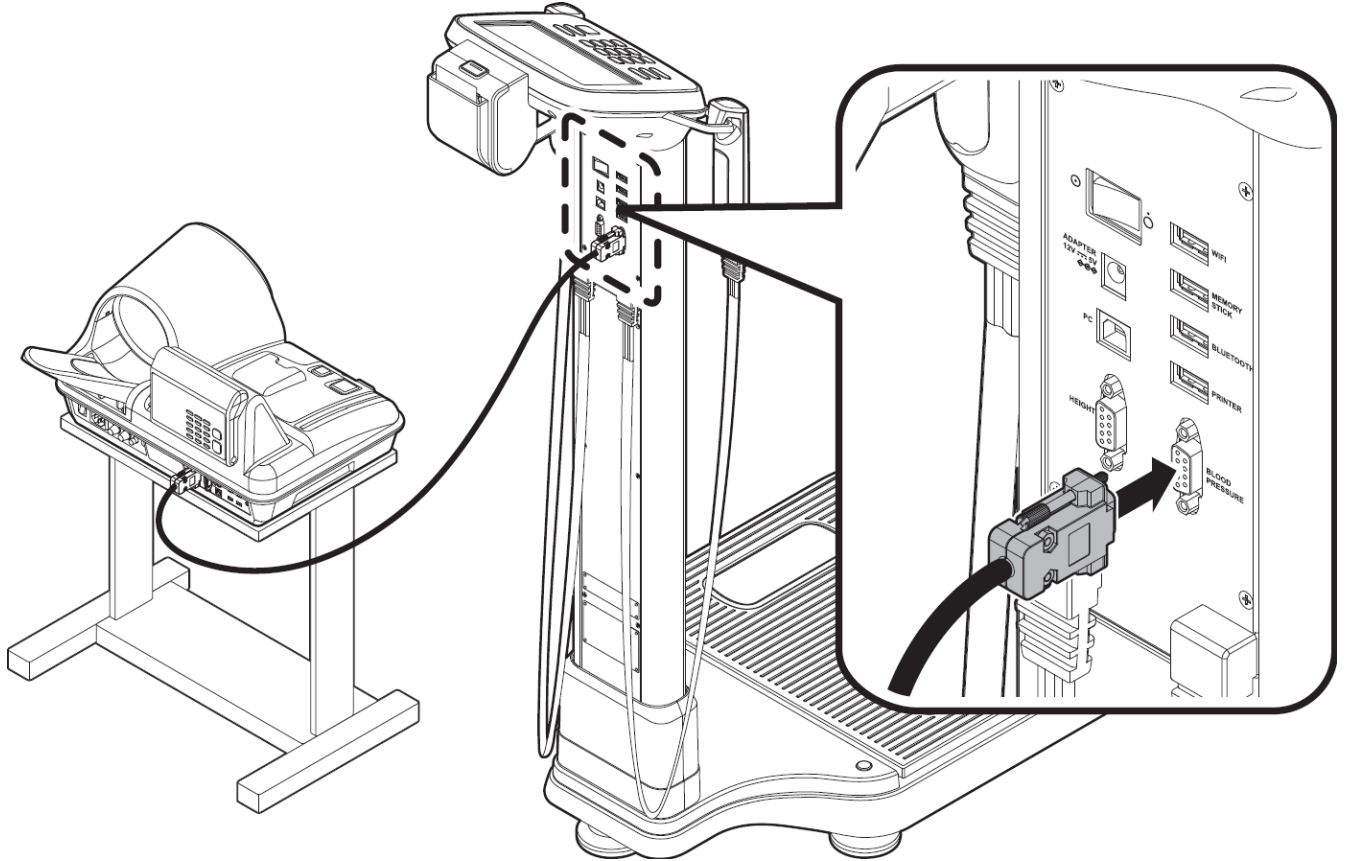
② Connecting the device, computer, and the printer

Connect a computer to the “PC” port located on the rear panel of the device using a USB cable. Connect the printer to the computer with a printer cable. The result sheet can be printed out from the PC program.



### 3) Connecting the Blood Pressure Monitor

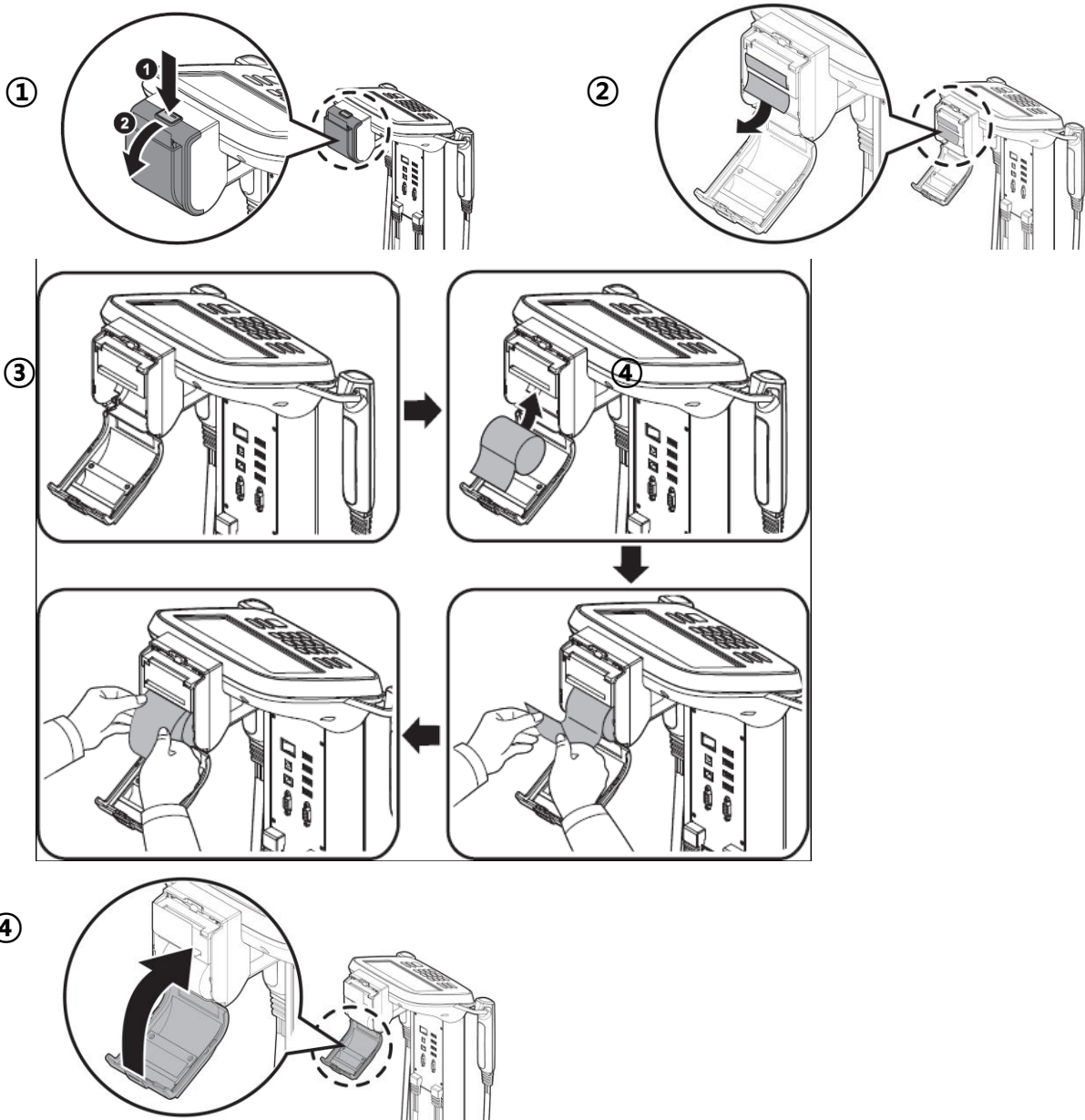
This device can be connected to the automatic blood pressure monitor from SELVAS Healthcare. (Optional) Connect the blood pressure monitor to the “BLOOD PRESSURE” port located on the rear panel of the device using the blood pressure monitor cable.



#### 4) Replacing of thermal (Optional)

You should replace the thermal paper while the power is on.


- ① Turn the screws counterclockwise and open the cover as shown in the picture.
- ② Insert the thermal paper in the direction as shown in the picture.
- ③ Insert the edge of the thermal paper into the printer slot just slightly. Thermal paper will be printed and automatically cut.
- ④ Close the cover and secure the printer cover by turning the screws clockwise.






#### 4-1) FEED/CUT functions of thermal printer

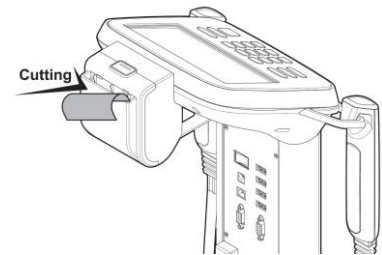
- FEED Function

On the initial screen, press the "  " icon at the left bottom and enter the password '5555' on the key pad. Thermal paper will be printed.



- CUT Function

On the initial screen, press the "  " icon at the left bottom and enter the password '8888' on the key pad. Paper will be cut.



### Note



Do not pull on the thermal paper while printing. Paper will be cut automatically when printing is complete.

# SYSTEM SETUP


'SYSTEM SETUP' allows the users to change the setting of operational parameters.

## Note



For the purpose of improvement, the contents in SYSTEM SETUP can be changed.

## 1. Entering SYSTEM SETUP

On the initial screen, press the “” icon at the left bottom and enter the password ‘**0-0-0-0**’.

The entering password can be changed in “Basic setting – Password”.



## 2. Menu in SYSTEM SETUP

Menu items are displayed. The function of each icon is as follows.

	Menu	Setting Item
1	Basic Setting	Date / Time
		Date Type
		Unit change
		Language
		Volume
		Password
2	Data Management	Data Check/Print/Delete
		Copy data to Excel file
		Data Backup/Restore
3	Printer	Printer connection
		Select printer type
		Automatic print settings and Number of auto prints
		Print Position
4	Result Sheet	Result sheet setting
		Logo
		Adult / Child result sheet setting
		Abdominal analysis result setting
5	Communication	Internet
		Bluetooth
6	Weight/Height	Weight Measurement or Input
		Weight Calibration
		Height Calibration
7	Option Management	Measurement electrode (foot electrode / ankle electrode)
		Optional equipment (Height meter / blood pressure monitor)
8	Display	Touch Calibration
9	A/S center	Contact Us
		Trouble shooting
		Remote check
		Information

### 3. Setup

#### (1) Basic settings

Basic settings

Date

Time

2017 06 01 AM 10 40

Date format

Select measurement unit

YYYY-MM-DD Kg/cm

1/2 Save

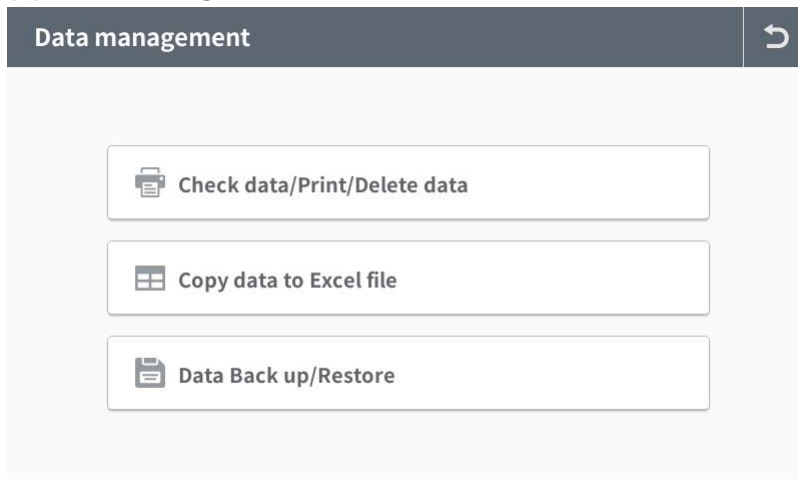
- Date/Time: Use the ^, v buttons to set the current date and time.
- Date Type: Use the <, > buttons to select the desired date format: YYYY-MM-DD, MM-DD-YYYY or DD-MM-YYYY.
- Unit change: Select the units for weight and height in kg / cm or lb / ft.
- Language: Set the language of menus and prompts.
- Volume: Set the volume of the announcement voice. (from 1 to 10)
- Password: Set password to be entered when entering user settings. The factory default password is set to '0000'. Please note that if you forget your password after changing it, there is no way to recover it.

#### Note



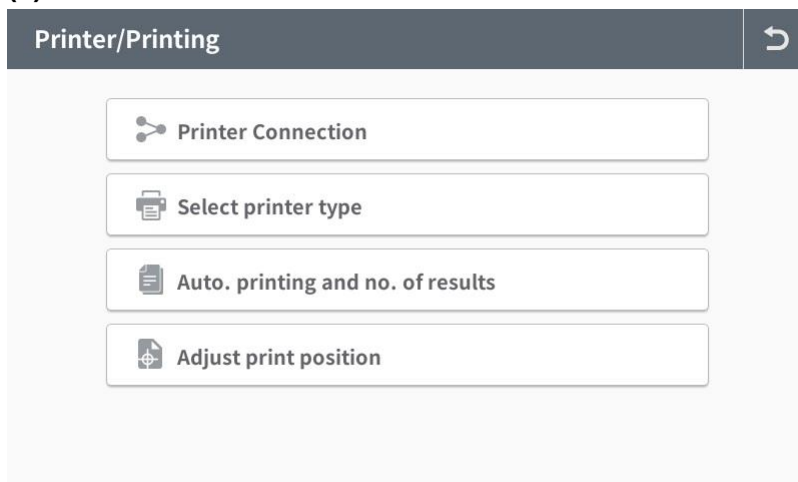
If you press the 'Save Settings' button in the middle of setting your options, the options you have set thus far will be entered. If you press the '↶' button, you will exit to the previous screen. To cancel changing the settings, press the '↷' button. The original settings are retained.

## (2) Data Management



- Data Check/Print/Delete: You can view, print or delete data stored on the device.
- Copy data to Excel file: Export all or part of saved data to an Excel file.
- Data Backup/Restore: export data to a USB drive, or load data from a USB drive into the device.

## (3) Printer



- Printer connection: Connect a printer.
- Select printer type: Select the type of printer to connect to.
- Automatic print settings and Number of auto prints: Select whether the printing is automatic or manual and the number of prints.
- Print Position: Adjusts the printing position.

#### (4) Result Sheet



- Result sheet setting: Select whether to print on pre-printed paper or A4 paper.
- Logo: Change the logo displayed at the top right of the result sheet.
- Adult / Child result sheet setting: Select adult results or child result sheet (optional).
- Abdominal analysis result setting: Sets the analysis of abdominal fatness under 18yrs.

#### (5) Communication



- Internet
- Bluetooth

## (6) Weight/Height



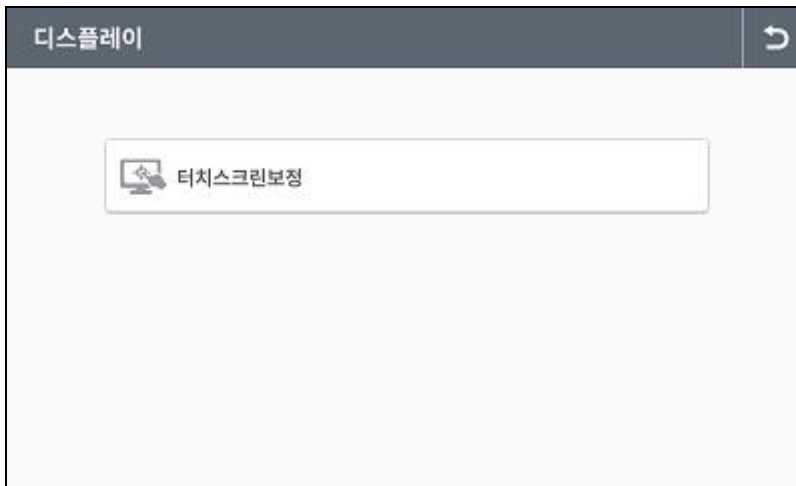
- Weight Measurement or Input: You can measure or input your weight.
- Weight Calibration: Calibrate the weight value.
- Height Calibration: Calibrate the height value.

## (7) Option Management



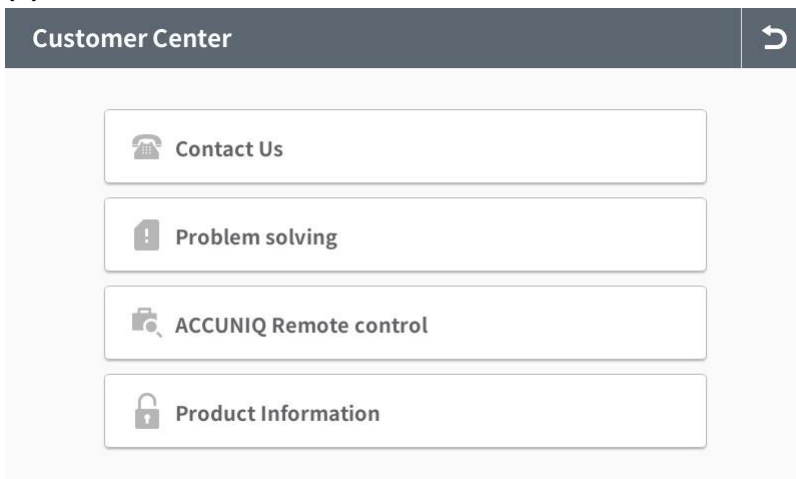
- Measurement electrode (foot electrode / ankle electrode): You can select which electrode to use.
- Optional equipment (Height meter / blood pressure monitor): You can select whether to use these optional devices.

## (8) Display



- Touch Calibration: Calibrate the touch position of the touch screen.

## (9) A/S center



- Contact Us: check or enter your contact information.
- Trouble shooting: See the cause of common problems and how to fix them.
- Remote check: The product can be remotely inspected by a SELVAS technician if a problem occurs.
- Information: Check the software version of the device.



# MEASUREMENT AND ANALYSIS

## 1. Precaution for measurement

The reliability of the results is only as good as their accuracy. The "Accuracy" of the device is determined by comparing the actual body composition and the results from the Body Composition Analyzer. The "Reproducibility" is determined when the device gives the identical results under the same conditions. In order to ensure the accuracy of the results, the following guidelines should be observed.

- ① Water volume increases after a meal. Therefore, measure on an empty stomach.
  - Measure 3 ~ 4 hours after a meal.
  - Avoid beverages containing caffeine or beverages functioning as diuretics 4 hours before measurement.
  - Drink 2 cups of water 2 hours before the measurement.
- ② Before measurement, the subject should be in a stable condition.
  - Measure 3 ~ 4 hours after a bath, a sauna, exercise or activity that causes a lot of sweating.
  - Or measure before these activities.
- ③ Avoid drinking alcohol 24 hours before the measurement
- ④ Wear clothes as light as possible.
- ⑤ Once the subject is on the scale, avoid sudden movements from sitting to standing position etc. Body fluid moves to the lower extremities and affects the results. Thus subjects should be measured after maintaining a standing position for 5 minutes.
- ⑥ Clean both the electrodes and the skin contact points.
- ⑦ Changes in room temperature may affect the results. Measurement should be done in a temperature around 20 °C.
- ⑧ Body composition and weight varies even throughout a day. Therefore, the measurement should be performed at the same time every day. For a person who stands for a long period of time during the day, it is advised to measure in the morning.
- ⑨ Go to the bathroom before measurement.
- ⑩ Maintain correct position and posture during the measurement.

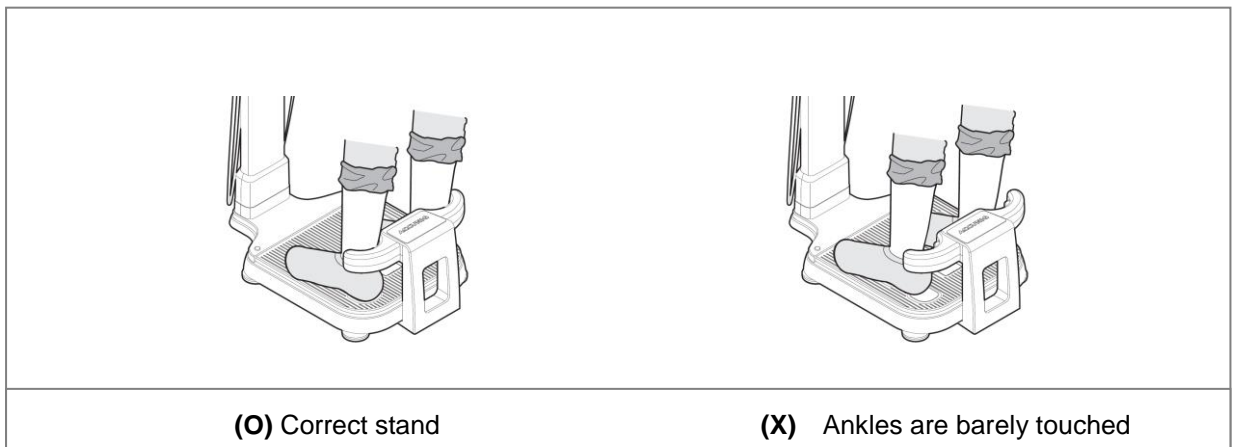
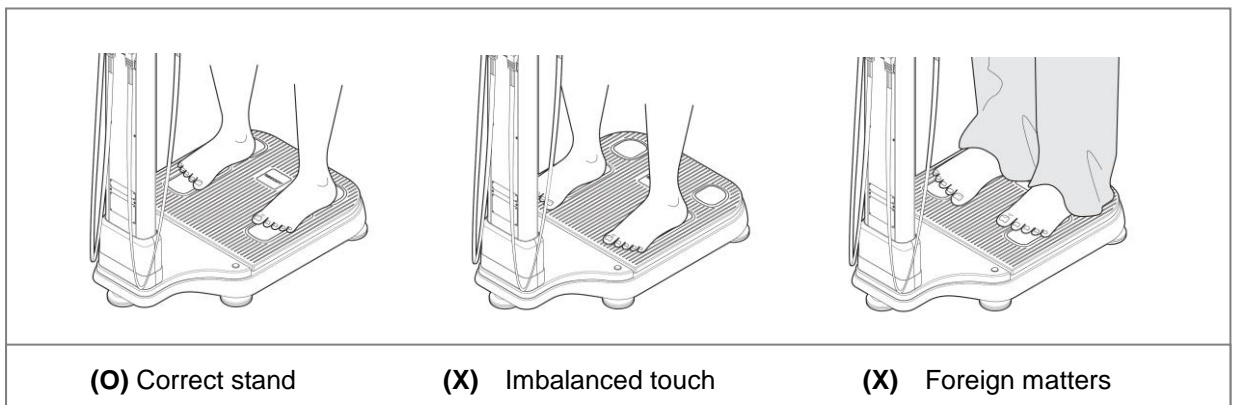
In order to keep one's good health and a balanced body composition, check body composition changes through continuous analysis and compare the results. Make sure that the body composition is measured under the same physical and environmental conditions. If the condition before the measurement, such as volume of a meal, meal time, and activities (exercise, sauna, drinking lots of liquid, urination, etc.) are kept the same, the reproducibility of the device measurement can be obtained. Therefore, the data can be used to accurately evaluate changes in body composition.

## 2. Correct measurement position

### 1) How to touch electrodes

- Make sure that the plate electrodes are clean.
- Remove socks or stockings, and then stand on the plate electrodes.
- Be sure to remove sweat or foreign matter on the soles of your feet.
- Place your bare feet securely on the plate electrodes. Make sure no clothing is between the soles of your feet and the plate electrodes.

When the ankle electrode is selected to measure body composition, pull down the socks as shown in the picture, and make sure the user's ankle is touching the electrode.



### Caution

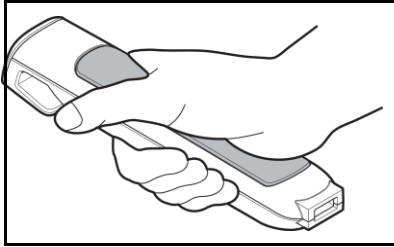


When using the ankle electrode, be careful not to trip on the electrode before or after a measurement.

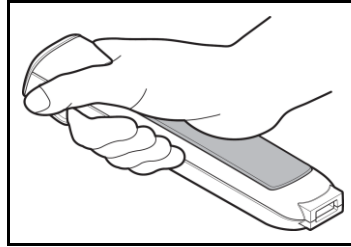
Use the ankle electrode after reading and understanding the instructions carefully. Especially the elderly and the infirm should be careful of their safety while using the ankle electrode.

## 2) How to Touch Handle Electrodes

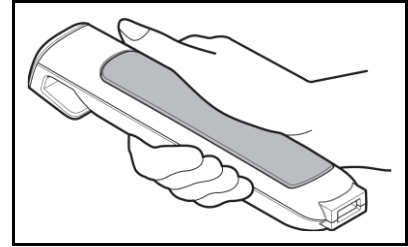
- Grip the handle electrodes using your fingers and palms.
- The 4 electrodes should be touched equally.
- Stretch both arms and spread them 30° from the body.



(O) Correct grip



(X) Imbalanced touch



(X) Grip with only palm

### Note



If 8 electrodes are not perfectly touched during the measurement, the result is not reliable or the device quits the measurement.

### Note



1. When the subject has hands or feet that are too small to cover all electrodes sufficiently for measurement, please pay attention to touch all electrodes fairly. How one touches electrodes will affect the reliability of the analyzed value.
2. During measurement the subject should not be touched by another person or by conductive materials.
3. If 8 electrodes are not perfectly touched during measurement, measuring is quit or the data is not reliable.

## 3) Measurement Posture

- Step on the scale with bare feet. Stretch both arms and spread them 30° from the body.
- Press and hold the start buttons with your thumbs for 2 ~ 3 seconds to start the measurement. Once measuring starts, release the start buttons and hold the same position until the measurement is complete.
- Do not speak or move your body until the measurement is complete.
- Do not bend or shake your arms until the measurement is complete.
- The measurement will be stopped if contact with all eight electrodes is not securely maintained.

### 3. Measurement

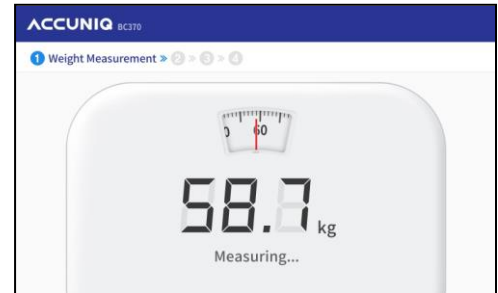
#### 1) Basic analysis

##### (1) Measurement

If you want to start measurement, step on the scale of the product.

##### ① Weight measurement

- When the subject steps on the scale, the screen changes, and a chime is heard.
- Do not move or speak until the measurement is complete.
- The measured weight is displayed on the screen.



- ##### ② When the weight measurement is complete, the measurement result is displayed. Select member measurement or non-member measurement.



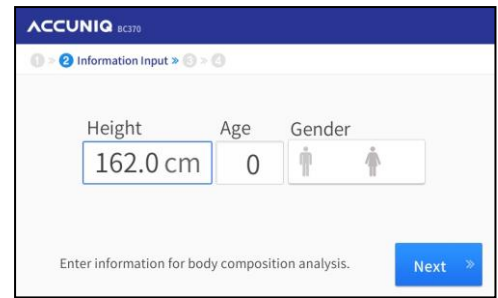
##### ③ Personal data input

Input the following information in a order; ID, height, age and gender.

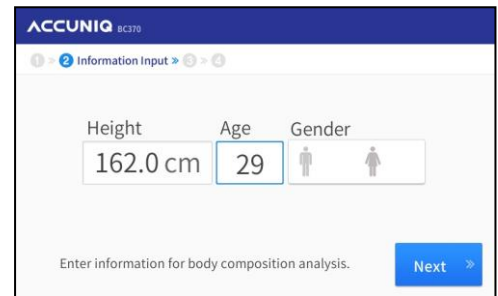
- Input ID (member measurement)
- Input your ID.
- ID can be created using up to 20 characters including English letters and numbers.



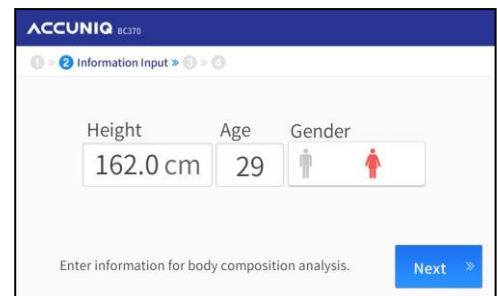
- Input height
  - Input the subject's height using the numerical buttons on the key pad.
- Analysis can not be performed if the user's height exceeds the input range.



- Input age
- Input the subject's age using the numbers buttons on the key pad.



- Select gender
- Select either MALE or FEMALE on the touch pad or key pad.
- Press the 'NEXT' button on the touch pad.



④ Measurement posture 1

- After inputting the subject's personal data, the screen changes as shown in the picture.
- Place your feet precisely on the plate electrodes.



⑤ Measurement posture 2

- Grip the electrode handles correctly.



⑥ Measurement posture 3

- Stretch both arms and spread them 30° from the body.



⑦ Starting measurement

When the measurement preparation is complete, the following message is displayed on the screen.

“Starting measurement. Don’t move or speak, please.”



⑧ Measuring

- During the measurement, the following screen appears.



**Note**



1. When the measurement produces an error,

- An Error message appears on the screen.

- To measure again, hold the handle electrodes and press the start buttons with your thumbs.

- If the measurement fails three times in a row, the following message appears. "The measurement can not complete due to the continuous errors. Step down from the scale for the initialization.

- Refer to the ERROR & REPAIR section for additional detail.

## (2) Result screen

① After analysis is complete, the result is displayed on the screen.

### ② Scanning QR code

- Press the 'QR code' on the device screen to enlarge the icon and scan the 'QR code' with a mobile device to save the data in the server.

After scanning the 'QR code', you can check the measurement data with your mobile device and manage it at will from the server in which it is saved.



## Note



1. Scan the QR code with a QR code reader on a smart phone or tablet.

### ③ Restarting

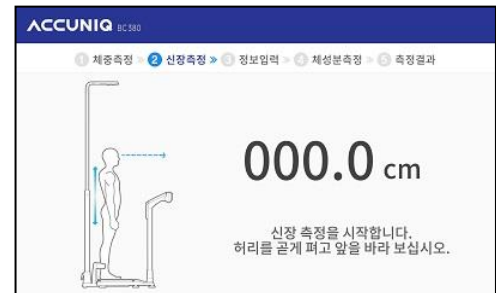
- Once the result is displayed on the screen, it can be printed out on a pre-printed result sheet.
- After confirming the analyzed result, press 'Initial view' to restart.
- The device returns to the initial screen after one minute.

## 2) Analysis using a height meter

SELVAS offers an Ultrasonic Height Meter as an optional accessory. When the height meter is connected to the device, it measures the user's height more accurately.

[Measuring procedure]

- ① Connect the device to the ultrasonic Height Meter.
- ② When stepping on the scale, the message "It starts a measurement." Appears on the screen.
- ③ When the measurement is complete, the height is displayed on the height and weight results on the LCD.
- ④ When you hear the chime, you can start inputting the personal data.
- ⑤ The input order is ID, age and gender, the measurement process proceeds the same as the standard order.



### Note

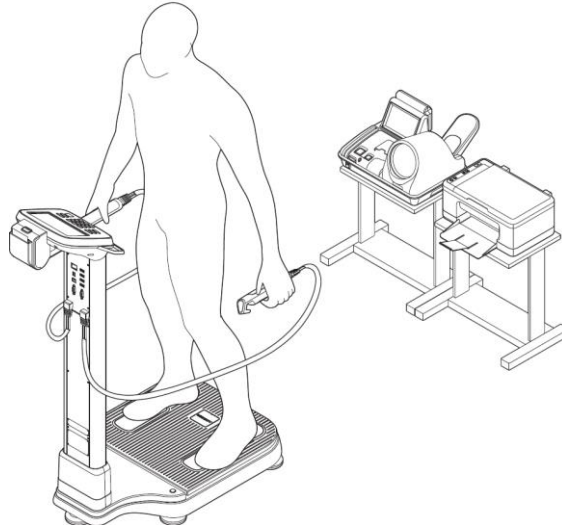


If the height meter is not connected, a message saying, "Height meter is not connected, move to height input mode' appears.  
Check the cable which connects the height meter to the device.  
If the message above appears while the height meter is connected, please ask us or an authorized service person for assistance.



### 3) Analysis Using Blood Pressure Monitor

The blood pressure monitor from SELVAS Healthcare, Inc. can be connected to the device as an optional add-on.



In this way, the blood pressure can be monitored together with weight control. It helps to manage the body fat while checking the blood pressure simultaneously. The measuring procedure is as follows.

- ① Connect a Blood Pressure Monitor to the device.
- ② Connect the device to a computer.
- ③ Turn on the power of BPM and the computer. Turn on the device.
- ④ Input personal data to create a new ID or input an ID which is already registered.
- ⑤ Measure blood pressure first.
- ⑥ Measure body composition.
- ⑦ The results of blood pressure and body composition are immediately displayed on the computer screen after the completion of body composition analysis.
- ⑧ Save the data or print it out.

#### Note



1. Blood pressure should be measured before body composition analysis. Refer to the user manual for the blood pressure monitor for more detail.
2. The blood pressure measurement can be printed on the result sheet or reviewed using the software program.

# RESULT INTERPRETATION

Explanation and criteria of the printed results.

## 1. Personal Data

The subject's ID / name, date, height, weight, age and gender are indicated on the result sheet.

## 2. Company Logo

The measurer can input a customized LOGO such as the name of a hospital, sports center, or obesity clinic, telephone number, address, contact person, etc.

Refer to the software manual for logo insertion.

## 3. Body Composition Analysis

The body composition analysis is indicated in the ratio based on the subject's weight.

- ① Weight: the sum of total body water, minerals, protein, and body fat in the table.
- ② M.B.F. (Mass of Body Fat): calculated by subtracting lean body mass from weight.
- ③ L.B.M. (Lean Body Mass): calculated by subtracting mass of body fat from body weight. Lean body mass consists of fat free masses such as muscle, organs, blood and water.
- ④ S.L.M.: (Soft Lean Mass): composed of body water and protein.
- ⑤ Minerals: composed of bone and electrolytes.
- ⑥ Protein: a major element composed of soft lean mass together with body water.
- ⑦ T.B.W. (Total Body Water): consists of intra-cellular and extra-cellular water. For healthy adults, body water is 45 ~ 65% of body weight, though it varies between persons.

Assessment of Under, Optimal, and Over in the table is assessed by the optimal range based on standard weight of the subject.

## 4. Obesity Assessment

This assessment helps the subject to control body composition and weight. The body composition analysis result is compared with the ideal body composition for the age and gender of the subject. The result is displayed in a bar graph. Optimal range of weight and soft lean mass is calculated on the basis of standard weight.

1) Body Mass Index (B.M.I., Quetlet's Index:  $\text{kg/m}^2$ ): for adults

\*EAST ASIA

thin	normal	overweight	obese
< 18.5	18.5 ~ ≤ 23	23 ~ ≤ 25	over 25

\* EU and etc.

thin	normal	overweight	obese
< 18.5	18.5 ~ ≤ 25	25 ~ ≤ 30	over 30

2) Percent Body Fat (P.B.F., %): It is the ratio (%) of the body fat based on the subject's weight.

	low-fat	normal	over-fat	obese	severe obese
Men	less than 15	15 ~ ≤ 20	20 ~ ≤ 25	25 ~ ≤ 30	over 30
Women	less than 20	20 ~ ≤ 30	30 ~ ≤ 35	35 ~ ≤ 40	over 40

3) Fatness = Indicates the degree of obesity of the current weight against the standard weight.

$$\{(\text{current weight} - \text{Standard weight}) / \text{Standard weight}\} \times 100 (\%)$$

Division	Very weak	weak	normal	A little obese	obesity
	Less than 20%	-20%~-10%	-10%~+10%	+10%~+20%	+ 20% or more

\* Standard weight = height (m)<sup>2</sup> X 22

4) Abdominal circumference

Optimal range is <102cm/40inches (male), <88cm/35inches (female).

Abdominal Circumference is an estimated value when measuring the navel circumference.

Division	Korea	Japan	China	Outside Europe	USA
Male	Less than 90cm	Less than 85cm	Less than 85cm	Less than 102cm	Less than 40inch
Female	Less than 80cm	Less than 90cm	Less than 80cm	Less than 88cm	Less than 35inch

## 5. Abdominal Analysis

Abdominal fat mass consists of subcutaneous and visceral fat. Experts say, it is not only the amount of fat that is important but also its distribution. If the visceral fat area is over 100 cm<sup>2</sup>, it is classified as "visceral obesity" regardless of P.B.F., W.H.R. or Body weight.

Waist-to-hip ratio (W.H.R.) shows the distribution of fat stored in one's abdomen and hip. It is simple but useful in assessing fat distribution. Body fat is stored in two distinct ways. They are often categorized as 'apple' and 'pear' types. Apple types are characterized by a larger waist than hip, and pear types have a larger hip than waist. If body fat in the abdomen increases, the risk of cardiovascular diseases, diabetes, etc. becomes higher.

1) V.F.A. (Visceral Fat Area): The optimal range is 50 ~ 100 cm<sup>2</sup> (male), 40 ~ 80 cm<sup>2</sup> (female).

2) Visceral Fat Level: The degree of visceral obesity is displayed as a level.

- Level 1~ 4 corresponds to subcutaneous fat type
- Level 5~ 8 corresponds to balanced type that subcutaneous and visceral fat is balanced.
- Level 9~10 corresponds to borderline type.  
If subjects maintain their current lifestyle, they will likely proceed to visceral fat type.
- Level 11~15 corresponds to visceral fat type I .
- Level 16~20 corresponds to visceral fat type II .

3) W.H.R. (Waist to Hip Ratio)

W.H.R. is calculated by dividing waist girth by hip girth. When W.H.R. is below 0.9 (male) / 0.85 (female), the risk of visceral obesity is low.

## **6. Weight control**

1) Muscle regulation

This is the control target for achieving the appropriate muscle mass based on the current measurement.

If the muscle is greater than the desired value, the adjustment value is displayed as +0.0.

2) Fat regulation

This is the control target value for proper body fat amount based on the present measurement value.

3) Weight control

This is the total body weight control target combined with fat control and muscle control.

(-), increase it if it is positive (+).

4) Recommended weight

If you add (+) or subtract (-) the total weight adjustment to your current weight, you will obtain the recommended weight.

## **7. Assessment of E.C.W./T.B.W.**

Edema is the result of an unbalanced state of intra and extra cellular water. Edema can increase when eating salty food, as a result of malnutrition, postpartum, exercise, temporary fatigue etc. It is measured in 3 levels: Optimal, Borderline, Over.

## **8. Body composition changes**

Check for changes in weight, body fat, and skeletal muscle comparing previous and present measurements.

## **9. Overall evaluation**

### 1) Body Type

Body type is determined by B.M.I and P.B.F. Body type is classified as 1 of 9 types; Low fat Low weight, Low fat Muscular, Athletic, Low weight, Standard, Over Weight Muscular, Thin fat, Over fat, Obese.

### 2) A.M.B. (Age Match of Body)

The estimated physical age of the subject based on the body composition analysis result, gender, and biological age. This is calculated by comparing the optimal body composition based on the gender and biological age of the subject with the actual analyzed body composition. It can be used to evaluate the subject's health and body development.

### 3) B.M.R. (Basal Metabolic Rate)

B.M.R. refers to the calories required to maintain the human body's basic functions such as heartbeat, brain functions, neural transmission, and regulation of body temperature and so on.

B.M.R. is proportional to S.L.M., because body fat stores energy while muscle consumes energy. Therefore, even if the weight of 2 people is the same, the person with more muscle has a higher B.M.R.

### 4) T.E.E. (Total Energy Expenditure)

The sum of basal metabolic rate and calories needed for daily activity. Generally it is calculated by multiplying B.M.R. by PAL (Physical Activity Level).

## **10. Physical Balance Assessment**

The left and right balance of the upper and lower body, evaluated as weak imbalance or severe imbalance.

Evaluation of whether your body's balance reflects the general muscle and fat mass values.

### **11. Segmental Assessment**

Soft lean mass and body fat of five body segments (the left and right arms, left and right legs, and trunk) are displayed in a diagram.

### **12. Impedance**

The resistance of the human body to the electric current that flows through the body. The impedance value can be used to monitor the function of this device and to check body changes.

### **13. Blood Pressure**

When the blood pressure monitor supplied from SELVAS Healthcare, Inc. is connected to the unit, blood pressure can be measured and the result can be printed. Systolic blood pressure, diastolic blood pressure, and pulse are printed on the result sheet. This is useful for detecting hypertension which can be related to obesity.

## STORAGE & MAINTENANCE

- 1) Pay attention to the allowable value of the electric current.
- 2) Avoid direct sunlight, humidity, dust, thick oil, salty air or extreme changes in temperature.
  - ⊗ 3) Do not install or store the device in a place where chemicals or gas are stored.
  - ⊗ 4) Do not use the device in unstable environments with a high amount of vibrations or heavy impacts.
- 5) Connect the ground located on the backside of this device to the terminal plate to prevent any electric shock from power surges or other electrical current changes.
  - ⊗ 6) Do not place heavy objects on or drop anything on to the device, and avoid strong impacts.
  - ⊗ 7) Do not disassemble or modify the device.
- 8) If the unit has not been used for an extended period, confirm with an expert that all functions and physical mechanisms are in good condition before use.
  - ⊗ 9) Do not introduce any liquid on to the device or insert any foreign substances.
- 10) If foreign substances are introduced, or if the device is exposed to harmful environments, the unit must be examined by a qualified technician before use.
- 11) Use only the power cable, adapter, and fuses provided by SELVAS Healthcare.  
Please confirm the covering of the cable, the state of the adapter connection, and other safety checks as below:
  - RS 232C cable • USB port • Adapter
- 12) When disconnecting the power cable, turn off the power switch first then unplug the unit.
- 13) Store the unit in an environment with an ambient Temperature -25 ~ 70 °C, Humidity lower than 93 % (non condensing)
- 14) The operating environment should have an ambient Temperature 5 ~ 40 °C, Humidity 15 ~ 93 % (non condensing)
  - ⊗ 15) Do not store or use this device in environments under 70 kPa (700 mbar) or over 106 kPa (1060 mbar) of atmospheric pressure.
- 16) Cleaning & Disinfection
  - ① Cleaning: Use a soft gauze cloth with volatile liquid like alcohol (Ethyl or Isopropyl alcohol 70~90%) to clean the unit.  
Clean the device every 2~3days. Do not use a wet cloth.
  - ② Disinfection: After measurement, use a soft gauze cloth with volatile liquid like benzene and alcohol. Then, wipe the enclosure with a soft fiber cloth. Please wipe after every measurement for electrode disinfection.
- 17) Please refer to and abide by the “SAFETY PRECAUTIONS.”

### Caution



Users must be sure to use sterile safety equipment such as gloves when in contact with or cleaning electrodes.  
SELVAS Healthcare is not responsible for safety accidents caused by users' carelessness.

# ERROR & REPAIR

## 1. Troubleshooting & Repair

Error	Cause	Repair
Out of range of impedance	When the subject's body impedance deviates from the limit - Insufficient contact with electrodes - Impedance is out of range - Range: 100 ~ 950 $\Omega$	<ul style="list-style-type: none"> <li>• Clean the measurement contact areas (the electrodes, your palms and soles) and try again.</li> <li>• Measure again with correct posture.</li> <li>• Do not move during measurement.</li> <li>• If the same error is repeated, please contact our company or the local distributor from which this device was purchased.</li> </ul>
Out of range of body fat	When the subject's P.B.F. deviates from the limit - Incorrect input of personal data - P.B.F. is out of range	<ul style="list-style-type: none"> <li>• Clean the electrode holders and try again.</li> <li>• After checking that the personal data is correct (age, gender) and that there are no measuring errors with weight and impedance, try again.</li> <li>• Measurement cannot proceed if the P.B.F. is out of range.</li> <li>• When the same error occurs even after re-measurement, please contact our company or the local distributor from which the device was purchased.</li> </ul>
Out of range of measurement	When the subject's fatness is deviated from the limit - Mechanical error	<ul style="list-style-type: none"> <li>• Input height correctly or if installed height meter, measure again.</li> <li>• Confirm weight measurement and try again.</li> <li>• Measurement cannot proceed if the fatness is out of range.</li> <li>• When the same error occurs even after re-measurement, please contact our company or the local distributor from which the device was purchased.</li> </ul>
Insufficient electrode connection to Ankle	<ul style="list-style-type: none"> <li>• When even one of the 4 electrodes does not sufficiently connect.</li> </ul>	<ul style="list-style-type: none"> <li>• Reconnect all electrodes again.</li> </ul>
Can't input the height	When the subject's height is deviated from the limit - Incorrect input of height	<ul style="list-style-type: none"> <li>• Input height correctly. If the subject's height is out of range, height can't be entered.</li> </ul>
Can't measure the weight	When the subject's weight deviates from the limit - Measuring error - Moving during the measurement	<ul style="list-style-type: none"> <li>• Measure the weight again. Don't move or speak during measurement.</li> <li>• The weight can't be measured if it is out of range.</li> <li>• When the same error occurs even after re-measurement, please contact our company or the local distributor from which the device was purchased.</li> </ul>



## 2. Error & Repair

Error code	Cause	Repair
38001	<ul style="list-style-type: none"> <li>• Electrode and measuring parts are not detected or dirty</li> <li>• Faulty in impedance measuring</li> </ul>	<ul style="list-style-type: none"> <li>• Try to measure again after cleaning the electrode holders with soft gauze.</li> <li>• Try again after cleaning the hands and soles.</li> <li>• Check if foreign materials are between electrodes and measuring parts.</li> <li>• Try again in correct posture and hold the electrodes according to the measuring method.</li> </ul>
38002	<ul style="list-style-type: none"> <li>• Ankle electrode and measuring parts are not detected</li> </ul>	<ul style="list-style-type: none"> <li>• Try to measure again after cleaning the ankle electrode with soft gauze.</li> <li>• Try again after cleaning the ankle electrode.</li> </ul>
38003	<ul style="list-style-type: none"> <li>• There is an error in measured impedance by external influence.</li> </ul>	<ul style="list-style-type: none"> <li>• Check installation condition (AC cord or around equipment)</li> <li>• Contact our company or distributor.</li> </ul>
38004	<ul style="list-style-type: none"> <li>• Out of measurement range of impedance</li> <li>• range: 100~950Ω</li> </ul>	<ul style="list-style-type: none"> <li>• Try again after cleaning the hands and soles.</li> <li>• Check if foreign materials are between electrodes and measuring parts.</li> <li>• It can't measure if the impedance is out of range.</li> </ul>
38005	<ul style="list-style-type: none"> <li>• Out of measurement range of PBF</li> <li>• range: Under 75%</li> </ul>	<ul style="list-style-type: none"> <li>• Try again after cleaning the hands and soles.</li> <li>• It can't measure if the PBF is out of range.</li> </ul>
38006	<ul style="list-style-type: none"> <li>• Continuous error for 3 times</li> </ul>	<ul style="list-style-type: none"> <li>• Step off and try again.</li> <li>• Contact our company or distributor.</li> </ul>
38007	<ul style="list-style-type: none"> <li>• Disconnect Color board and Main board</li> </ul>	<ul style="list-style-type: none"> <li>• Contact our company or distributor.</li> </ul>

# AFTER SERVICE

## 1. AFTER SERVICE

- ❗ If there is any problem with the unit, please follow the steps below;
- ※ Contact our company's Overseas Service Department immediately.  
After gathering the model name, Serial Number, date of purchase and description of the problem, contact our company with information shown below.
- ※ Try to solve the problem over the phone with the personnel of local service department.  
If the problem cannot be solved over the phone, return the unit directly to service department.
- ※ Our company or local distributor will make available on-request circuit diagrams, component part list, descriptions, calibration or other information which will assist your appropriately qualified technical personnel to repair those parts of the unit which are designated by our company as repairable.

How to contact our company

Write us at:

SELVAS Healthcare, Inc.

155, shinseong-ro, Yuseong-gu, Daejeon, 34109 Republic of Korea

TEL: 82-42-879-3000

FAX: 82-42-864-4462

(You can also contact the following representative or your local distributor)

## 2. PACKING AND TRANSPORT

Our company packages this device using the most suitable methods to protect it from impact or damage during shipping and transport. This device can be damaged during delivery if it is packed in methods that deviate from those our company uses. Please handle this device carefully to avoid unnecessary impact during packing and delivery.

If this device needs to be transported, repack it carefully and transport it as follows.

- ① Turn off the power.
- ② Turn off the power of the peripheral devices and disconnect all cables.
- ③ Disassemble the device in reverse order of assembly.
- ④ Pack the device using the original packing materials.
- ⑤ Transport it carefully.

# SPECIFICATION

Model	ACCUNIQ BC380
Measuring method	Tetra-polar electrode method using 8 touch electrodes.
Frequency Range	5, 50, 250 kHz
Measuring site	Whole body and Segmental measurement (arms, legs, and trunk)
Main items	<p><b>[Result for Body Composition Analysis]</b>            Body Composition Analysis (Weight, LBM, Body fat, SLM, Protein, Mineral, TBW), Muscle/Fat analysis (Weight, SMM, Fat mass), Obesity analysis (BM, PBF, Obesity degree, AC), Abdominal analysis (WHR, VFL, VFA), Control guide (Weight and control, Muscle mass and control, Fat mass and control, Target to control, control to week, Duration to control), ECW, Body composition change (Weight, SMM, Fat mass), Comprehensive evaluation (Body type, Biological age, BMR, TEE, BCM), Balance assessment (Upper body L/R, Lower body L/R), Segmental(Left arm, Right arm, Left leg, Right leg, Trunk) Fat mass/Lean mass, Impedance (Segmental&amp;Frequency), Blood pressure (when connected with blood pressure monitor of our company), QR code</p> <p><b>[Result for Child and Youth (optional)]</b>            Body Composition Analysis (Weight, LBM, Body fat, SLM, Protein, Mineral, TBW), Muscle/Fat analysis (Weight, SMM, Fat mass), Obesity analysis (BMI, PBF, WHR), Child growth curve (height, weight), Comprehensive evaluation (Body type, BMR, TEE, BCM, Obesity degree), Balance assessment (Upper body L/R, Lower body L/R), Control guide (Target weight, Weight control, Muscle control, Fat control), Segmental(Left arm, Right arm, Left leg, Right leg, Trunk) Fat mass/Lean mass, Impedance (Segmental&amp;Frequency), QR code</p>
Current	Within 180 $\mu$ A $\pm$ 15
Power supply	Input-100-240VAC, 50/60Hz, 1.4-0.7A Output-DC 12V, 5.0A, 60W MAX.
Display	7 Inch Wide Color LCD
Input device	Touch pad, PC remote control
Transmitting device	USB port , RS-232C port
Printing device	USB port (the printer assigned by our company), Thermal print (option)
Dimension	641x436x1029mm(WxDxH)
Weight	About 18kg (main unit)
Measuring range	100 ~ 950 $\Omega$
Measuring time	Approx. 30 seconds
Input height	50 ~ 220 cm / 1ft 7.7in ~ 7ft 2.6in
Measuring weight	10 ~ 250 kg / 22lb ~ 551.1lbs
Applicable age	1 ~ 99 years old
Operation ambient	Ambient temperature range +5 to +40 °C Relative humidity range 15 to 93 % (non condensing)

	Atmospheric pressure range 70 kPa (700 mbar) to 106 kPa (1060 mbar)
Storage ambient	Ambient temperature range -25 to +70 °C Relative humidity range lower than 93 % RH Atmospheric pressure range 70 kPa (700 mbar) to 106 kPa (1060 mbar)
Software name and version	Name: BC380, Version: BC380.K.1.0.00

※ For purpose of improvement, specifications and design are subject to change without notice.

# WARRANTY

## Warranty

Name of product	Body Composition Analyzer		
Name of model	ACCUNIQ BC380		
Serial number			
Period of warranty	Within 1 year from the date of purchase		
Date of purchase			
Customer	Add.	Name Tel.	
Dealer (market)	Add.	Name Tel.	

### Note



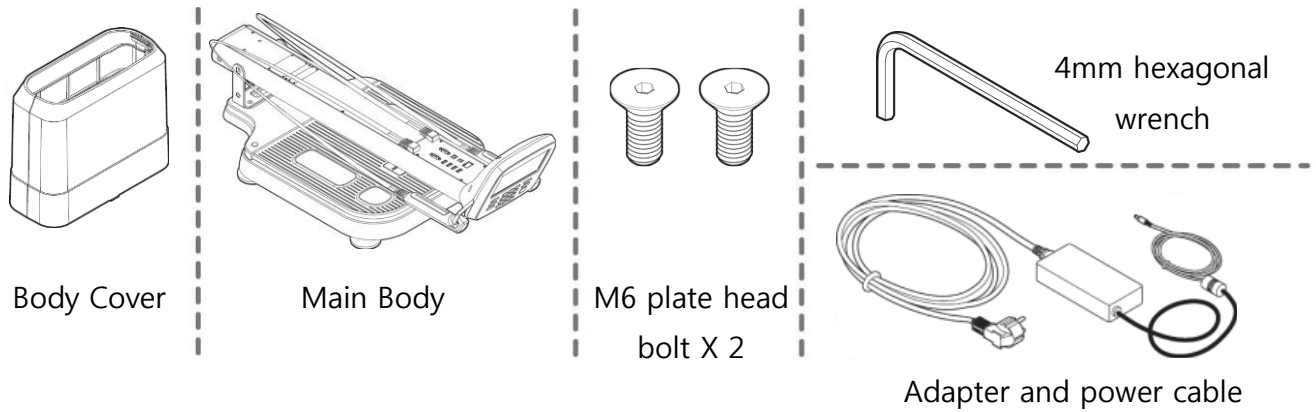
- When you receive this warranty, make sure that the name of the dealer and the month, day and year of purchase are all completed.
- This warranty will not be reissued, please keep it in a safe place.

# Assembling Instruction

## 1. Main Unit Installation

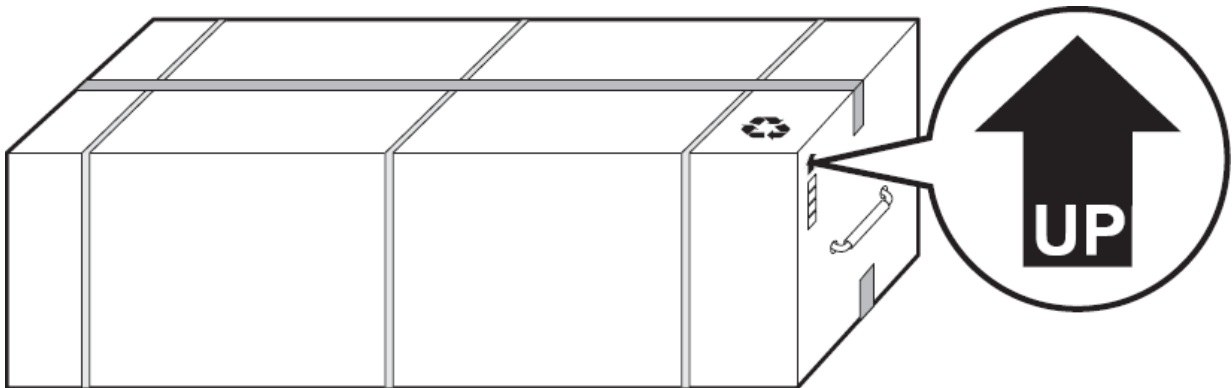
For your safety, it is highly recommended that the transporting, unpacking and installation of this product be carried out by two or more people working together.

### (1) Product installation components

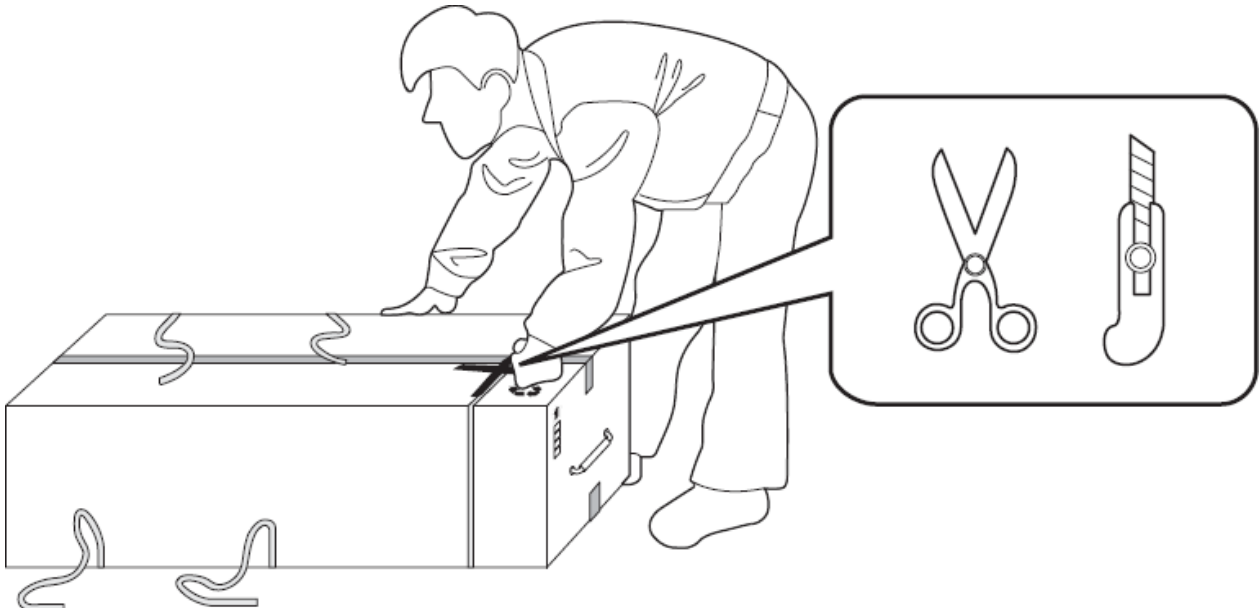


### (2) Unpacking

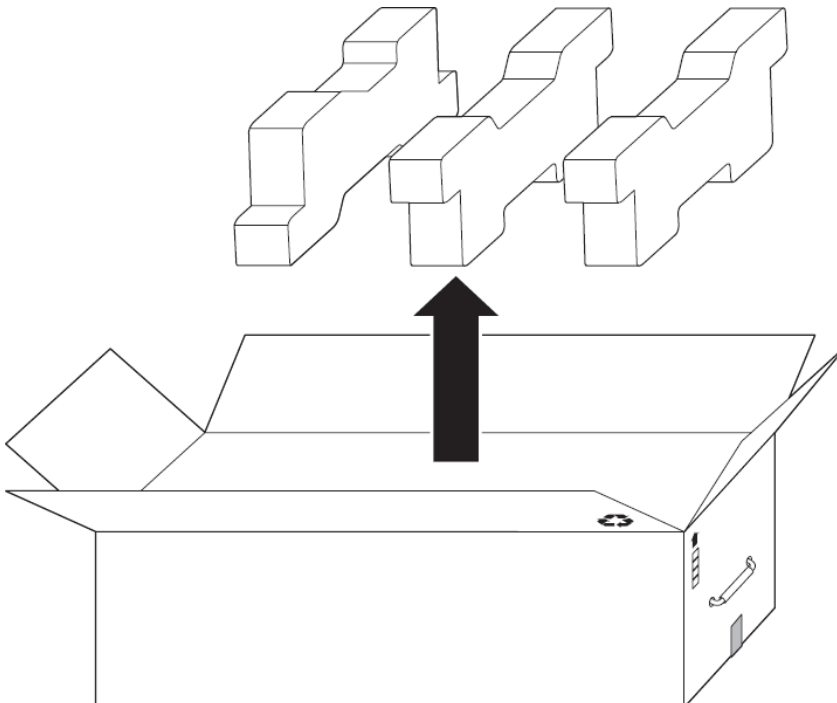
- ① Place the box on the floor so that the direction of the arrow on the product box faces upward.



- ② Remove the packing band and tape with scissors or a knife very carefully so as to prevent damage to the product.

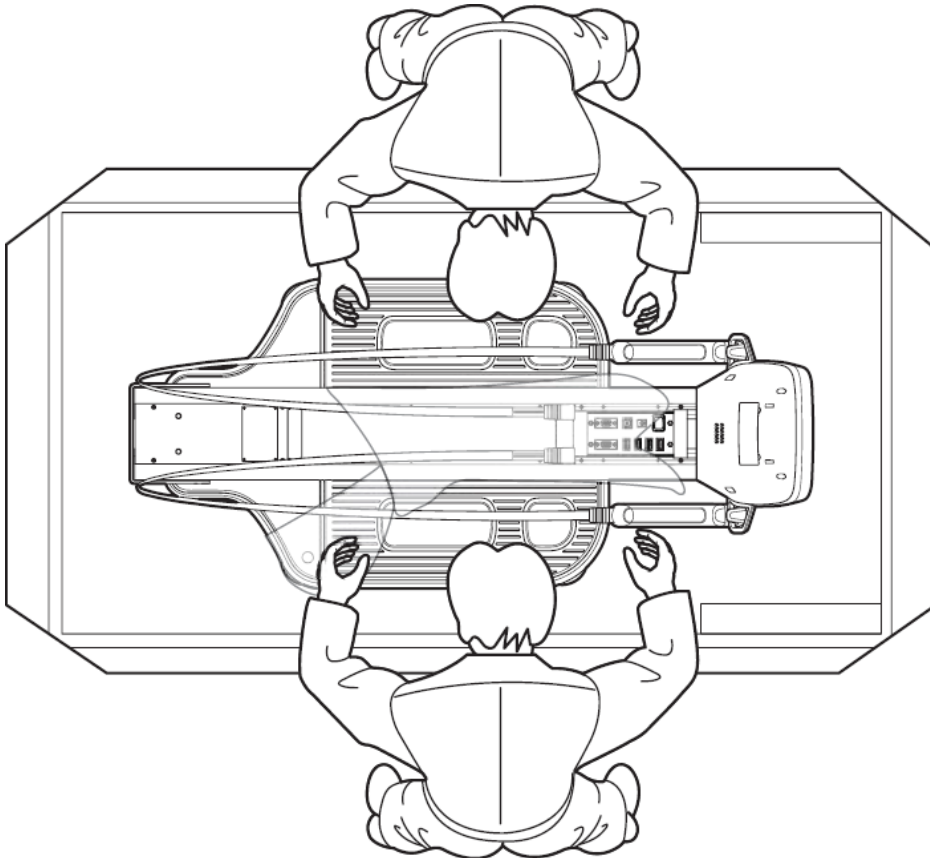


- ③ When opening the box and folding the lid, take care not to crush the urethane foam when removing the product protection materials.

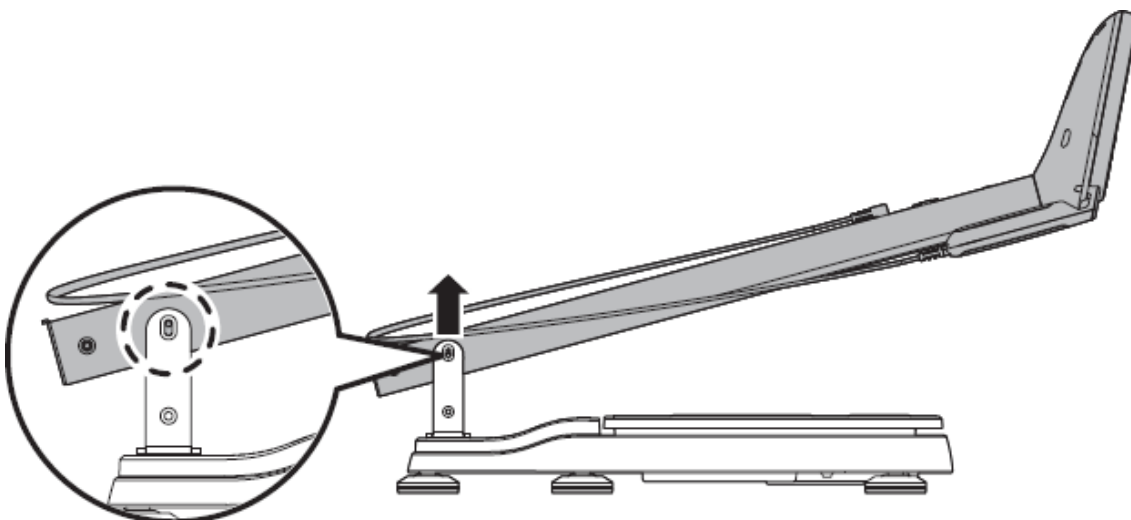


### (3) Unit Setup

- ① Two or more workers should remove the product from the box, centering their efforts on the scale.



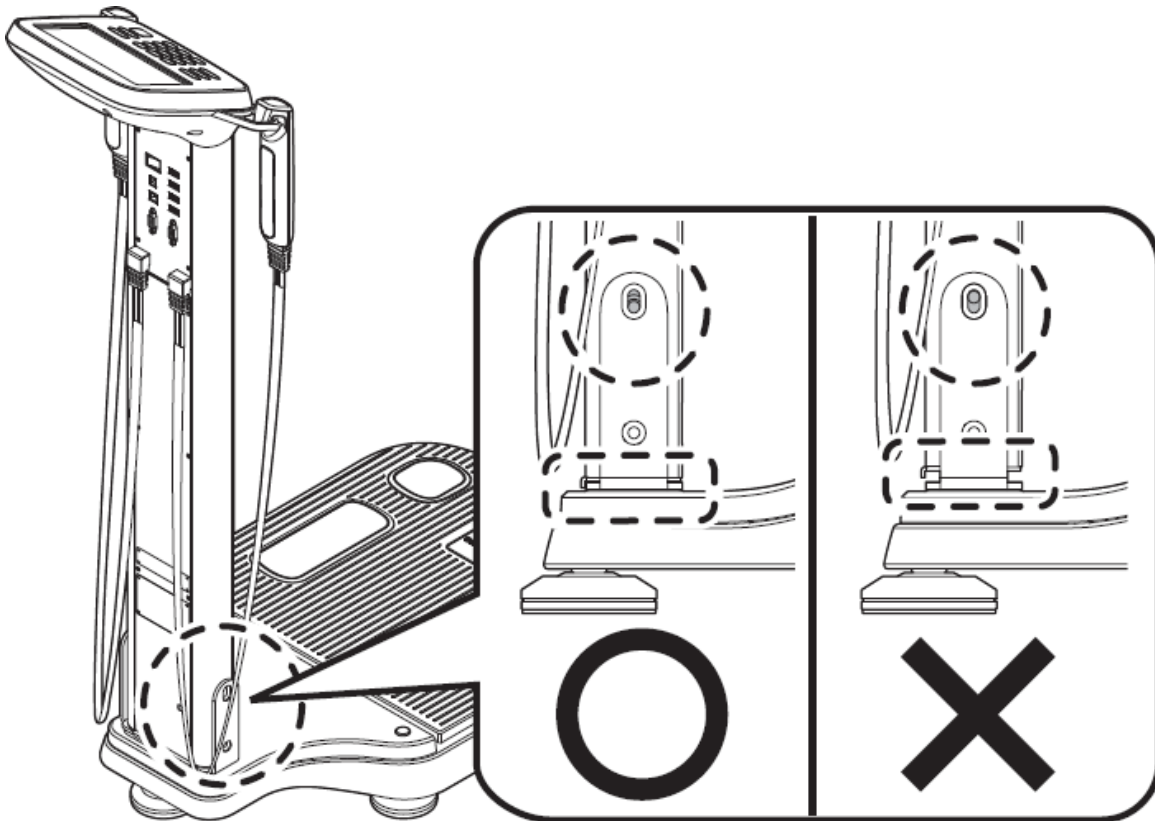
- ② Place the main frame of the product on a flat surface with an average slope of less than 10 degrees as shown in the figure.  
When erecting the main frame of the product, raise the column as shown in the figure below.



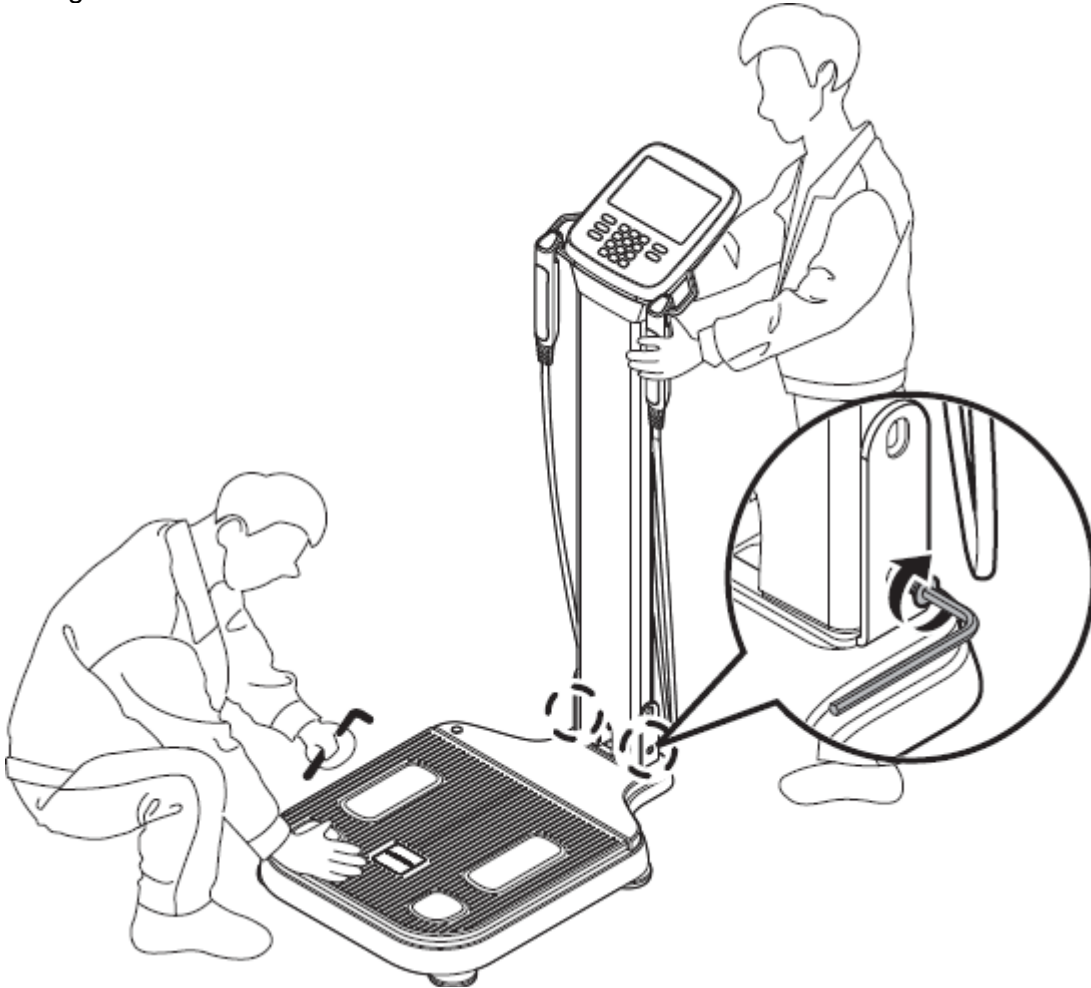




- ③ Make sure that the sides of the vertical column of the frame are aligned at right angles so that they match with the bottom platform. Make sure that the screw holes on the bottom of the vertical column and the main platform are aligned.

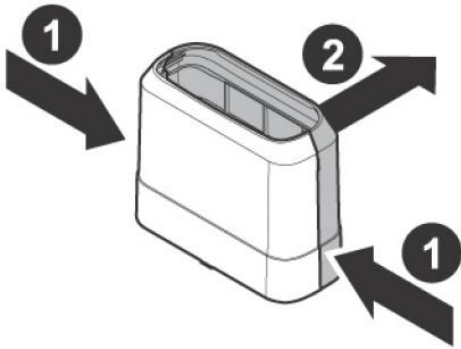


- ④ One person should hold the body's frame to prevent it from falling, while the other person removes the packing vinyl from the product. While one person holds the main frame, the other person should use a 4mm hexagonal wrench to insert two M6 bolts into the left and right grooves of the body hinge bracket as shown in the figure.

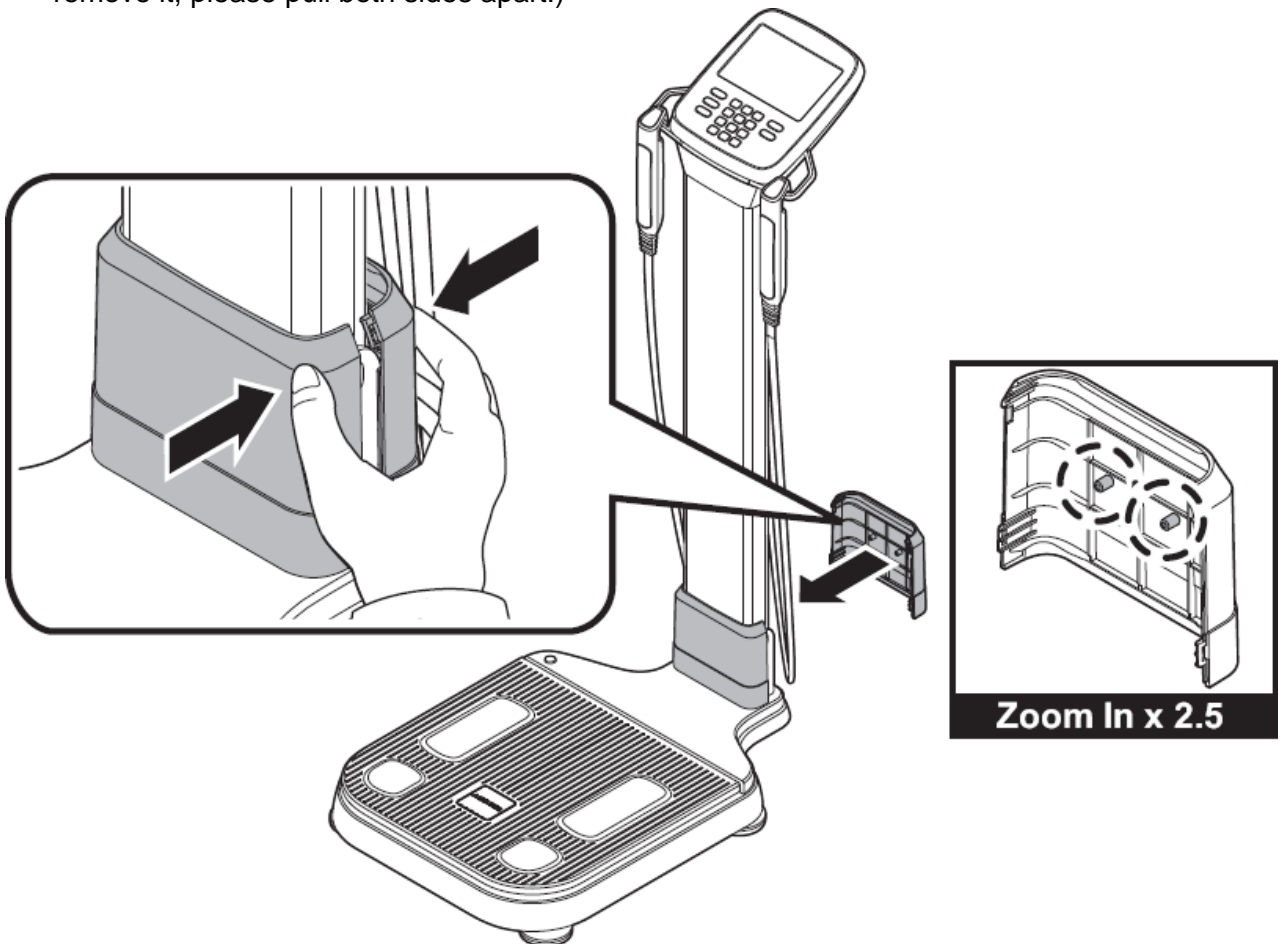


(4) Assembly of body hinge cover

① Remove the body hinge cover in the direction of the arrow as shown in the figure.



② Attach the body hinge cover to the lower part of the vertical column of the body fat analyzer as shown in the figure, then press on both sides of the body hinge cover to snap it together. (To remove it, please pull both sides apart.)

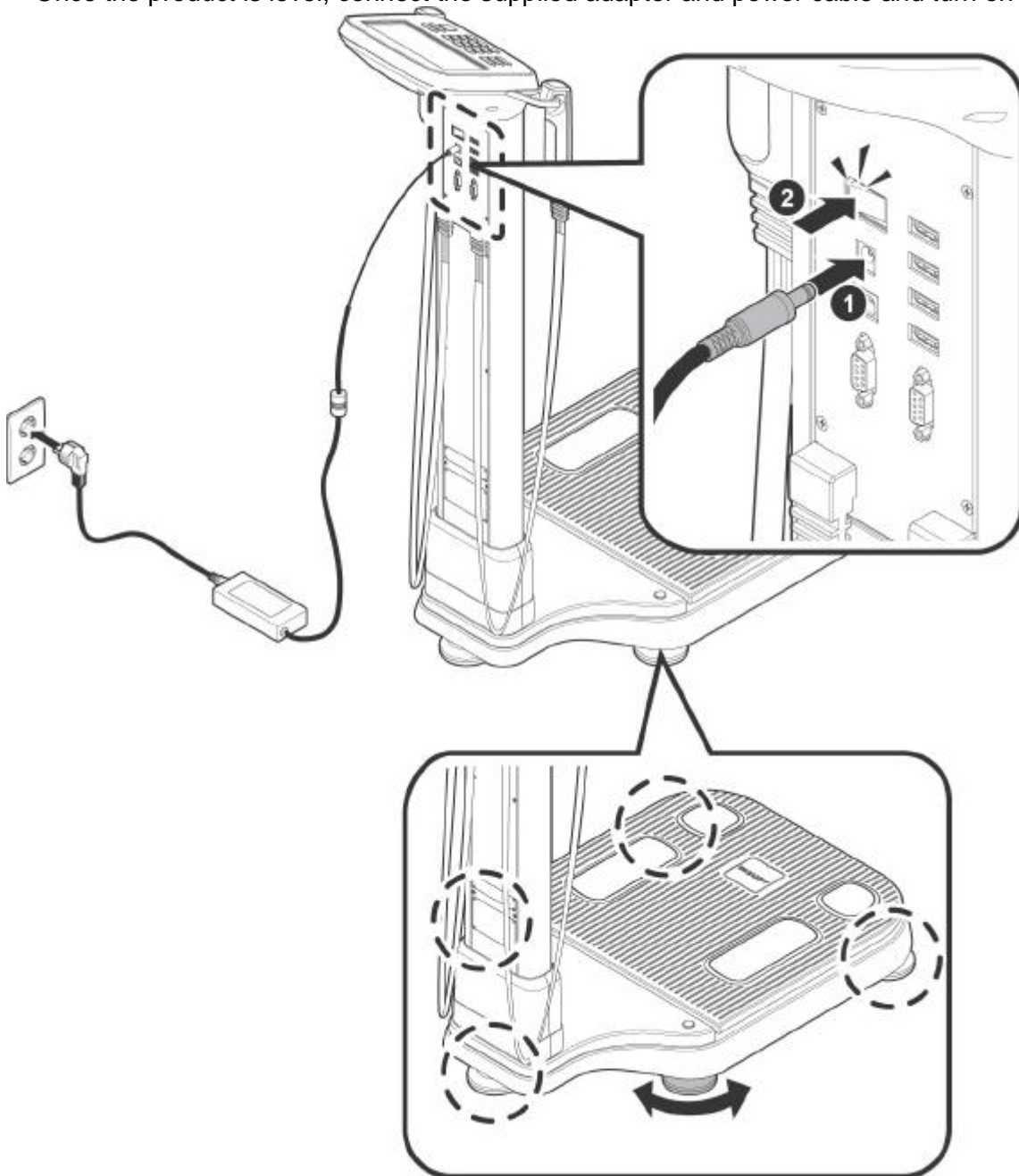


(5) Leveling and power connection

Check the level of the installed product.

If the product is not level, use the 5 disks on the underside of the platform to adjust the level.

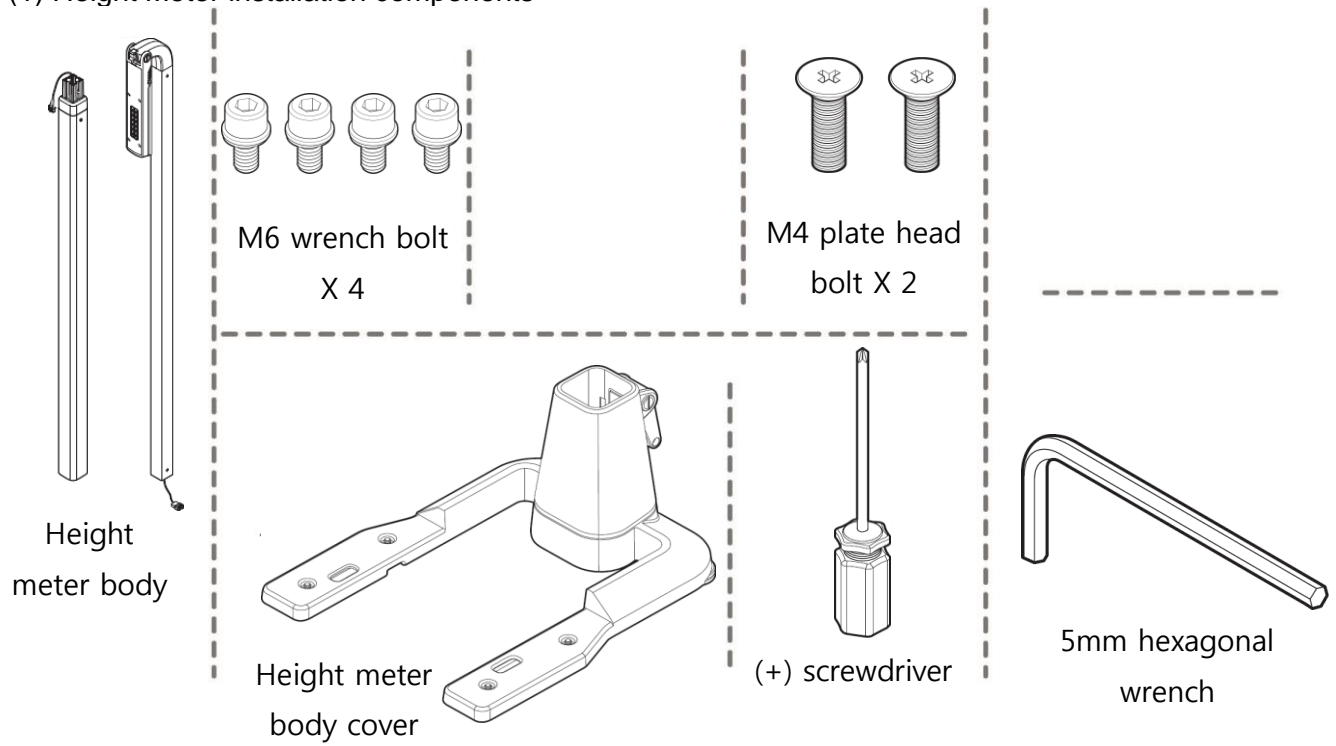
Once the product is level, connect the supplied adapter and power cable and turn on the power.



## 2. Installation of Ultrasonic Height Meter (optional)

For proper installation, be sure to read and understand the following information before assembling.

### (1) Height Meter installation components



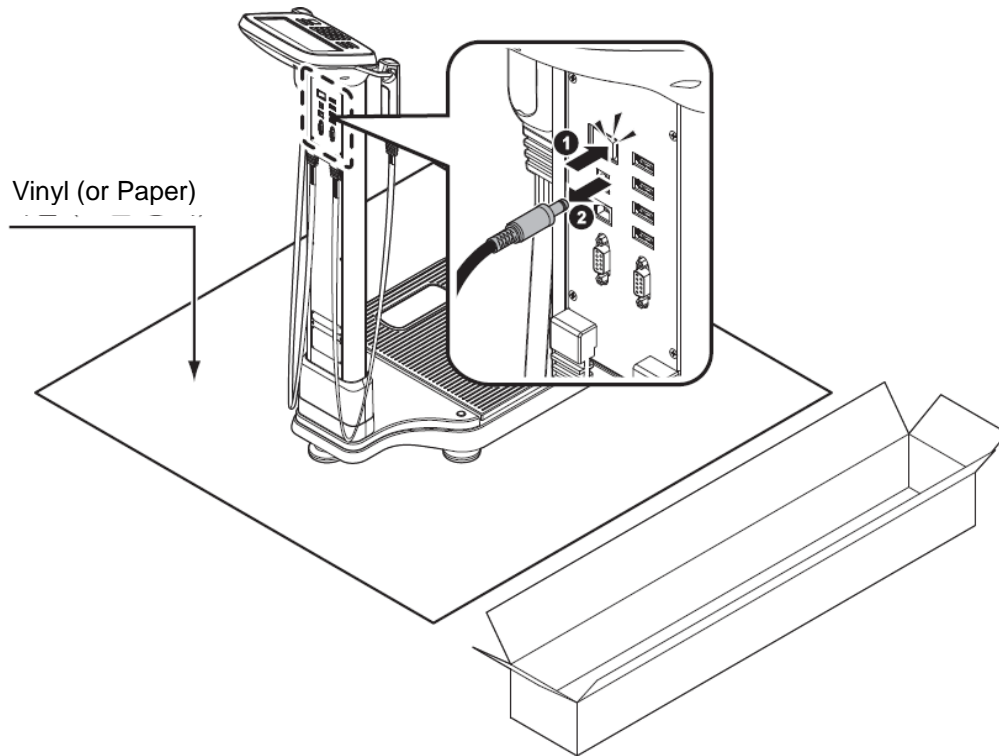
(2) Preparation before Height Meter installation

- ① Please turn off the product, and disconnect the adapter jack.

After ensuring the floor is clean, lay vinyl or paper on the floor in order to protect the product when laying it down.

Make sure that there are no foreign or sharp objects on the floor, as these may cause damage to the product.

Please check the components after opening the height meter box and extensometer body box.

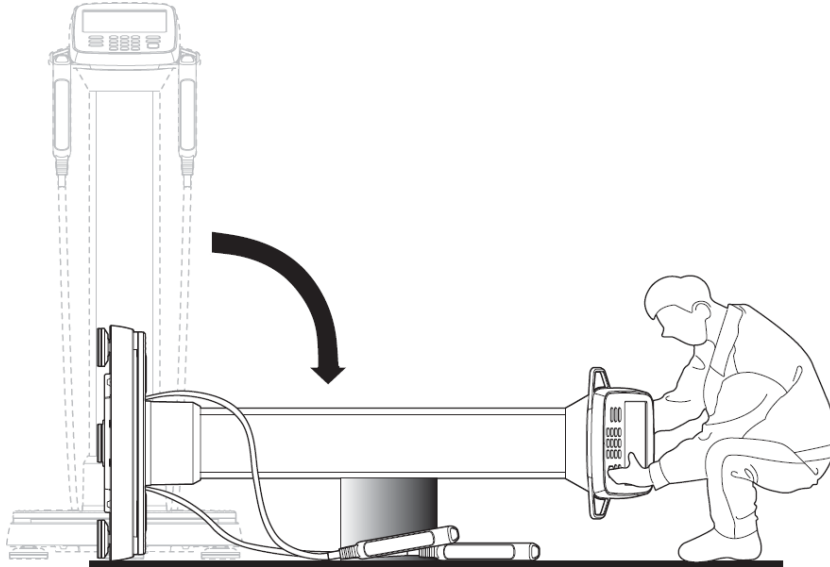


(3) Installation of extensometer

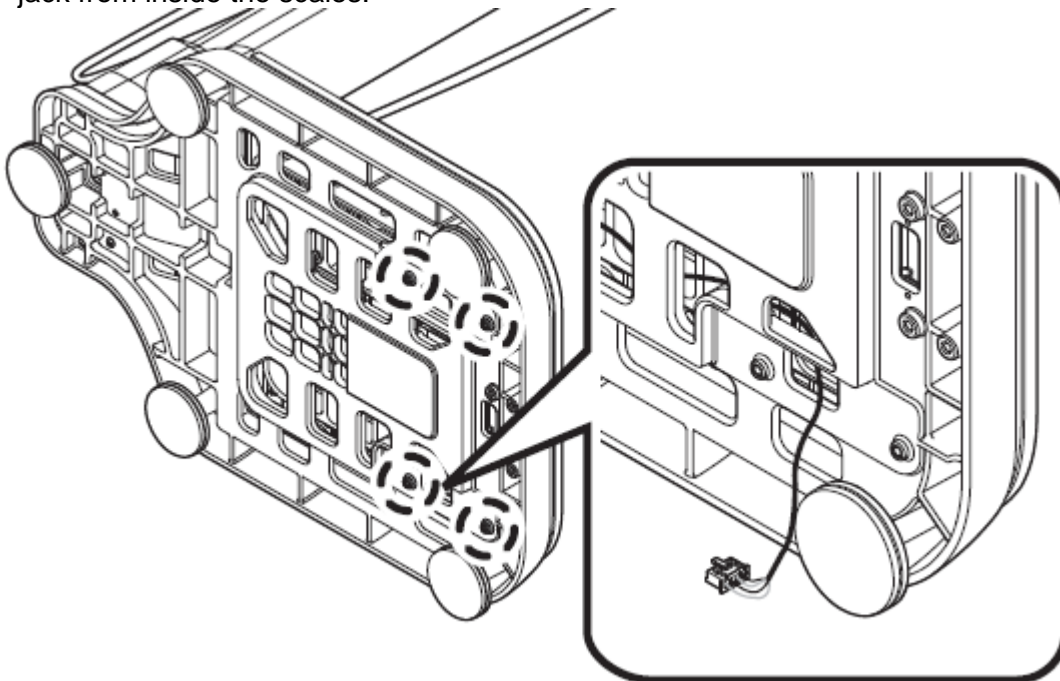
- ① Lay the product on its back as shown. Be careful not to damage the product.

Place a support or thick book as shown in the picture so the LCD does not touch the floor.

Place the electrode handle in a safe place so that it does not interfere with the assembly of the product.

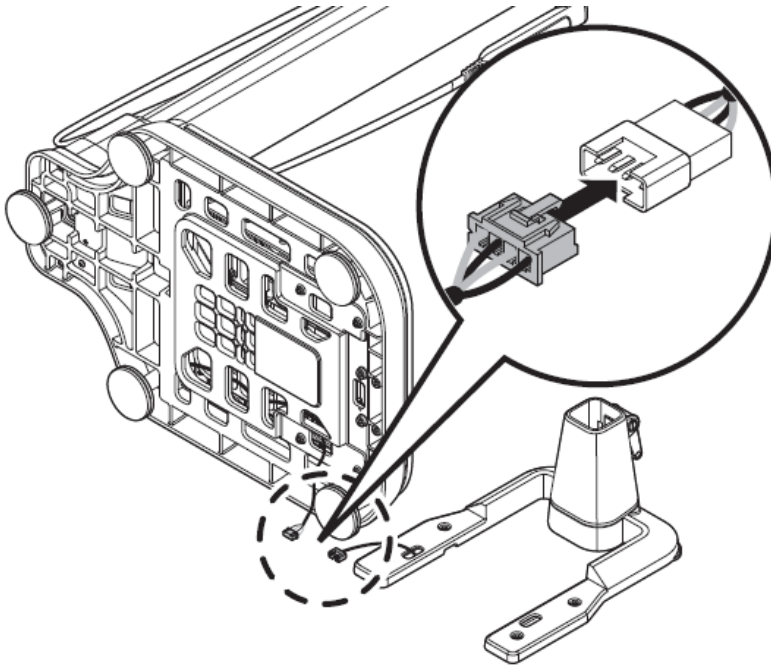


- ② Before attaching the Height Meter to the scales base plate, check the four M6 wrench bolt housing holes located on the bottom of the scale, and pull out the cable connection from the jack from inside the scales.

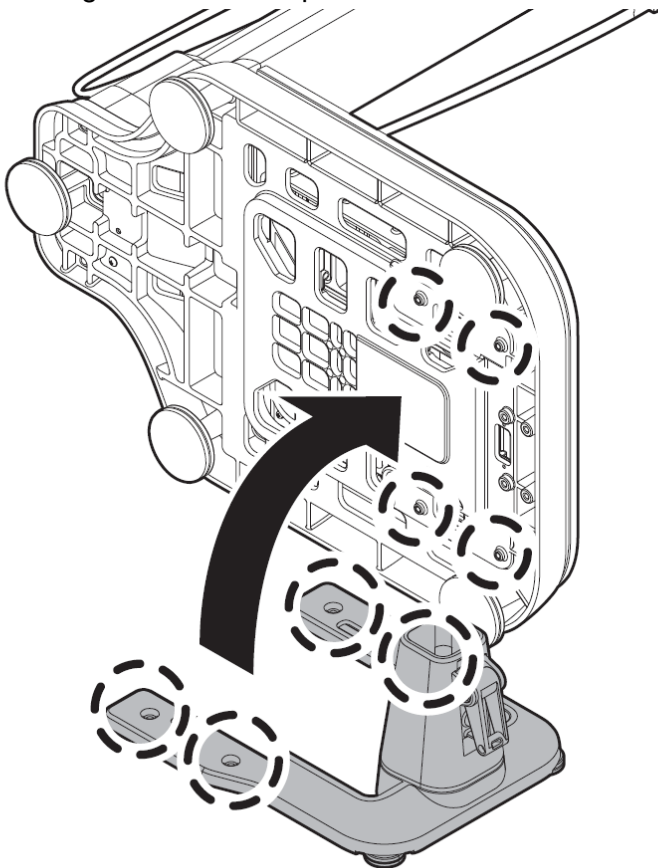




- ③ Connect the cable connector to the connector of the height meter.

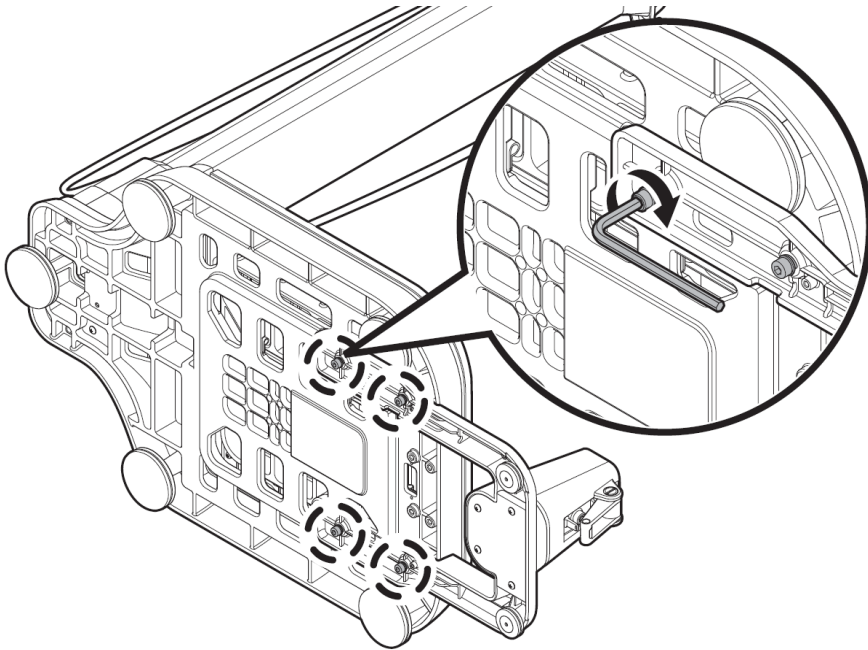


- ④ Turn the height meter base upside down and secure it in the open holes of the scale base plate.

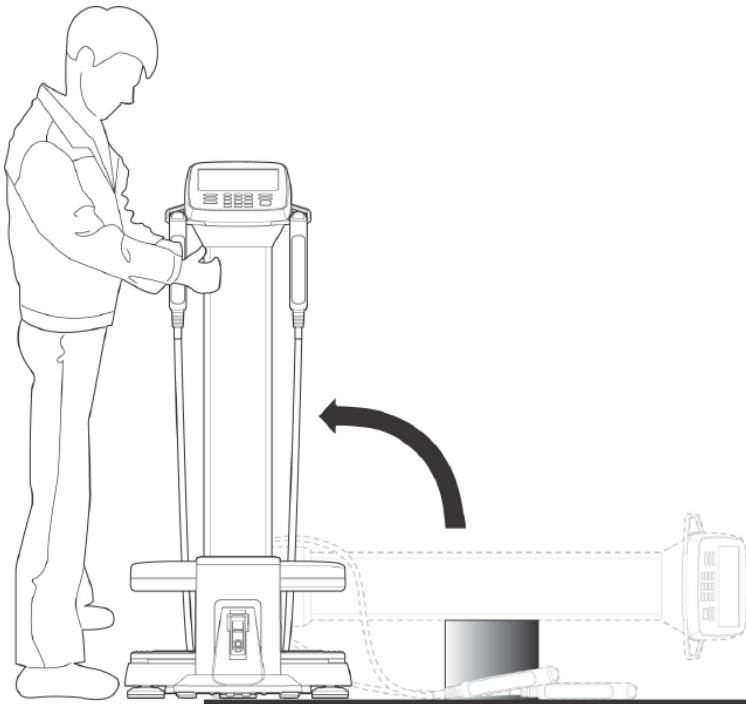




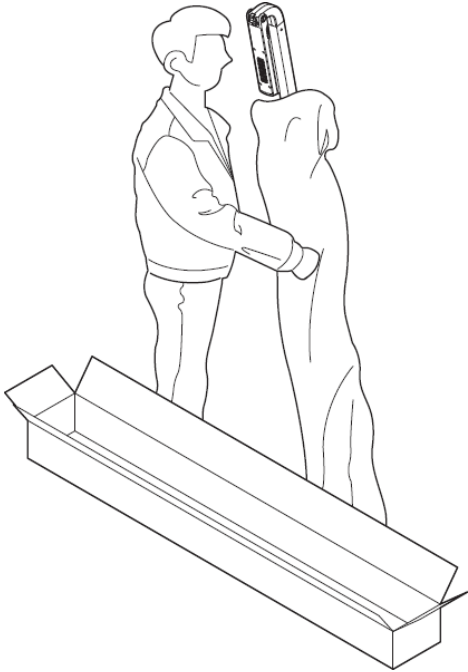
- ⑤ Secure the M6 wrench bolts to each hole with a 5 mm hexagonal wrench.



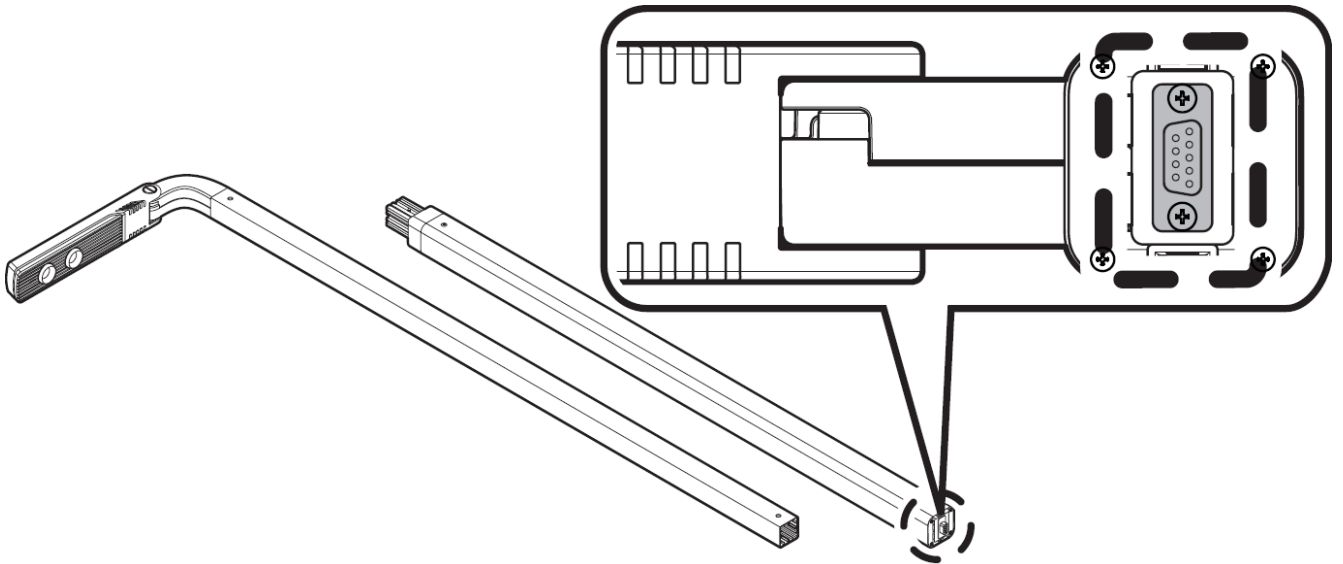
- ⑥ When the extensometer base is installed, place the product on a level surface.  
Be careful not to damage the product.  
Be sure any supports or floor coverings are moved out of the way.



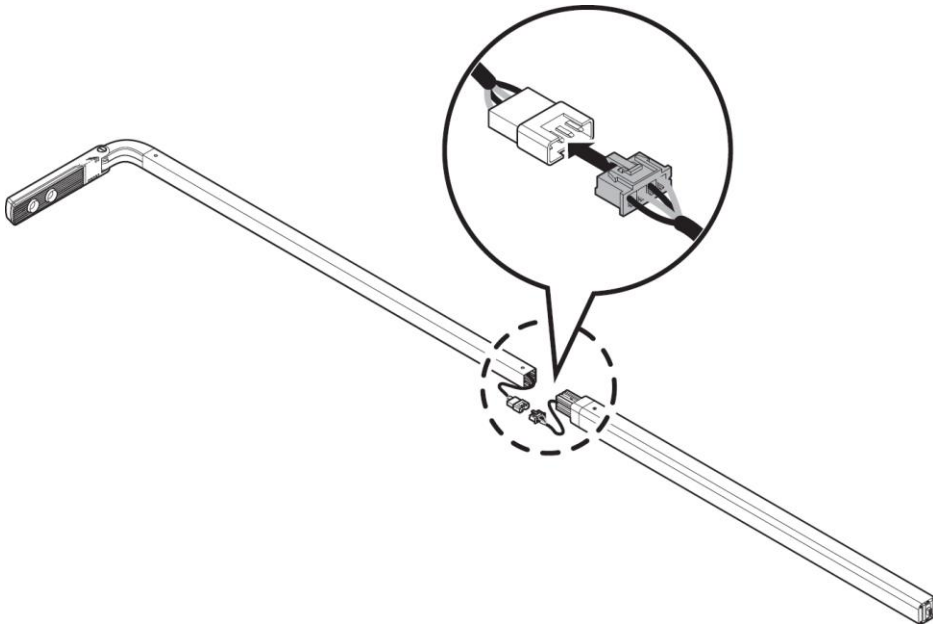
- ⑦ The Height meter body consists of 2 parts in total. Take out two extension parts and remove the packing vinyl.



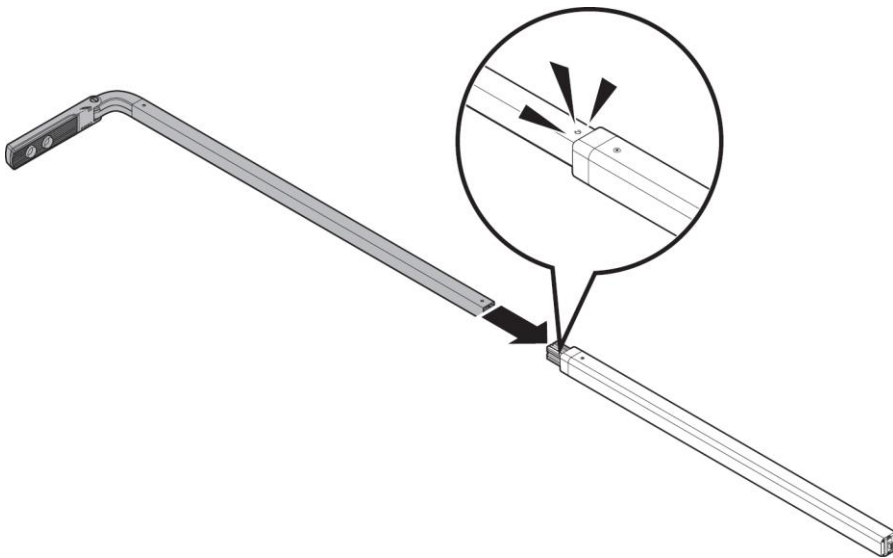
- ⑧ Place the two extension parts side by side on the floor.



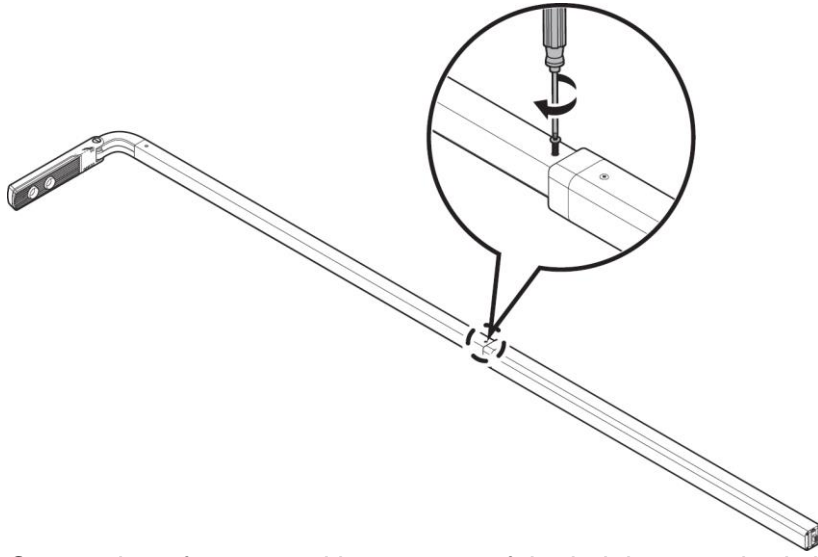
⑨ When connecting the middle of the upper body to the body base, please position the "D-SUB connector" in the same direction as the figure. Remove the connector cables from both the upper and lower parts, and connect the cables together.



⑩ Insert the connected cable into the extensometer body, then push the upper and lower parts together until it clicks.

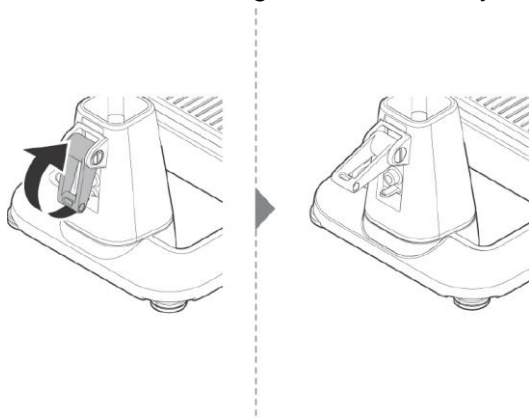


- ⑪ Fix the two M4 plate head bolts to the left and right holes as shown in the figure using a plus (+) screwdriver.

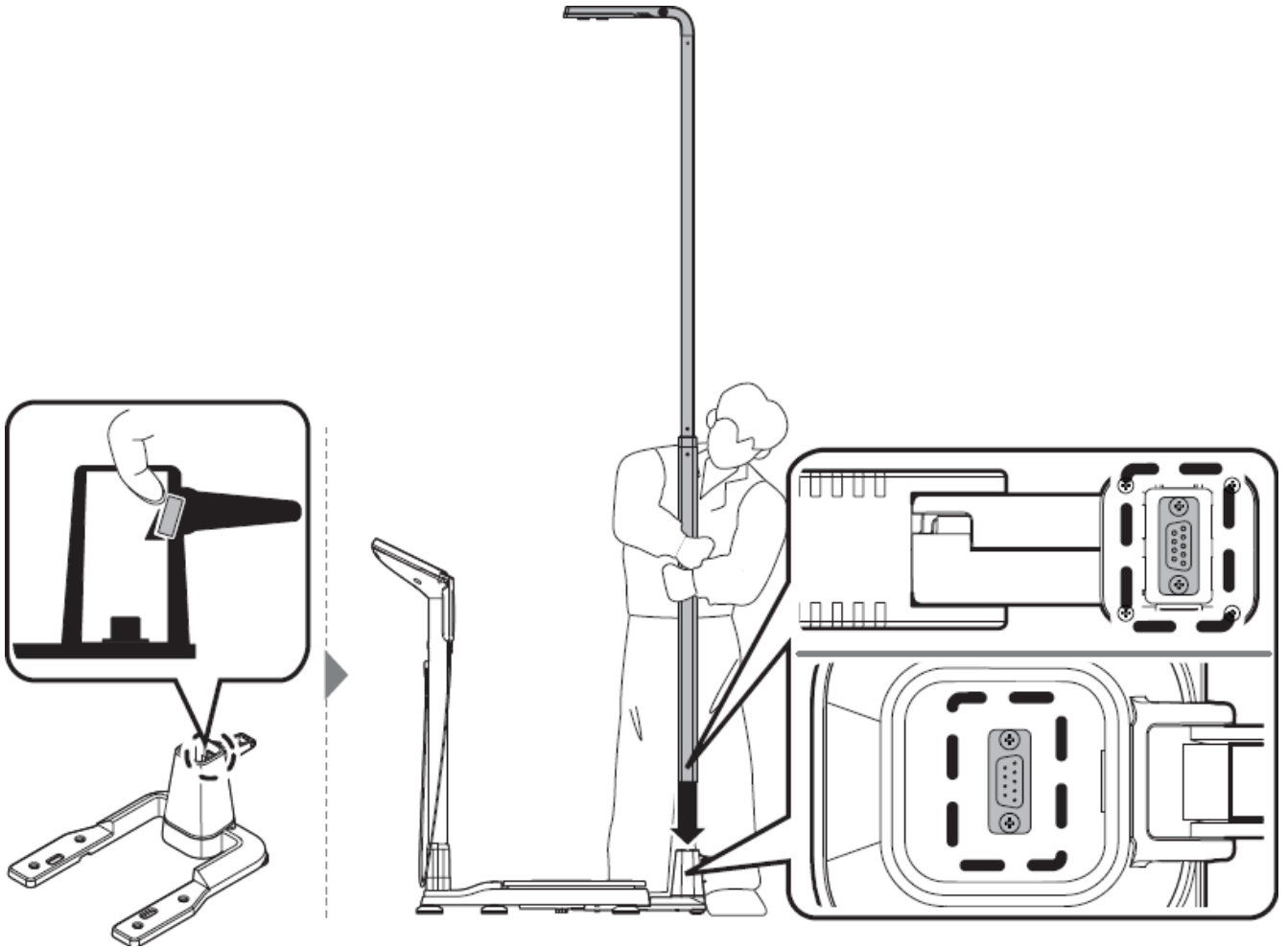


Connection of upper and lower parts of the height meter body is completed.

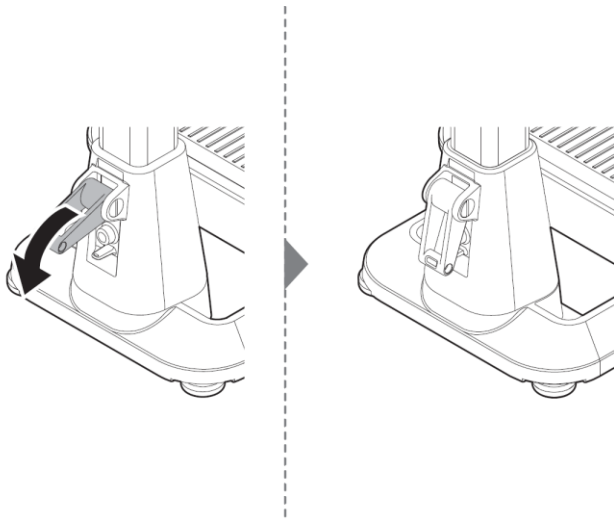
- ⑫ Raise the locking lever of the body cover as indicated by the arrow in the figure.



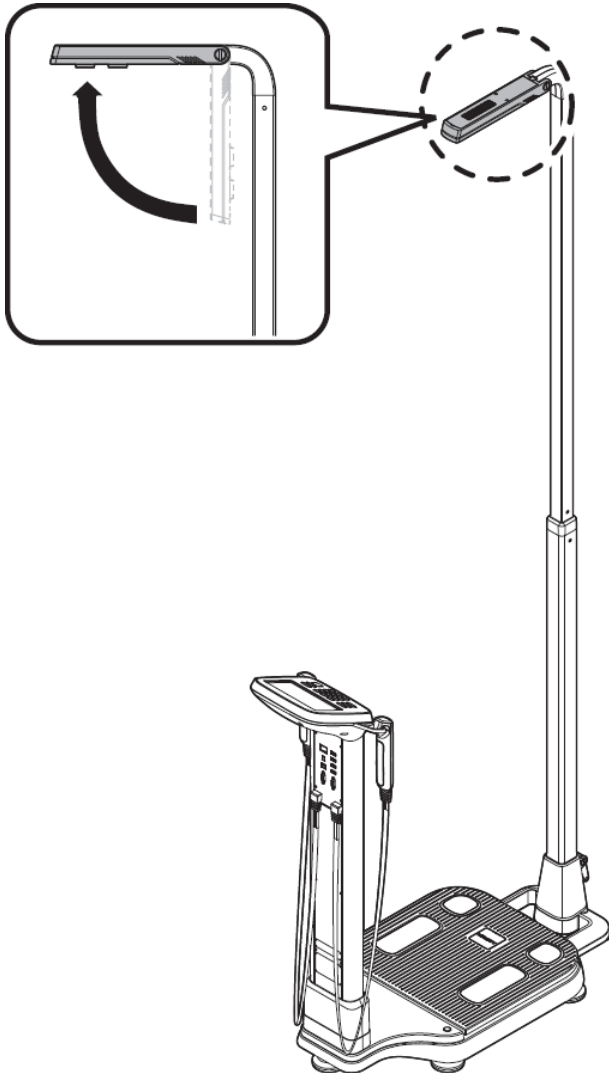
- ⑬ As shown in the figure, push the upper part of the rubber pad inside the body cover to move the height meter body easily.  
Insert the height meter body into the body cover. (The RS-232C connector at the bottom of the height meter body must be connected to the connector connection jack attached to the stand.)



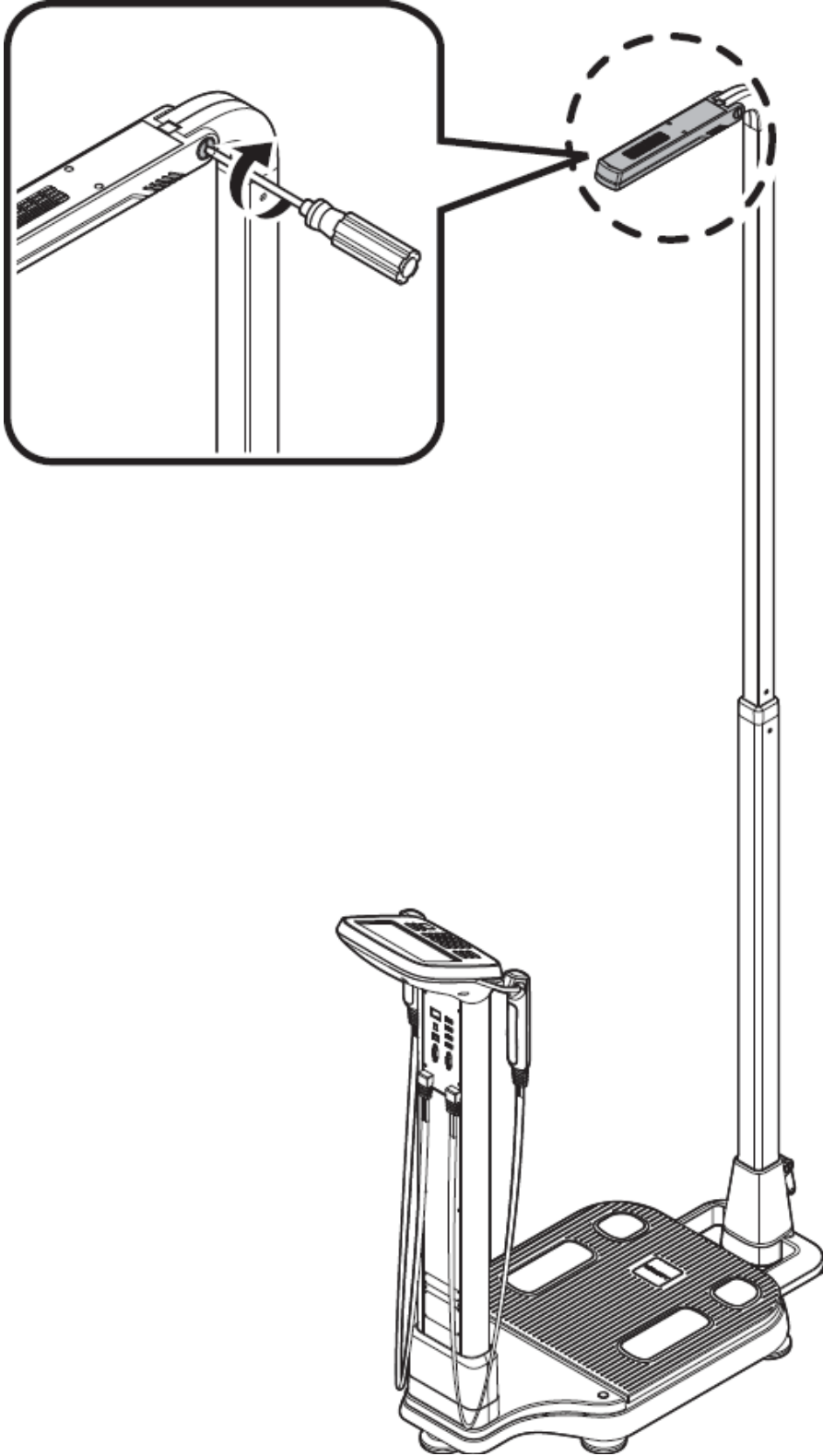
⑭ Secure the body cover locking lever in the direction of the arrow.



⑮ Slide the height meter head up to level.



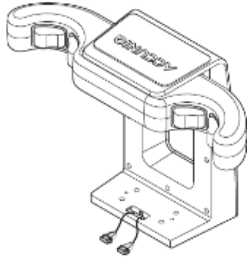
- ⑩ If the connection of the height meter head is loose, use a flat screwdriver to secure the bolt. Connect the adapter and turn on the power switch.



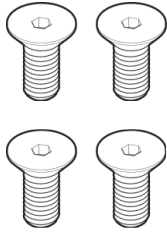
### 3. Installation of ankle electrode (optional)

For your safety, it is highly recommended that the transporting, unpacking and installation of this product be carried out by two or more people working together.

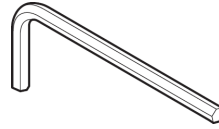
#### (1) Ankle electrode installation components



Ankle electrode



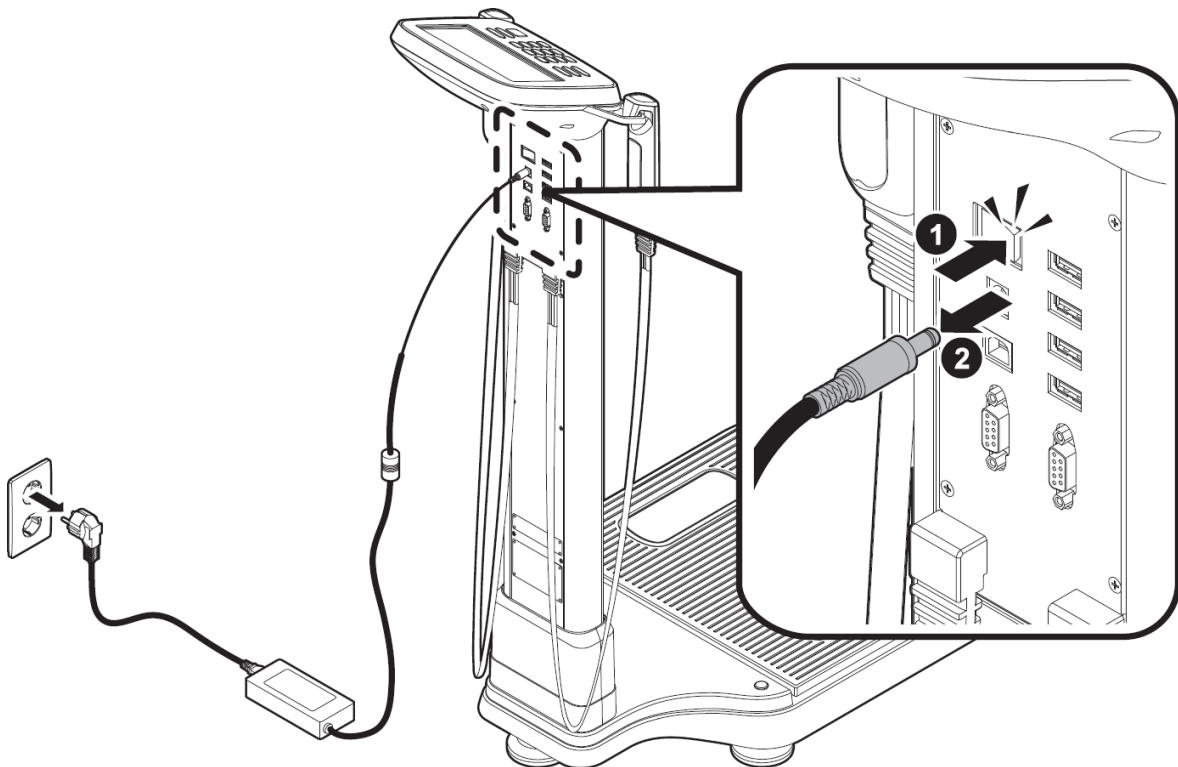
M6 plate head bolt  
X 4



4mm hexagonal wrench

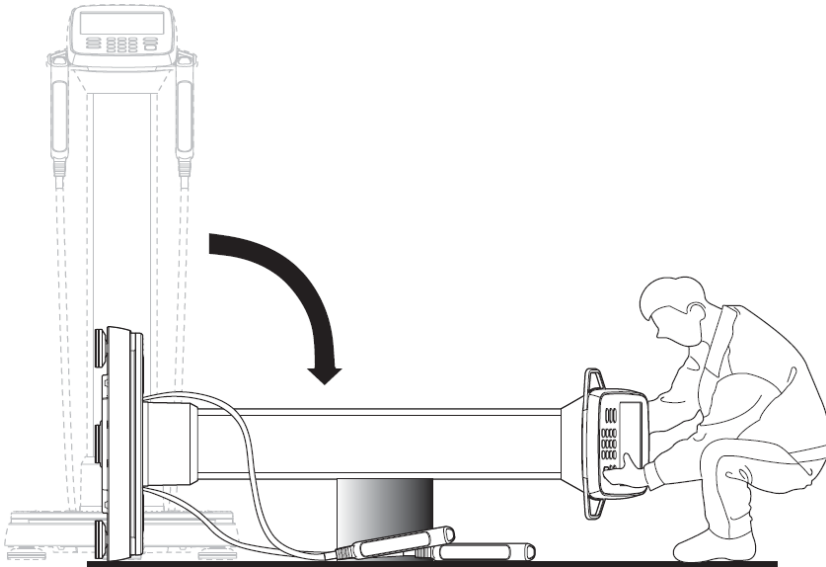
#### (2) Installation of ankle electrode

- ① Before installing the ankle electrode, turn off the power switch and disconnect the power cable.

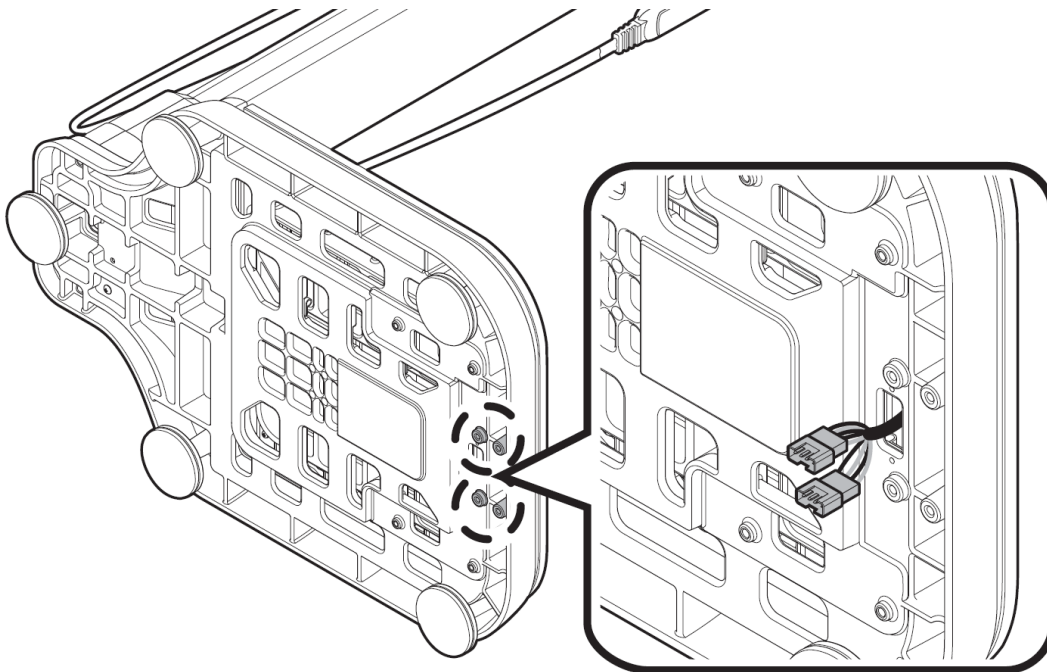




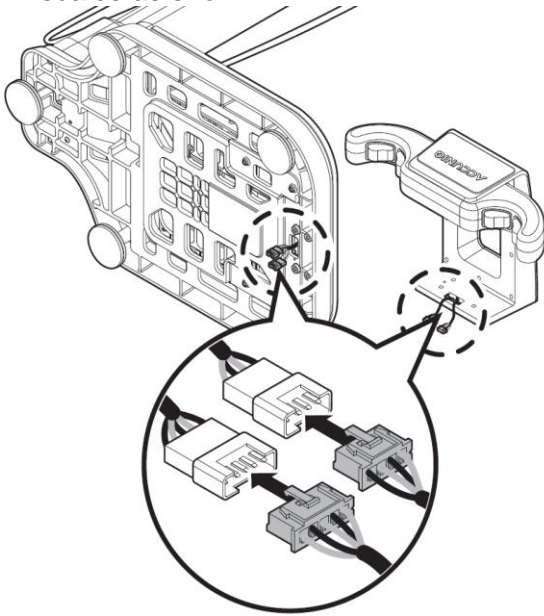
- ② Lay the product on its back as shown. Be careful not to damage the product. Please use supports or a thick book as shown to prevent the LCD from touching the floor. Place the electrode handle in a safe place so that it does not interfere with the assembly.



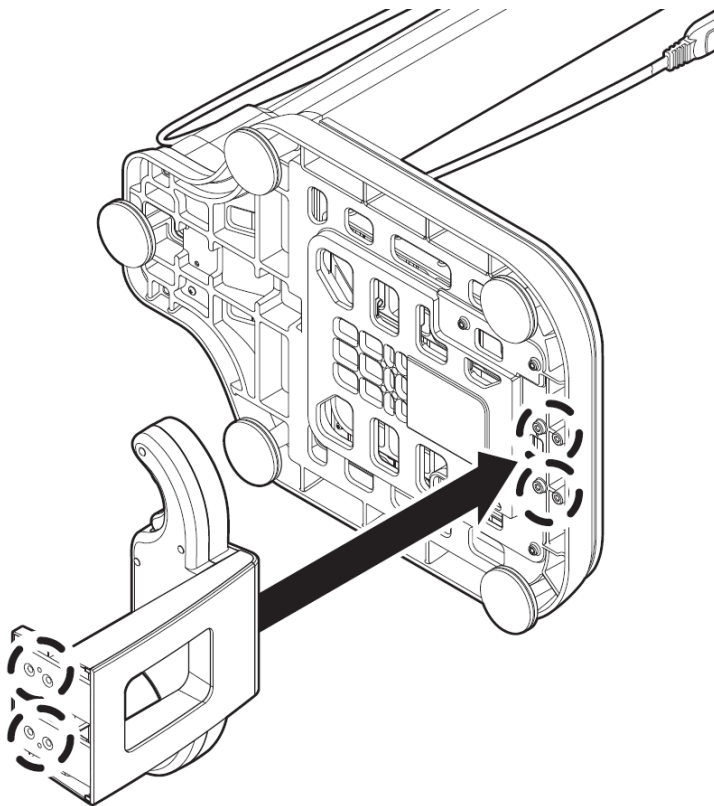
- ③ Before attaching the ankle electrode pedestal to the scales base plate, check the cable connection jack on the scales and the four M6 bolt holes. (1, 2, 3, 4 holes: M4 range bolt and 4mm wrench tool)



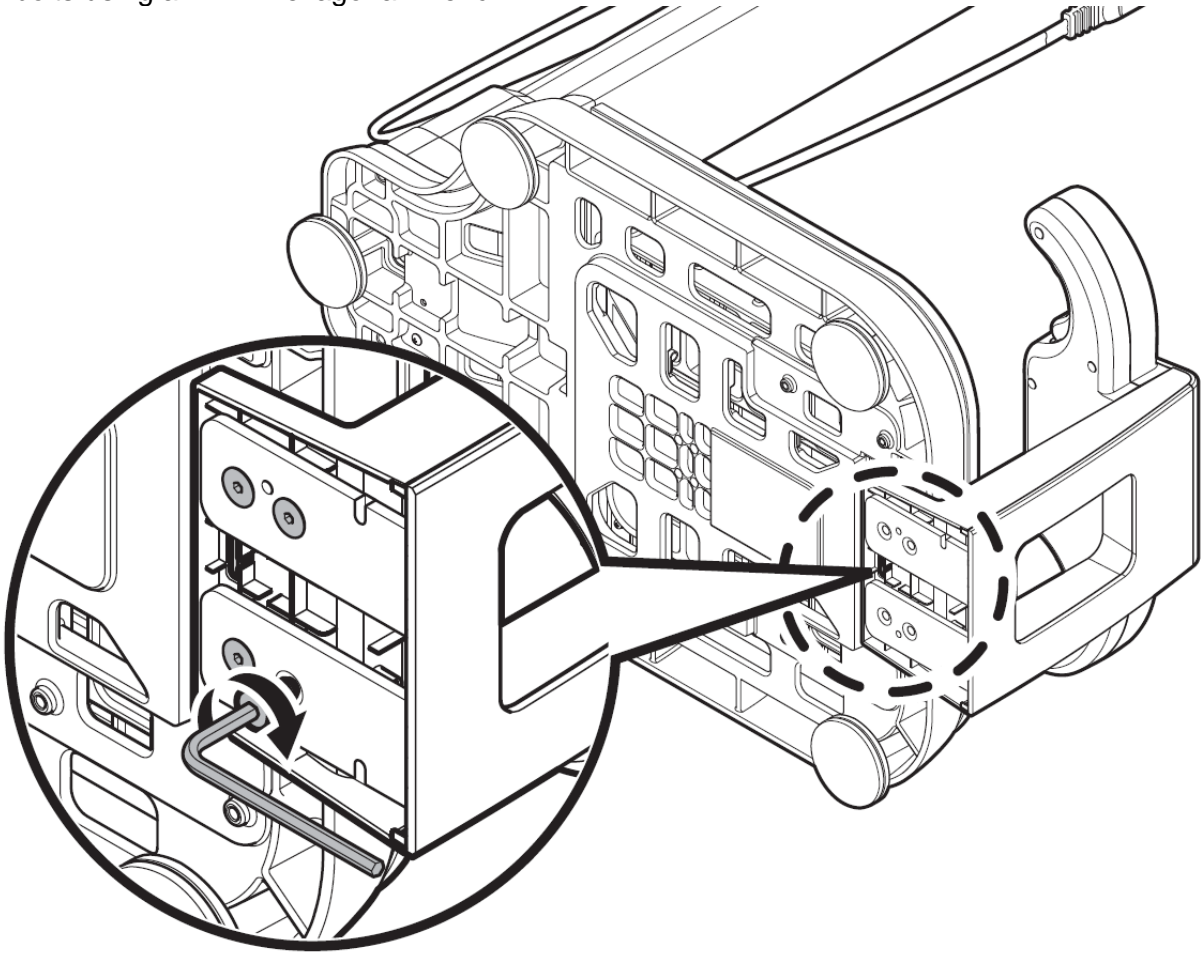
- ④ Connect the two connectors on the ankle electrode to the connector jacks on the bottom of the scales as shown.



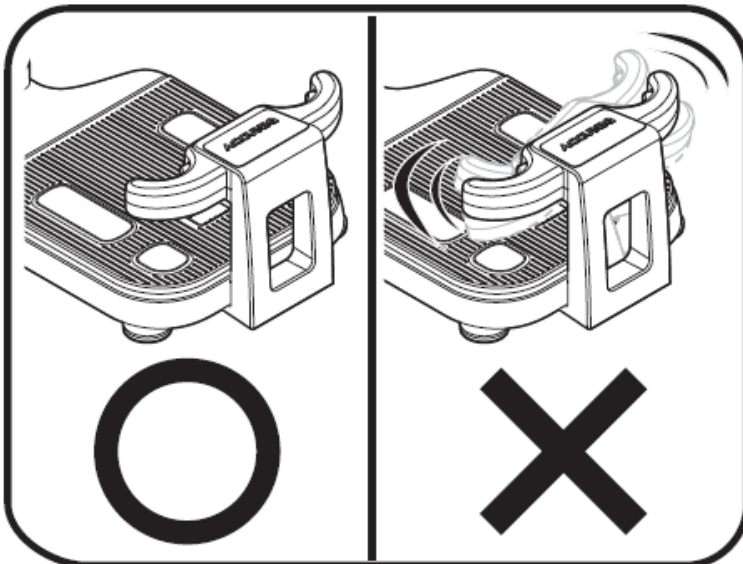
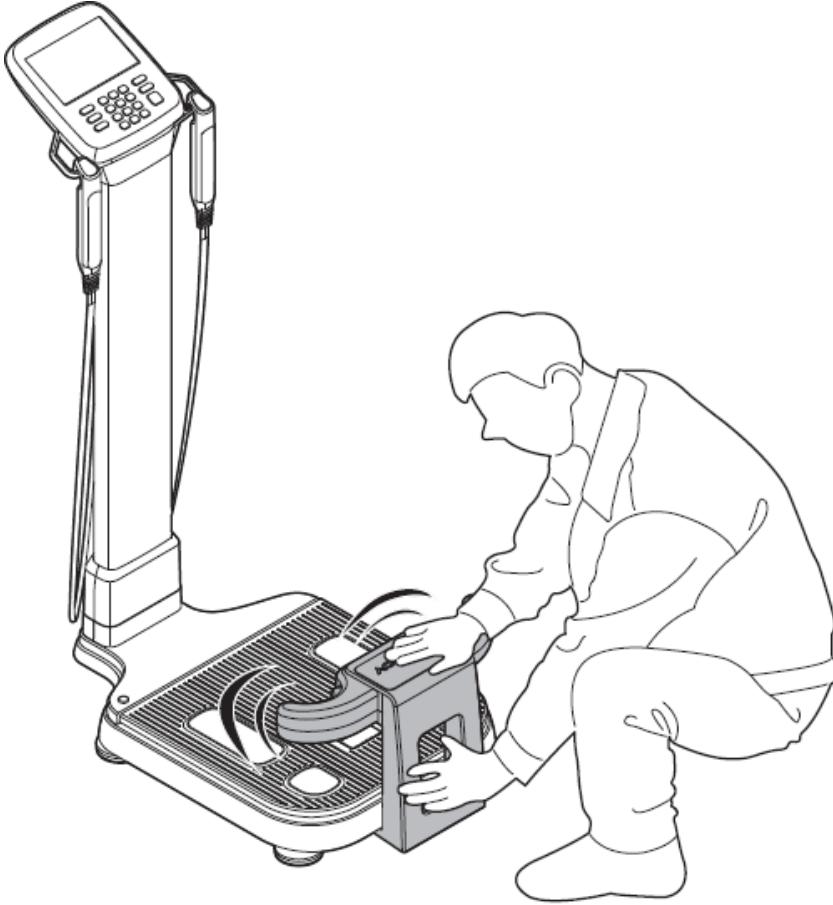
- ⑤ Align the connector jacks, and push them into the hole in the foot platform, and align it with the M6 bolt locking hole.



- ⑥ Hold the ankle electrode with one hand and secure the ankle electrode to the scale with 4 M6 bolts using a 4 mm hexagonal wrench.

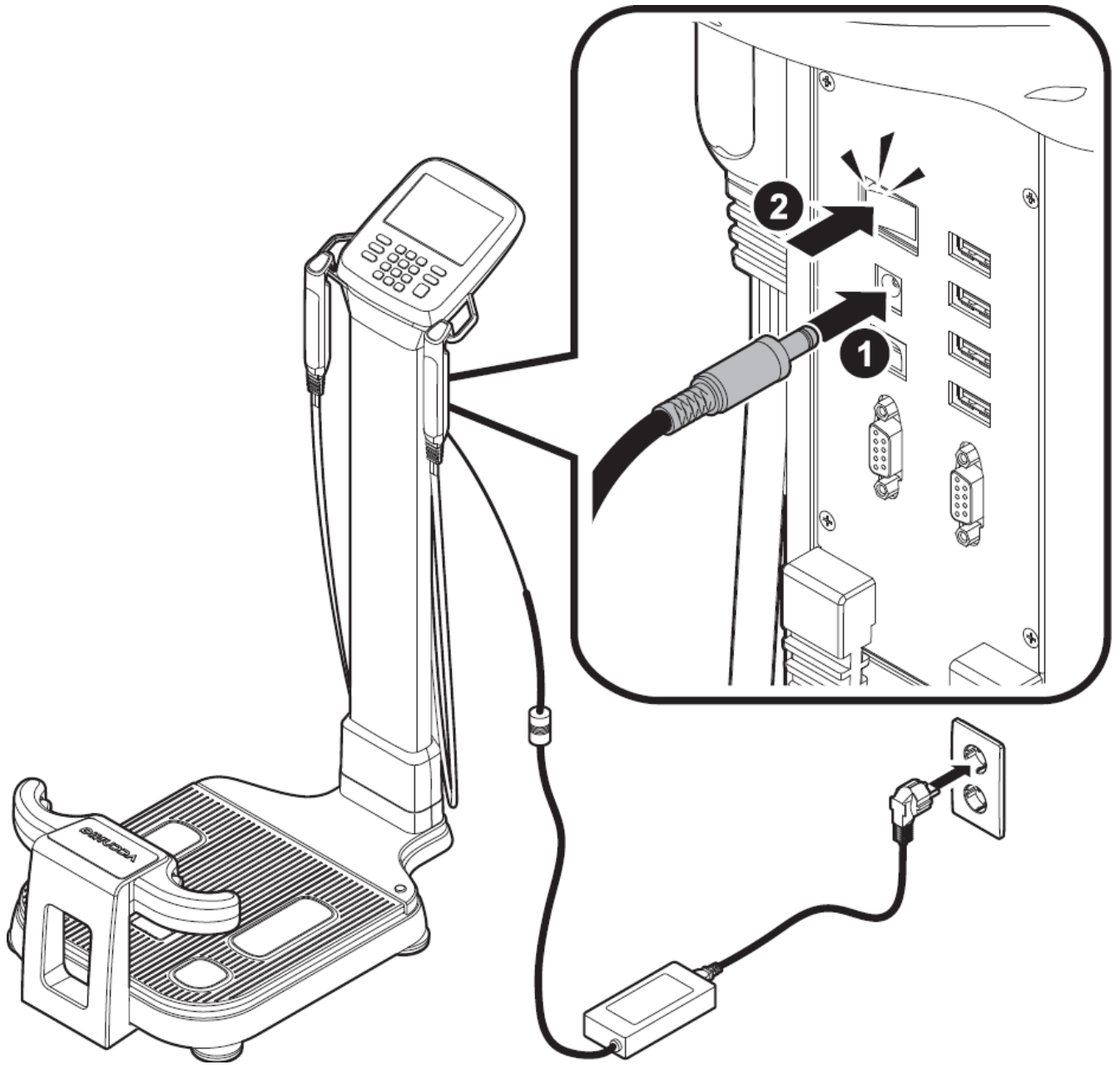


- ⑦ Attach the ankle electrode to the scales and place the product on a level surface.  
Be careful not to damage the product.  
Be sure any supports or floor coverings are moved out of the way.
- ⑧ Jiggle your ankle electrode to check if it is fixed properly.



⑨ Power connection

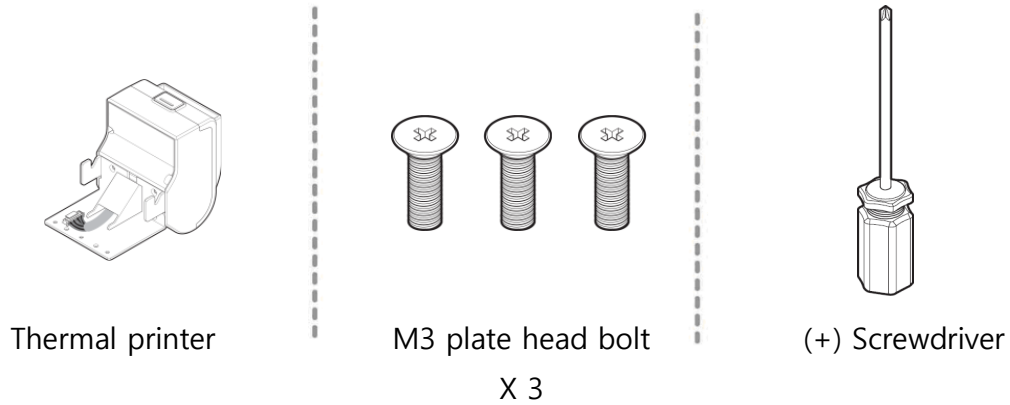
After assembling the ankle electrode, connect the supplied power cable and the power supply.



#### 4. Installation of optional thermal printer

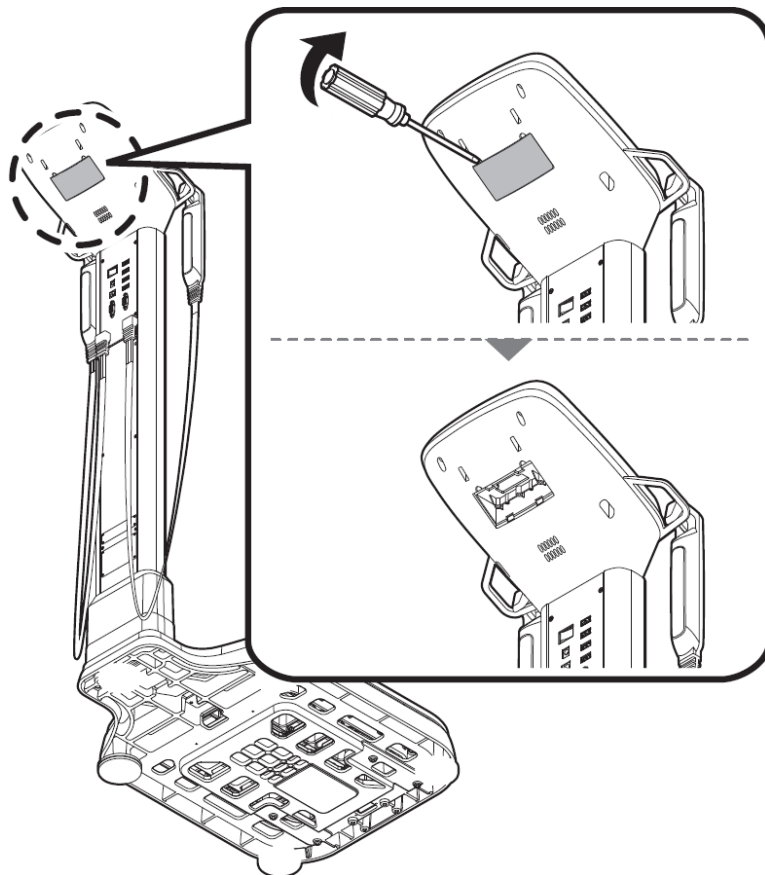
For your safety, it is highly recommended that the transporting, unpacking and installation of this product be carried out by two or more people working together.

##### (1) Thermal printer installation components

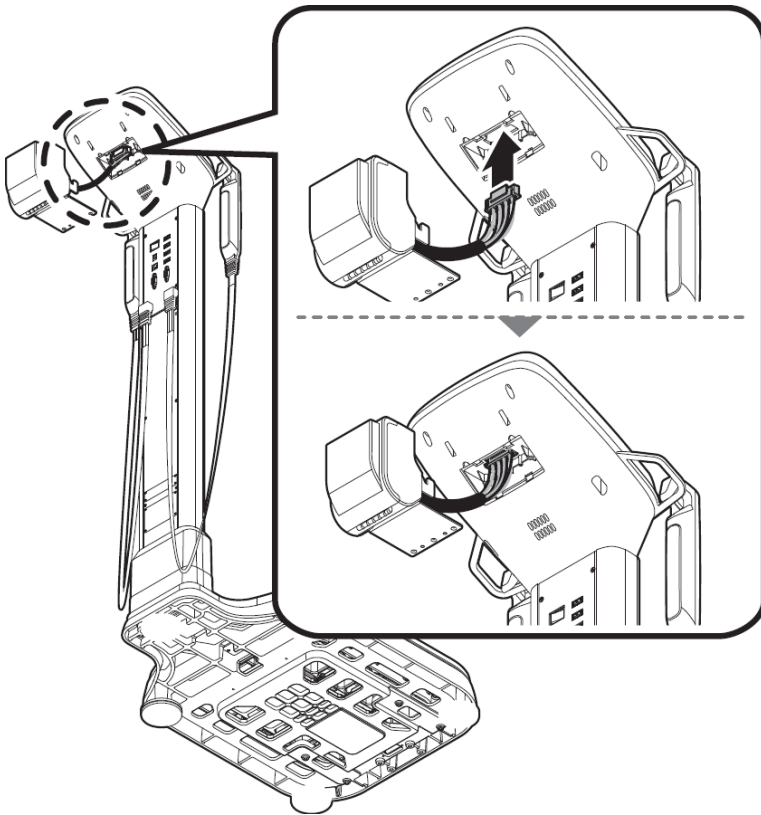


##### (2) Installation of thermal printer

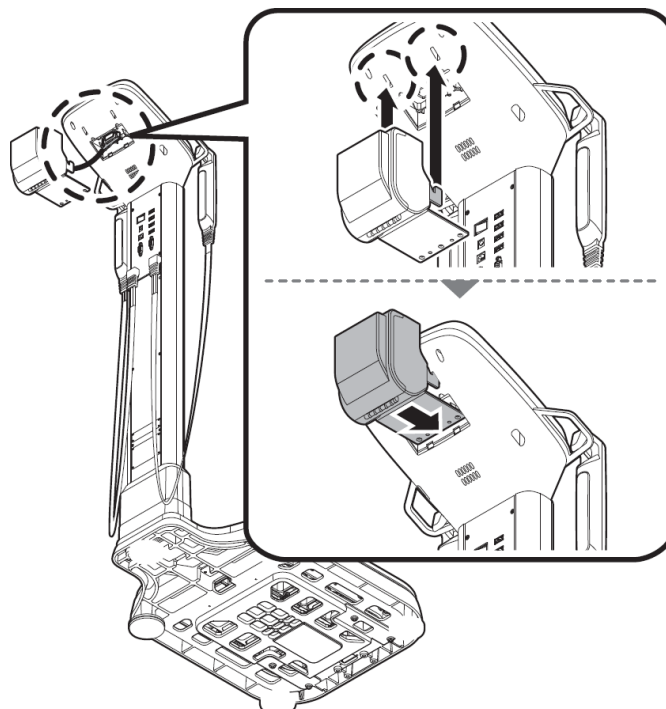
- ① Remove the cover surrounding the LCD of the body fat meter using the minus shape(-) driver as shown in the figure.



- ② Connect the cable connection jack of the thermal printer to the connector on the rear side so that it clicks.

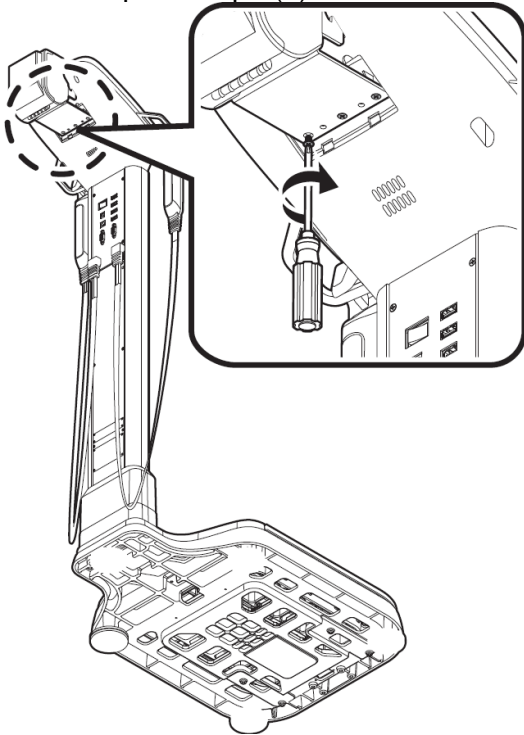


- ③ Align the thermal printer with the groove on the back of the body fat measurement device and push it horizontally in to place.

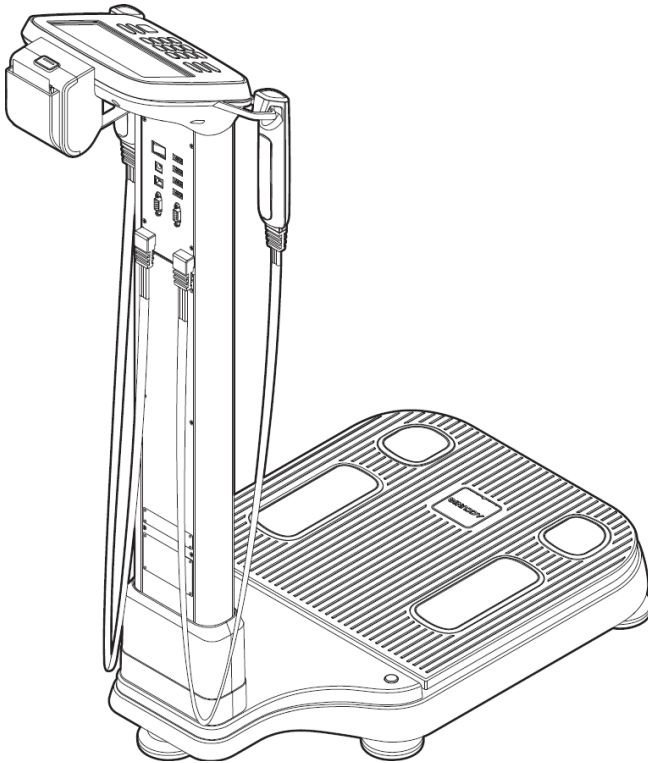




- ④ Hold the thermal printer with one hand and insert the M3 plate head bolts into the three holes with a plus shape (+) screwdriver.



- ⑤ Thermal printer installation is completed. (To replace the thermal printer's paper, please refer to the "Replacing the thermal paper" section in this manual.)





## Periodic Check List

Management No. \_\_\_\_\_

Item		Inspection Subject	Requirements	Judgment	Remarks
<b>Visual Check</b>					
Mainframe	1	Enclosure	No scratch, crack, deformation and rust	Pass/Fail	
	2	Labels and panels	No peeling and dust	Pass/Fail	
	3	LCD	No damage	Pass/Fail	
	4	Electrode	No scratch and damage	Pass/Fail	
Accessories	1	Power cord	No scratch and damage	Pass/Fail	
	2	User manual	Kept in proper place	Pass/Fail	
<b>Mechanical Check</b>					
Mainframe	1	Keys	Smooth operation	Pass/Fail	
	2	Recorder	Smooth operation with no abnormal sound	Pass/Fail	
	3	Touch Screen	Smooth operation	Pass/Fail	
Accessories	1	Power cord	Smooth operation and removal	Pass/Fail	
<b>Electrical Check</b>					
Performance	1	Power supply	Screen display upon power-on	Pass/Fail	
	2	Display	No abnormality and flickering	Pass/Fail	
	3	Printing	printing possible	Pass/Fail	
	4	Measurement	Proper measurement	Pass/Fail	
General Judgment				Pass/Fail	
Model		ACCUNIQ BC380		Serial No.	
Installation place			Date of purchase		
Check date		Checked by	Approved by		

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If repair is required, write down so in the Remarks column.

## Daily Check List

Management No. \_\_\_\_\_

Item		Inspection Subject	Requirements	Judgment	Remarks
<b>Visual Check</b>					
Mainframe	1	Enclosure	No scratch, crack, deformation and rust	Pass/Fail	
	2	Labels and panels	No peeling and dust	Pass/Fail	
	3	LCD	No damage	Pass/Fail	
	4	Electrode	No scratch and damage	Pass/Fail	
Accessories	1	Power cord	No scratch and damage	Pass/Fail	
	2	User manual	Kept in proper place	Pass/Fail	
<b>Mechanical Check</b>					
Mainframe	1	Touch Screen	Smooth operation	Pass/Fail	
	2	Recorder	Smooth operation with no abnormal sound	Pass/Fail	
Accessories	1	Power cord	Smooth operation and removal	Pass/Fail	
<b>Electrical Check</b>					
Performance	1	Power supply	Screen display upon power-on	Pass/Fail	
	2	Display	No abnormality and flickering	Pass/Fail	
	3	Printing	Waveform printing possible	Pass/Fail	
	4	Measurement	Proper measurement	Pass/Fail	
Other	1	Clock	Present date/time	Pass/Fail	
General Judgment				Pass/Fail	
Model		ACCUNIQ BC380		Serial No.	
Installation place			Date of purchase		
Check date		Checked by	Approved by		

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If repair is required, write down so in the Remarks column.