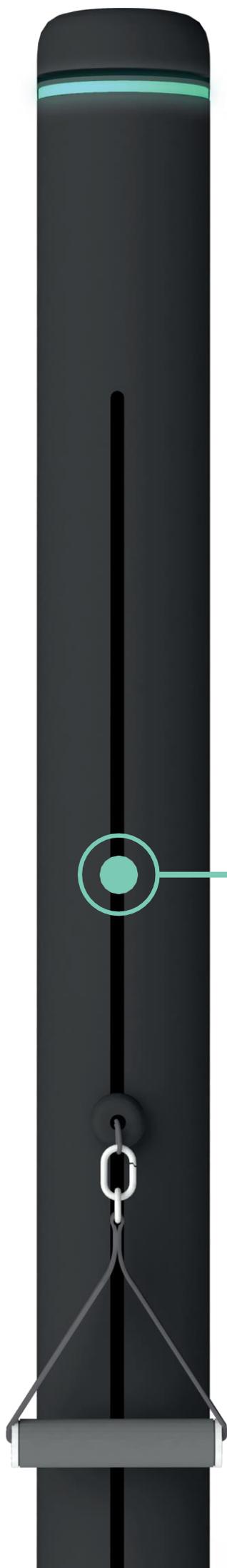


# SINTESI



## USER MANUAL

(operation and maintenance manual)



ORIGINAL INSTRUCTIONS

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## EU Declaration of Conformity

The manufacturer:

**AKUIS S.r.l.**

Via Aita Menotti 2, 33028 TOLMEZZO (UD) - ITALY

declares under its sole responsibility that the product: **multi-function electrical fitness equipment**

Description: **equipment that creates resistance by simulating the effect of weights and passive gym equipment**

Model: **SINTESI (PRO or HOME versions)**

Battery charger voltage: **230 V<sub>AC</sub>** Equipment  
power supply voltage: **37 V<sub>DC</sub>** Maximum power  
absorption: **555 W**

Serial/installation number: **see product label**

Wi-Fi & Bluetooth module: **ESP32-WROOM-32U (Espressif Inc.)**



complies with the following EU directives:

<b>2001 / 95 / CE</b>	Directive on general product safety
<b>2014 / 35 / UE</b>	Low voltage directive
<b>2014 / 30 / UE</b>	Electromagnetic compatibility directive (EMC)
<b>2014 / 53 / UE</b>	RED directive
<b>2011 / 65 / UE</b>	RoHS II directive
<b>2009 / 125 / CE</b>	Energy-related-Products (ErP)

Compliance to Italian DECRETO 15/10/2015, n206, related to electromechanical equipment used for beautician activity.

Declaration to compliance to directives indicated on SCHEDA TECNICO-INFORMATIVA n.11 - Attrezzo per gininastica estetica.

The following harmonized and technical standards have been applied:

<b>EN 60335-1:2012</b>	Safety of household and similar electrical appliances - Part I: General rules.
<b>UNI EN ISO 20957-1:2013</b>	Stationary training equipment - Part I: General safety requirements and test methods.
<b>EN 55014-1:2006 /A1:2009/A2:2011</b>	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission.
<b>EN 55014-2:1997 /A1:2001/A2:2008</b>	Electromagnetic compatibility - Immunity requirements for household appliances, electric tools and similar apparatus - Part 1: Immunity - Product family standard.
<b>EN 61000-3-2:2014</b>	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current $\leq 16$ A per phase).
<b>EN 61000-3-3:2013</b>	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in low-voltage supply systems, for equipment with rated current $\leq 16$ A per phase and not subject to conditional connection.
<b>EN 62479:2010</b>	Assessment of the compliance of low-power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz).
<b>EN 300 328 V2.1.1</b>	Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using wide band modulation techniques.
<b>EN 301 489-1 V2.2.0</b>	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services Part 1: technical requirements.
<b>EN 301 489-17 V3.2.0</b>	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services Part 17: specific conditions for broadband data transmission systems.
<b>EN 50581:2012</b>	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

AKUIS S.r.l.

**Alessandro Englaro**  
(Legal Representative)

 **GENERAL SAFETY WARNINGS**

- These instructions have been prepared to guarantee user safety and protect the equipment.
- Read all the instructions carefully before using the equipment.
- Before starting any special nutrition plan or diet and any stretching and exercise programme, seek the advice of a physician or of a qualified, authorized health professional. It is important to carefully research and acquire information about any activity and any decision that involves possible effects on your health.
- The equipment may be used only by persons over 16 years of age who are in good physical condition.
- **This piece of equipment must be used only under the supervision of duly trained staff.**
- When using an electrical apparatus, it is important to always follow some basic precautions, which include:

	<p><b>HAND CRUSHING HAZARD</b> Sudden release of gripping elements (e.g. handles) may cause personal injury or damage to objects. Keep at a safe distance when the equipment is being used by another person.</p>
	<p><b>TRIPPING HAZARD</b> The footboard and tubular modules, when mounted horizontally, create a potential tripping hazard. Ensure that the equipment is visible and properly marked.</p>
	<p><b>HAND-IN-BELT ENTRAPMENT RISK</b> When using the equipment keep hands and limbs clear of the tubular modules. Never place hands or limbs between the cables connected to the gripping element.</p>
	<p><b>ELECTRICAL HAZARD</b> To reduce the risk of electrical shock always pull out the plug from the power socket immediately after use and before starting cleaning or maintenance operations.</p> <p>To reduce the risk of burns, fire, electrical shock or personal injury, use the following precautions:</p> <ul style="list-style-type: none"> <li>• never leave the power plug in when the equipment is unattended;</li> <li>• remove the plug when not using the equipment, before cleaning it and before inserting or removing electrical parts.</li> </ul>





## General safety precautions

- These warnings are an integral and essential part of the product and must be presented to the user. Read them carefully as they provide important information regarding safe use and maintenance.

Failure to observe the information contained in this user manual may result in personal injury or damage to the equipment.

These instructions must be kept and passed on to any future users of the equipment.

- Use the equipment strictly for the purpose specified in the user manual; only perform the exercises intended for this type of apparatus, in the way and in the conditions described in the manual.
- Any use other than the above shall be considered improper and therefore dangerous. The manufacturer shall not be liable for damage caused by improper, incorrect and unreasonable use.
- The equipment is not designed for use by persons (including children) whose physical, sensorial or mental abilities are limited or who lack experience or knowledge, unless they have received instructions from or are supervised by a person responsible for their safety.
- Do not allow children to access the equipment. Children must be supervised to ensure that they do not play with the equipment. Do not allow children to play with or stand close to the equipment. Keep all control/command devices out of the reach of children to prevent accidental operation of the equipment.
- The equipment may not be used by or close to children or disabled people.
- Qualified personnel must always provide careful supervision while the equipment is being used.
- To guarantee efficiency and correct operation of the equipment, it is essential to comply with the manufacturer's maintenance instructions. In particular, we recommend you carry out regular inspections to ensure that all safety devices are efficient.
- Do not use accessories other than those recommended by AKUIS Srl.
- Do not use the equipment if it requires repair work. Do not operate the equipment if a cable or plug is damaged, in case of malfunction, if it has fallen or is damaged or if it has fallen in water.  
In this event, you need to contact the AKUIS technical service team.

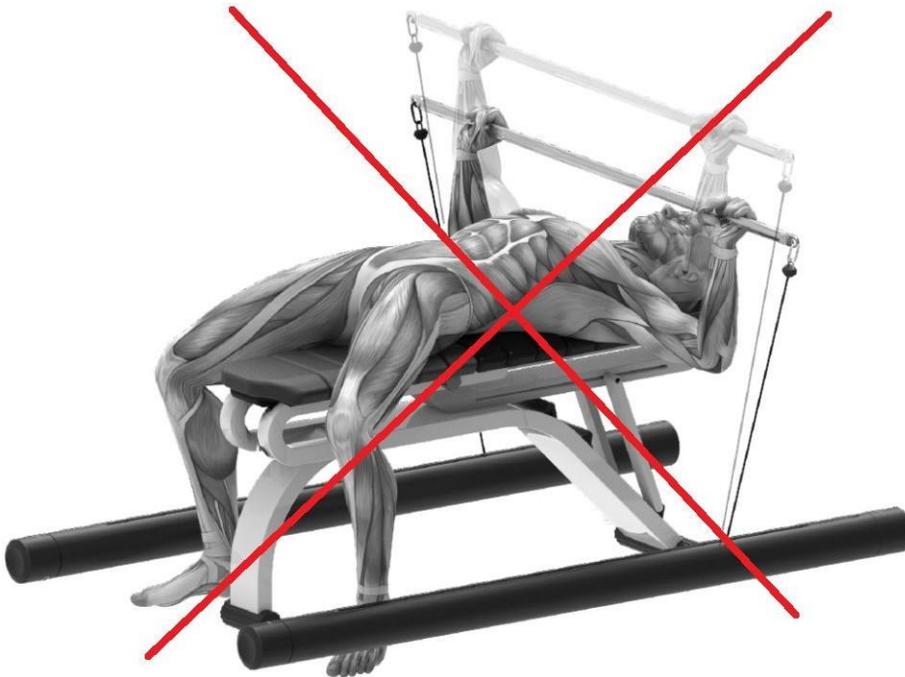
### VERTICAL INSTALLATION

- If you are installing the equipment on a wall, make sure that the wall is suitable for this kind of use. The loads generated by the equipment can be very high and could cause it to be ripped off the wall, or the wall to crack or collapse completely.

- Before proceeding with the installation, seek the advice of a qualified professional who must certify that the wall is suitable for this purpose. Once you have this certification, contact a qualified company and/or professional to safely install the equipment on the wall.

### GRIPPING ELEMENTS

- The use of **unauthorized** gripping elements fastened to the cables can cause personal injury and damage to objects.
- It is absolutely prohibited to use gripping elements not authorized by AKUIS.
- The cables must always and strictly be pulled by means of a gripping element (authorized by AKUIS and properly fastened to the cables). In particular, it is prohibited to use a barbell or accessories that can entrap the user.



- It is prohibited to grip and/or directly pull the stopper or the cables.
- AKUIS shall not be liable for personal injury or damage to objects caused by the use of unauthorized gripping elements or by the above described improper use.

### LOADS EXERTED BY THE EQUIPMENT

- The equipment can exert a traction of 50 kg for each gripping element connected by special cables to the single module. Both tubular modules can generate a load of up to 100 kg.

**The equipment must be utilized under the supervision of qualified personnel trained in its use.**

### KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

## Personal safety

Use the equipment only after a specific medical check-up for the type of exercise you intend to perform and in compliance with the use conditions set forth by AKUIS.

If the physical conditions of the user require special attention, the equipment can be used only under strict supervision of a specialized physician.

Before each exercise, make sure that your position on the equipment is correct and take care with components that may pose an obstacle.

Plan your workout to suit your physical characteristics and health condition, starting with lighter loads.

Do not overexert yourself nor work out to exhaustion. Incorrect, excessive workout can cause serious physical injury or even death. In case of pain or abnormal symptoms, stop working out immediately and seek the advice of a physician.

During training, wear suitable gear and shoes; do not wear excessively large clothes or clothing that prevents sweat evaporation.

Tie long hair into a ponytail. Do not place clothes or towels close to moving parts.

When the equipment is being used, make sure that other people keep at a safe distance. Do not use the equipment when children or pets are in the room.

The gym supervisor must carefully instruct users on correct use and improper use.

Make sure the installation has been completed before using the equipment. Check the equipment before each use. Do not continue using the equipment if not perfectly efficient.

Install and operate the equipment on a firm, level surface.

Make sure that none of the components (e.g. power cable and I/O switch) come into contact with liquid substances, to prevent electrical shock.

Keep the equipment in good operating conditions. If you notice signs of wear, contact the AKUIS technical service team.

Do not carry out maintenance operations other than those described in the user manual.

Installation, maintenance and adjustments must be performed by qualified AKUIS personnel or by other personnel referred by AKUIS.

The electrical system must comply with the standards or regulations in force in the country of use.

Do not place anything on the frame or on the control panel.

AKUIS shall not be liable for damage resulting from faults or damage caused by unauthorized maintenance operations, improper use, accidents, negligence, incorrect assembly or installation, debris from construction activity in the area where the product is installed, oxidation or corrosion due to the position of the product, changes or alterations made without written authorization from AKUIS or user's failure to comply with the information in this manual regarding use, operation and maintenance.

## Manufacturer and product details - Labels

A label affixed on the SINTESI equipment bears information on the machine and on the manufacturer, including:

- Name and address of the manufacturer, telephone numbers and email address
- Product model
- Accuracy class and use class
- Conformity with international standard ISO 20957
- Serial number and year of production
- Weight of equipment, maximum weight of user and maximum training load
- Power supply (batteries and battery charger)

<b>AKUIS</b>		
MODEL	BATTERY LI-ION	BATTERY CHARGER INPUT
CLASS	   MADE IN ITALY	EQUIPMENT WEIGHT
SERIAL NUMBER		MAX WEIGHT USER
YEAR OF CONSTRUCTION		MAX TRAINING USER



Before using the product, read this guide carefully as it provides instruction on safe use.



This symbol indicates that the product has been made in conformity with EU directives for the processing and disposal of hazardous substances in electrical and electronic equipment. The product must be disposed of separately from urban waste.



Electrical hazard, close to the power supply unit.



Tripping hazard.



Risk of hand getting caught in belt, close to the weight lifting cables.



Risk of hand crushing, close to the weight lifting cables.

## Product description

**The product is shipped in three separate packages. If you are hiring the product, you are required to keep the packaging material.**

**We advise all customers to keep the packaging material in the event that you need to return one or more parts to the manufacturer for ordinary maintenance or repair work.**

### Content of packages

#### Box 1

**Sintesi tubular modules:** these are the main parts of the equipment and they contain most of the technology needed for its operation. On both ends of the tubular modules there are RGB leds used to provide useful information or alert signals to the user.

#### Box 2

**Footboard:** support frame for the tubular modules consisting in a flat, anti-slip pad on which the user can work out.

**Footboard support brackets:** these parts are fixed to the footboard. They are also available separately for wall-mounted applications. They are the fastening interface between the tubular modules and the footboard or between the tubular modules and a vertical wall (duly inspected by a qualified professional).

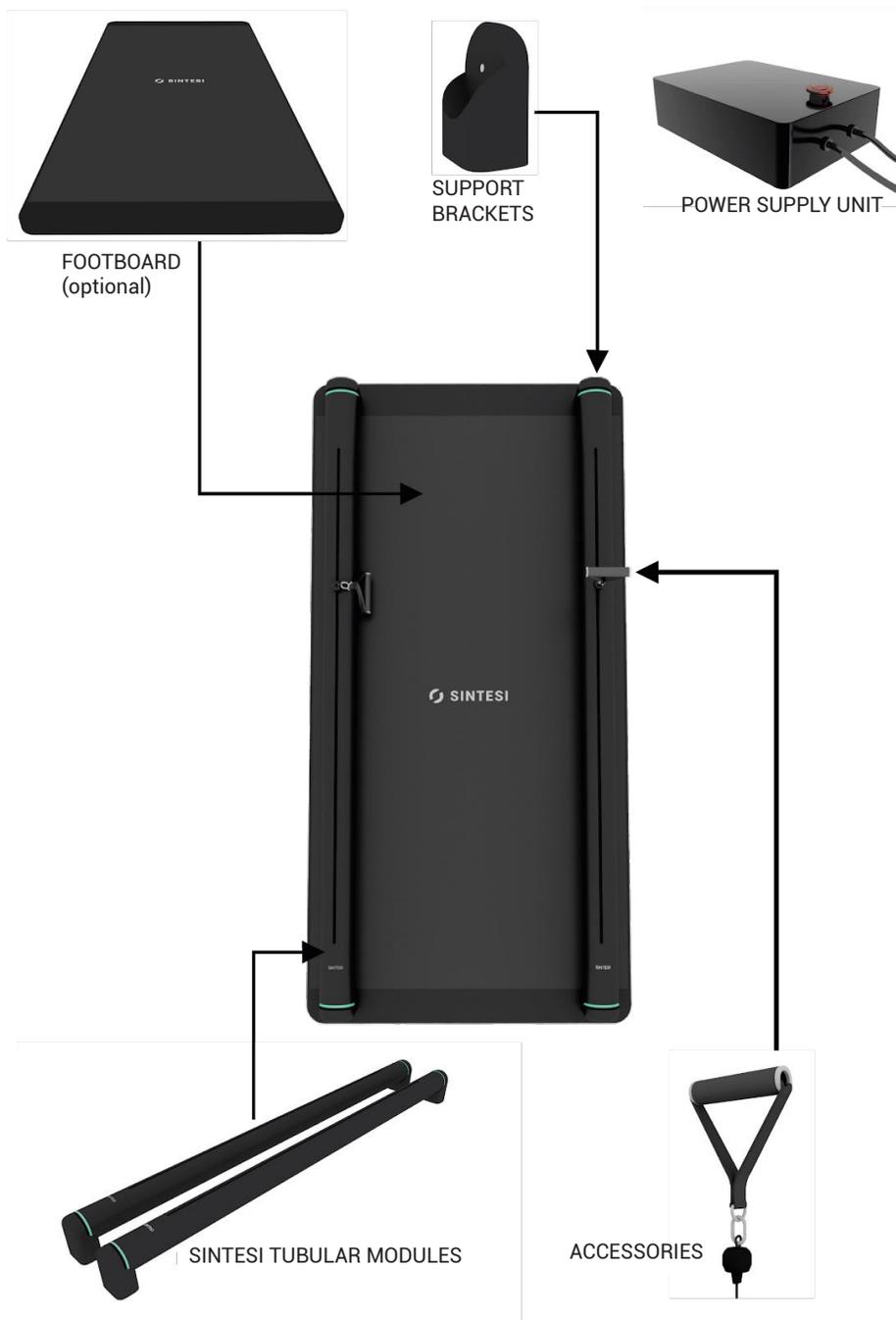
#### Box 3

**Accessories:** attached on the end of the cables of Sintesi tubular modules is a stopper and a ring. The ring is then fastened to authorized AKUIS gripping accessories.

**Power supply unit:** on the top part of the power supply unit is the on/off button and the safety button which switches off the entire system completely. The battery has two power/data cables which must be connected to the tubular modules. Another cable connects the power supply unit to the power mains.

**Wall-mount brackets:** These are the fastening interfaces between the tubular modules and a vertical wall or floor (which must be duly inspected by a qualified professional). The type of screws to be used will depend on the type of wall/floor. It is important to have the installation carried out by a qualified professional.

**Tablet:** This is the SINTESI control interface. The tablet also contains a PDF version of this manual.



## Technical Specs

<b>Manufacturer</b>	AKUIS S.r.l.
<b>Address</b>	Via Aita Menotti 2, 33028 Tolmezzo (UD)
<b>Model</b>	SINTESI GEN 1
<b>Use/accuracy class</b>	SA
<b>Li-Ion Battery</b>	37 V <sub>DC</sub> - 17 Ah max - 555 W
<b>Battery charger input</b>	230 V <sub>AC</sub> - 50/60 Hz
<b>Dimensions</b>	210 x 100 x 15 cm (footboard thickness 4 cm)
<b>Weight of equipment</b>	Sintesi modules: 20kg, Footboard: 50kg, Power supply unit: 5kg
<b>Maximum weight of user</b>	120 kg
<b>Maximum training load</b>	100 kg
<b>User interface</b>	Tablet with dedicated application
<b>Connectivity</b>	Bluetooth 4.0
<b>Level of sound pressure</b>	<60dB
<b>Operating temperature</b>	

## Safety devices and warnings

The leds on the ends of the tubular modules indicate the status of the equipment.

**RED:** the system is on and waiting for the user to start the initialization procedure. The procedure is started on the tablet/dedicated app. A red light may also signal machine error status (accompanied by a message on the tablet describing the type of error) or that the emergency button in the power supply unit has been pressed.

**YELLOW:** the system is performing the initialization procedure. During this phase the equipment automatically moves the cables/stoppers/gripping elements for a few seconds. The yellow light indicates that the procedure is under way. **Do not touch or interfere with the equipment during this stage.**

**GREEN:** the machine is operational and ready to receive instructions.

## Installation area

To enable comfortable, productive and risk-free activity, the area where it is carried out needs to meet some specific requirements; first of all, before deciding on a location you should check that the following conditions are met:

- temperature between +10 °C (50°F) and +25 °C (77°F);
- adequate air renewal to ensure humidity between 20% and 80% (during workout);
- adequate lighting to provide a pleasant, relaxing atmosphere for training;
- wide clear area all around the equipment for safety reasons (at least 1 meter on each side of the equipment). For vertical installations, allow at least 2 meters in front and 1 meter on each side.
- flat, firm floor without vibrations, with adequate capacity to support the total weight (equipment + user).

Do not expose the equipment to direct sunlight.

Do not install the equipment in areas with high humidity, such as swimming pools, hot tubs, spas.

The installation area must comply with all the requirements set forth by current applicable regulations.

To guarantee optimal performance, you are advised not to use the equipment in areas with high presence of short waves or similar.

## Installation

Before moving the product make sure that the battery is disconnected from the tubular modules.

### FRONT AND BACK OF FOOTBOARD

Four brackets are supplied with the equipment and each of them must be fixed firmly to the footboard with the four screws provided (see figure below).

- Two front brackets
- Two rear brackets

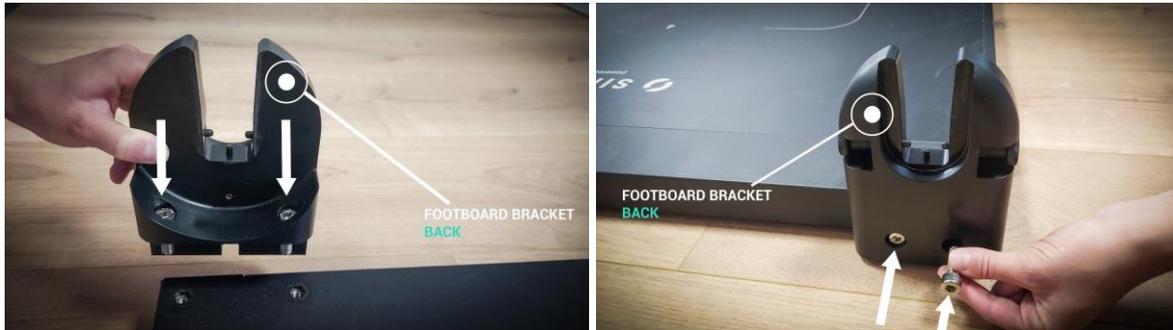


### FIXING BRACKETS TO FOOTBOARD

Assembly of the brackets only requires an Allen wrench (no.6) to tighten the screws that fix the brackets to the footboard. Make sure you fix the front brackets to the front part of the footboard (see figure below). The front brackets have a middle hole and must be positioned on the side of the footboard where the SINTESI logo is right side up.



The two rear brackets have push pins and a middle slot; these are secured in their respective seats on the opposite side of the footboard (SINTESI logo upside down). (see figure below).



### INSTALLATION OF MODULE ON BRACKETS

The tubular module is easily fastened to the brackets by means of the following procedure:

1. Move the head of the tubular module that has a pointed pin close to the front bracket that has a complementary hole. Insert the pin fully inside the hole, then while maintaining slight pressure



2. insert the quick-release pin on the opposite end of the module into the cavity of the bracket; check that the direction is correct (it can only be inserted in one way). The groove and the two round holes on the pin must face down.



3. Gently push the tubular module down until the two small spring fasteners on the sides of the bracket click in.



Important: make sure that the two fasteners have clicked in all the way and secure the pin.

## REMOVING THE TUBULAR MODULES

To remove a module from the brackets, proceed as follows:

Gently push the two small wheels outward (see arrows no.1 in figure below) until the tubular module clicks up (see arrow no.2 in figure below).



This action makes it possible to slide out the pin (normally engaged by the bracket) and then lift out the whole tube.

For more information, you can scan the **QR CODE** to view the video.



## WALL-MOUNTED BRACKETS

### REQUIREMENTS:

- Hollow brick wall or concrete wall. Area at least 120 cm wide and 230 cm high
- Power drill with impact driver and masonry drill bits: 1. 6mm bit, 1. 10 mm bit.
- D10 expansion plugs with screws (we recommend Fischer SX 10)



- Allen wrench or screwdriver to tighten screws and fix the Sintesi brackets.

**Important!** We always recommend installation on brick or concrete walls. However, if you are considering installation on plasterboard/gas concrete walls less than 8 cm thick, we strongly recommend you contact a construction company specialized in masonry work who may suggest structural interventions on the walls in order to support the load.

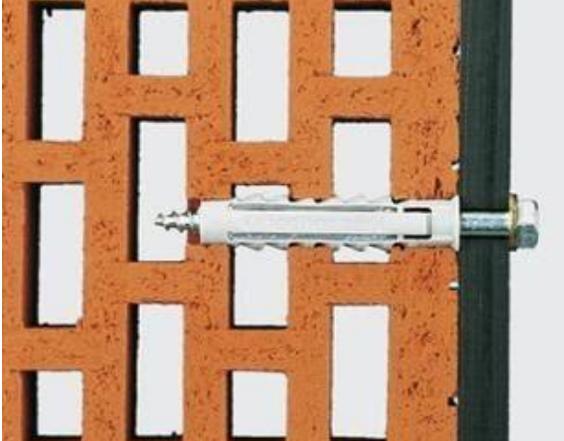
### PREPARING THE TEMPLATE

Place the paper template provided on the wall; make sure you align it



well with the horizontal line and smooth it out perfectly then fix it temporarily with sticky tape. The points where you need to drill the holes are highlighted in green in the picture. The bottom part of the template (under the word Ground) must almost touch the floor. This ensures optimal positioning of the equipment.

Please note: The installation height range indicated is recommended but not compulsory. With lower ceilings, you can position the machine further down, but make sure you allow the minimum distance (bottom holes must be at least 15 cm from the floor).

CONCRETE	BRICK
	
<ol style="list-style-type: none"> <li>1) Fit the drill with the <b>6mm</b> bit and use the <b>“Impact”</b> or <b>“Hammer”</b> mode.</li> <li>2) Drill all the holes shown in the template.</li> <li>3) Remove the 6mm bit put in the <b>8mm</b> bit and drill inside all the holes again.</li> <li>4) Repeat point 3 with the <b>10mm</b> bit.</li> <li>5) Push the expansion plug in all the way, with the help of a hammer, if needed.</li> </ol>	<ol style="list-style-type: none"> <li>1) Fit the drill with the <b>6mm</b> bit <b>WITHOUT USING</b> the <b>“Impact”</b> or <b>“Hammer”</b> mode.</li> <li>2) Drill all the holes shown in the template.</li> <li>3) Remove the 6mm bit put in the <b>8mm</b> bit and drill inside all the holes again.</li> <li>4) Repeat point 3 with the <b>10mm</b> bit.</li> <li>5) Push the expansion plug in all the way, with the help of a hammer, if needed.</li> </ol>

**POSITIONING THE BRACKETS**

Once you have drilled the holes, position the top and bottom brackets. The top brackets have a rotary bearing.



The bottom brackets have a slot designed to house the pin of the tubular module.



Secure the screws firmly to provide stability but without overtightening them; **use a spirit level to check that the brackets are perfectly aligned.**

Once you have fixed the brackets, if you have completed the installation correctly according to the template provided, the tubes will click into the brackets easily. To remove the tubes, simply pull the spring fasteners on the two sides of the bottom bracket. The tube will be pushed slightly out and you will be able to remove it (same procedure as for footboard version on p.18).



For more information, you can scan the **QR CODE** to view the video.



## Electrical connection and switch-on

Before connecting the equipment to the power mains, make sure that the characteristics of the electrical system comply with current regulations.

Check characteristics of main power supply in the label placed on the power supply unit.

### CONNECTION

Plug the power cable into the wall socket.

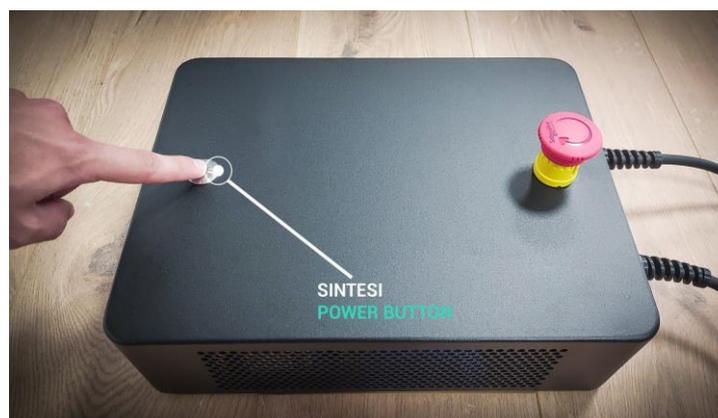
### SWITCH-ON

Before connecting the power/data cables to the tubular modules, make sure that the battery is off then carry out the following procedure:

- 1) Connect the two power/data cables to tubular modules, before switching the whole system on. Check that the elbow part of the connector is directed towards the footboard (horizontal installation) or towards the wall (vertical installation). If the direction is different, it means that the tubular module has not been clicked in properly into the brackets, therefore go through the procedure again.



- 2) Switch the system on using the Power button located on the battery.



- 3) Check that the red emergency button has not been activated. If active, turn it clockwise.



	<p><b>Warnings</b>                  Check the condition of the power cable regularly.                  The wall socket must be in a position than enables the plug to be connected and removed easily, without causing danger.                  When connecting power, the switch on the equipment must be set to 0 (the equipment must be switched off).</p>
--	---

**The power socket must have a ground wire. If not, have the ground wire added by specialized personnel before the equipment is switched on.**

The product must be connected to the ground. In case of malfunction or failure, the ground connection provides a minimum resistance path to electricity, to reduce the risk of electrical shock. The product is equipped with a cable with ground wire and ground plug.

The plug must be inserted into a correctly installed socket connected to the ground in conformity with local standards and regulations.

	<p><b>Warnings</b>                  Incorrect connection of the ground wire may cause a risk of electrical shock.                  If in doubt, have a qualified electrician or maintenance technician check whether the product is correctly connected to the ground. Do not alter the plug supplied with the product; if it does not fit into the socket, have a qualified electrician install a suitable socket.</p>
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	<p><b>WARNING</b></p> <p>When the equipment is switched on, the cables may move for a short while.</p>
---	--

After a quick self-adjustment action (during which the led lights on the tubular modules turn YELLOW), the equipment is ready to use.

To switch the equipment off, move the master switch to off. Switch off the equipment only at the end of your workout session, when it is in standby.

If the equipment is not going to be used for a long period of time, it is good practice to remove the plug from the socket after you have switched off the system.

	<p><b>WARNING</b></p> <p>The switch is used to turn the equipment on and off, but it does not completely disconnect it from the power mains, even if the switch is set to 0 (off). To completely disconnect it, you need to pull out the power plug.</p>
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## Starting and connecting the App to Sintesi

The equipment receives instructions and functions only through the TABLET supplied and authorized by AKUIS. Connection between the equipment and the tablet is via a Bluetooth communication protocol.

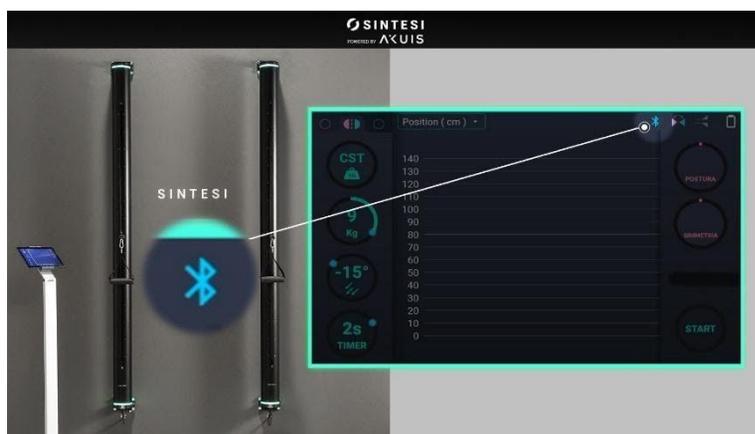
The devices connected must comply with international regulations and be expressly authorized and supplied by AKUIS.

To connect App to Sintesi proceed as follows:

- 1) From the Tablet desktop click on the Sintesi icon



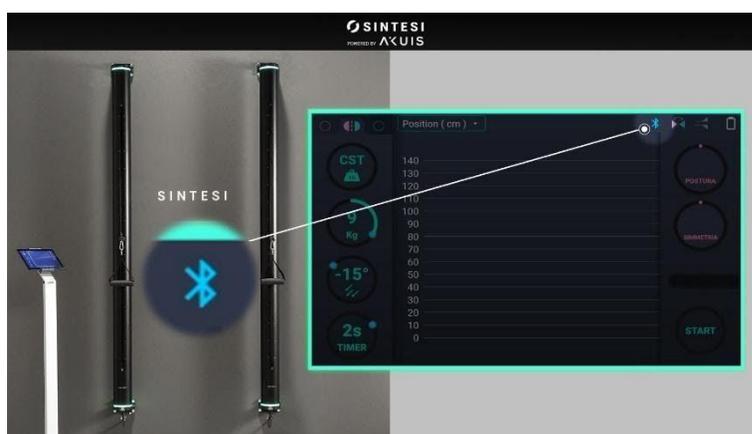
- 2) Once the app is on, touch the Bluetooth symbol on the top right of the screen



- 3) Click on "Search" to find the Sintesi closest to you (which must be on). Wait for a few seconds, until the name of the Sintesi device appears. Click on it and wait.



- 4) Once the connection has been made, the Bluetooth changes from grey to blue.



- 5) Press the SAFE button, on the bottom right of the screen, to start the self-adjustment procedure.

## Exercise settings

You can set up the entire session using the 4 controls on the left of the screen.

- 1) Selection of load profile: click on the icon to open the window with the various options.



- 2) Control for selection of load level.
  - a. Dragging load level selector.



- b. Click on control to open advanced settings



3) Dynamic Vectoring setting control.

- a. Click on the control to choose mode (gravity or fixed point)



- b. Drag selector to set the parameter (gravity angle or cable position)



4) Timer control.

- a. Drag selector to set the seconds of delay before applying load



b. Click on control to set timer for automatic load removal.



Once you have entered the exercise settings, press Start on the bottom right to start the exercise.

## Load profiles

This tutorial illustrates the different load modes of Sintesi. The load modes referred to as “Load profiles” are a group of settings through which the SINTESI APP interface of the tablet allow you to configure and adjust the type, level and sensitivity of the load.

The multiple settings let you customize the workout experience like never before, generating loads that are completely adaptable to the training needs.

Load profiles are enabled according to the version of your Sintesi device.

**SINTESI PRO LITE:** - Constant Load - Eccentric Load - Auxotonic Load - Viscous Load

**SINTESI PRO EVO** (includes all profiles available with PRO LITE): - Precision Load - Magnetic Load - Isometric Load

**SINTESI PRO ELITE** (includes all profiles available with PRO EVO): - Isokinetic Load - Vibrant Load - Random Load



**Load Level selector**

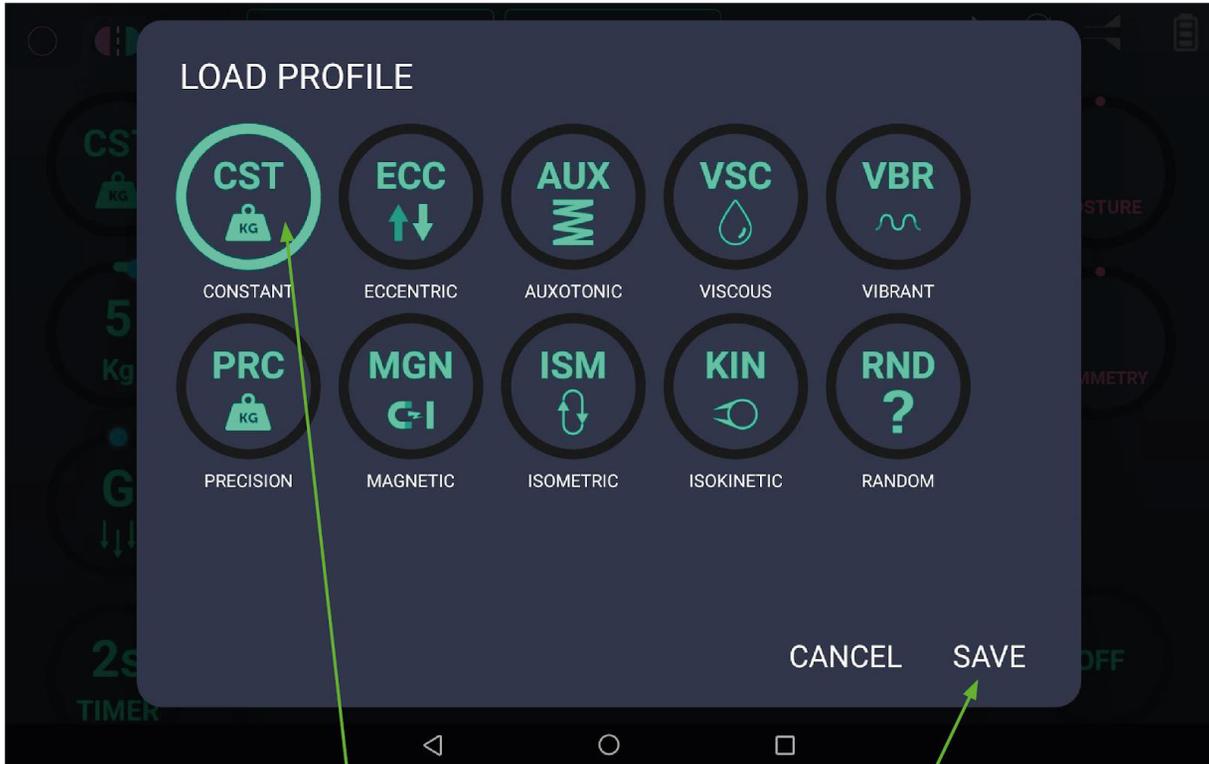
- rotating the green dot will change the load level
- clicking on the button the advanced parameters will appear

**Load profile selector**

- Clicking on the button will display the different load profiles available

**NB: some profiles do not have advanced parameters, so clicking on the button will not cause anything to happen. You can only operate by turning the green dot.**

When you click on Load Profile, the following screen will open:



Select the desired load profile

Click on SAVE to set it

**Constant Load:**

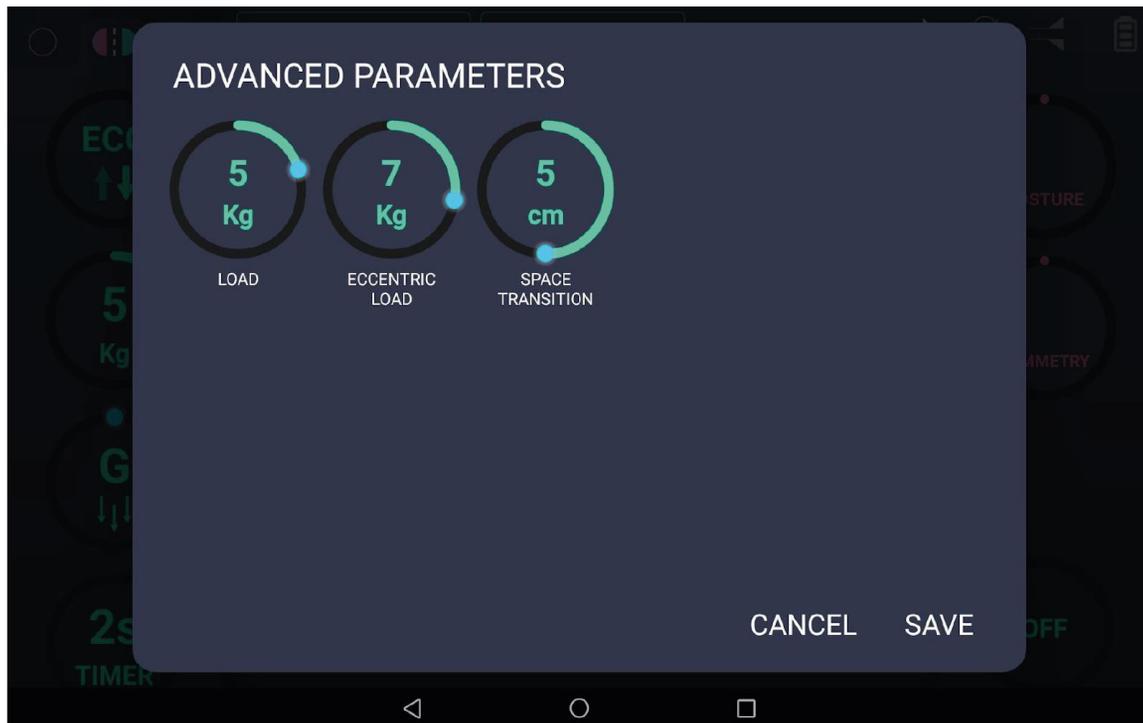


**CST:** constant isotonic load, from 3 to 25, 40 or 50 kg per side, depending on the version. Load increments 0.5 kg

This is the classic load setup which simulates the free weights or weight packs of isotonic machines without the influence of inertia (load always in traction all along the arc of the movement)

**Eccentric load:**

**ECC:** differentiation between concentric and eccentric load.

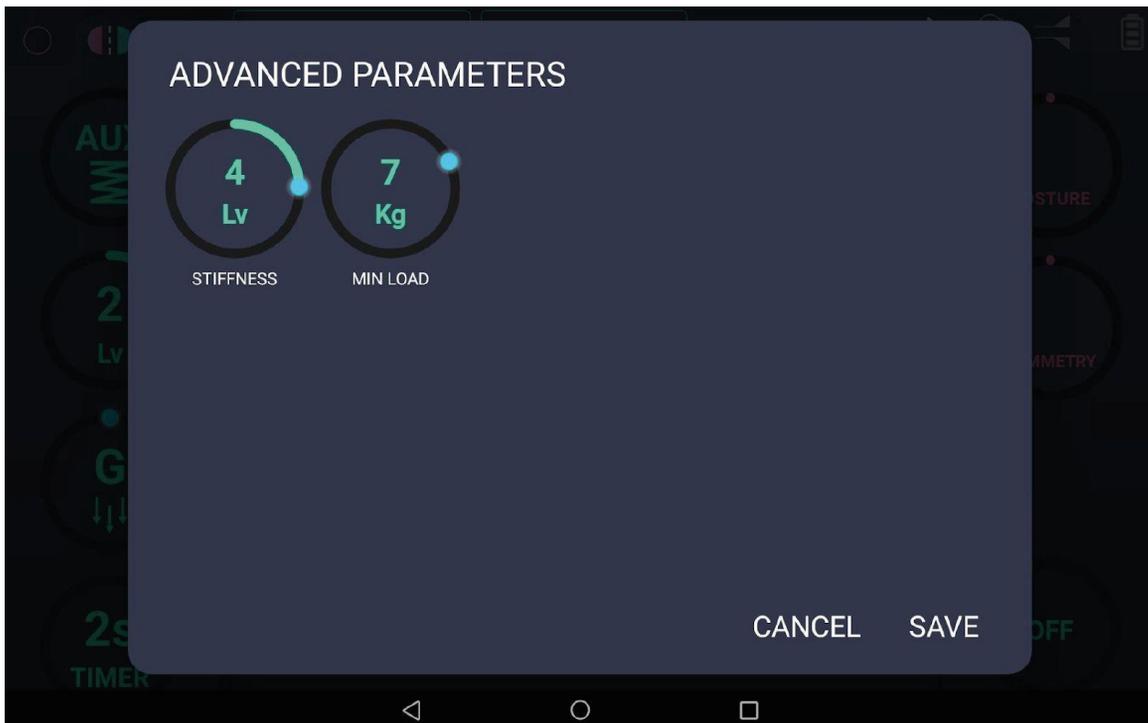
**Settings:**

- **LOAD:** concentric load.
- **ECCENTRIC LOAD:** eccentric load.
- **SPACE TRANSITION:** speed of transition between the two phases.

E.g. 5cm the load changes from concentric to eccentric in the space of 5 cm. The smaller the space entered, the more abrupt the transition.

**Auxotonic Load:**

**AUX:** auxotonic or elastic load.

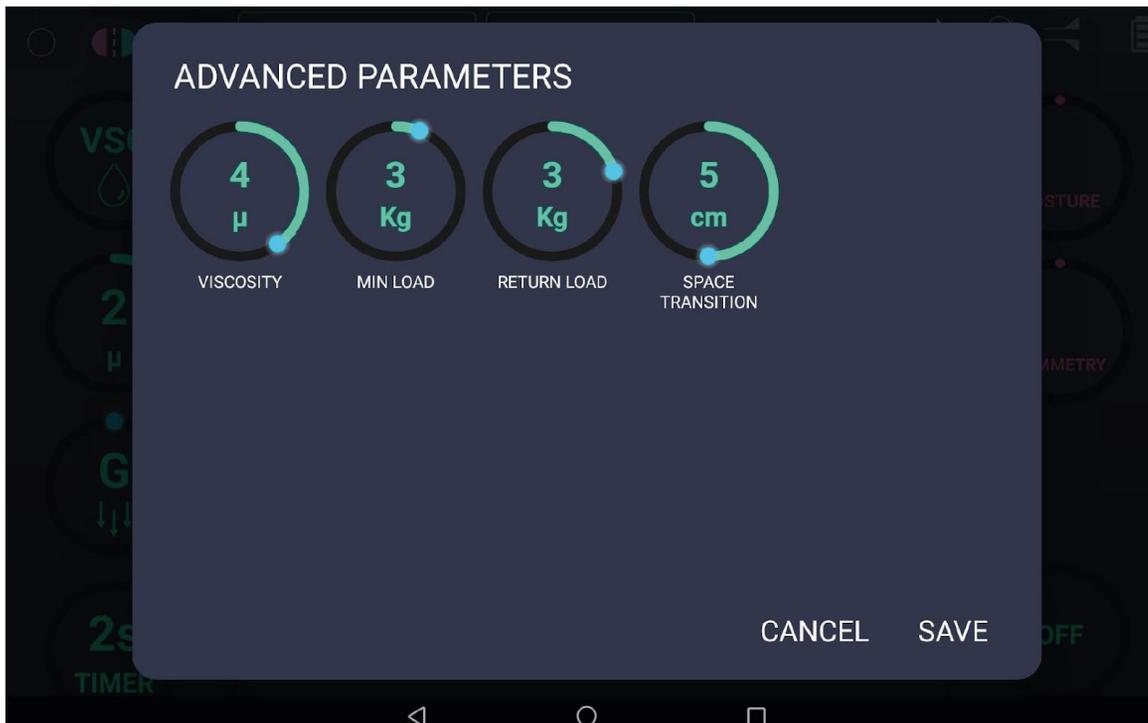
**Settings:**

- **STIFFNESS:** rigidity of the elastic, the higher the value, the more the load will increase as cable excursion increases.
- **MIN LOAD:** start load to which the elastic component given by the STIFFNESS parameter is added.

The combination of these two parameters makes it possible to simulate up to 400 different elastic load varieties.

**Viscous Load:**

**VSC:** viscous load (similar to rower)

**Settings:**

- **VISCOSITY:** fluid viscosity, i.e. level of resistance to movement, in proportion to velocity.
- **MIN LOAD:** start load to which the viscous component is added.
- **RETURN LOAD:** cable return load (without viscosity).
- **SPACE TRANSITION:** transition between pull phase and return phase. The lower the value, the more abrupt the transition.

Thanks to the Return Load variable you can combine the viscous concentric phase with overload eccentric phase or non-viscous no-load phase. The different combinations of these parameters make it possible to simulate any kind of fluid. Pre-set fluids will be introduced soon.

**Precision load:**



**PRC:** Precision load. Range: 1 to 10 kg, with 100g load increments

Settings:

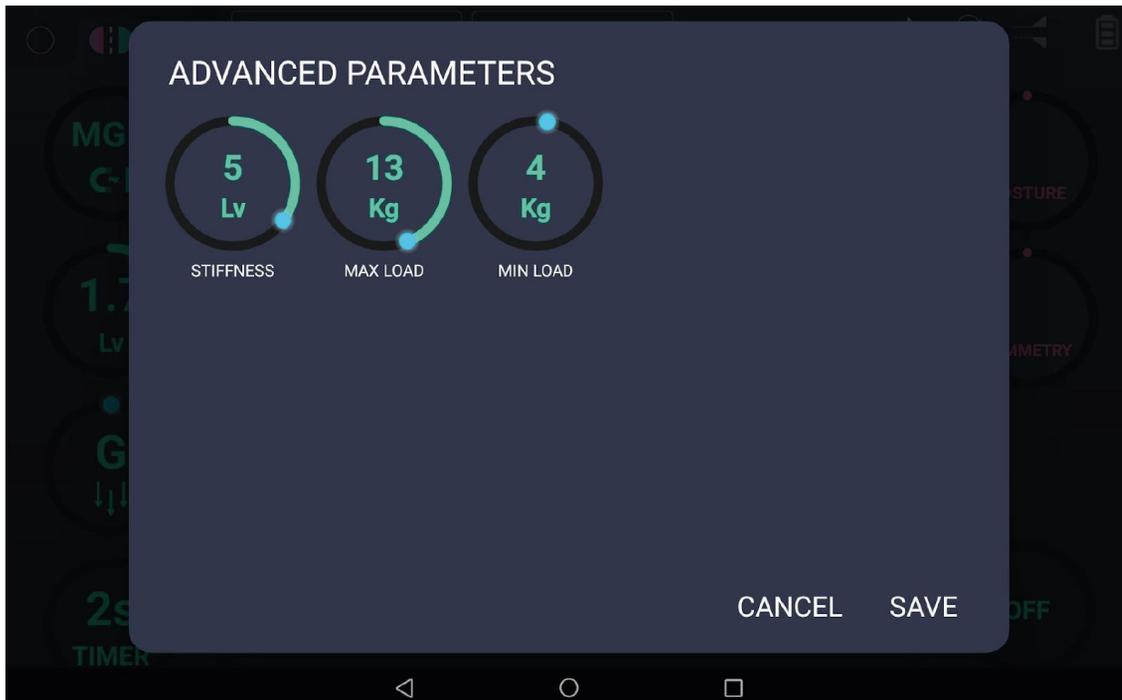


Drag the **Load level** dot around the circle to select loads from 1.0 to 9.9 Kg.

Over 10 kg, the sensitivity of this load is not efficient, therefore you will need to switch to constant load. Precision load is ideal for functional recovery exercises, rehabilitation exercises where users need very small loads with minimal increments.

**Magnetic load:**

**MGN:** Magnetic load, i.e. the closer I get to the tubular modules, the greater the load increase or, conversely, the longer the cable, the smaller the load increase.

**Settings:**

- **STIFFNESS:** magnet level. The higher this value, the greater the variation associated with cable excursion.
- **MAX LOAD:** maximum start load (when cables have retracted completely)
- **MIN LOAD:** minimum load (in the furthest point of the cable).

The progressive load decrease associated with extension makes it possible to perform exercises that are very effective for recovery, such as: abduction/adduction or flexion/extension of a shoulder.

**|| Isometric load:**



**ISM:** isometric load. This sets the length at which you wish the cable to stop. The user will then be able to pull out the cable only up to the preset length, then it will stop.

Settings:



Drag the **Load level** around the circle to select the length in cm after which the cable will be stopped.

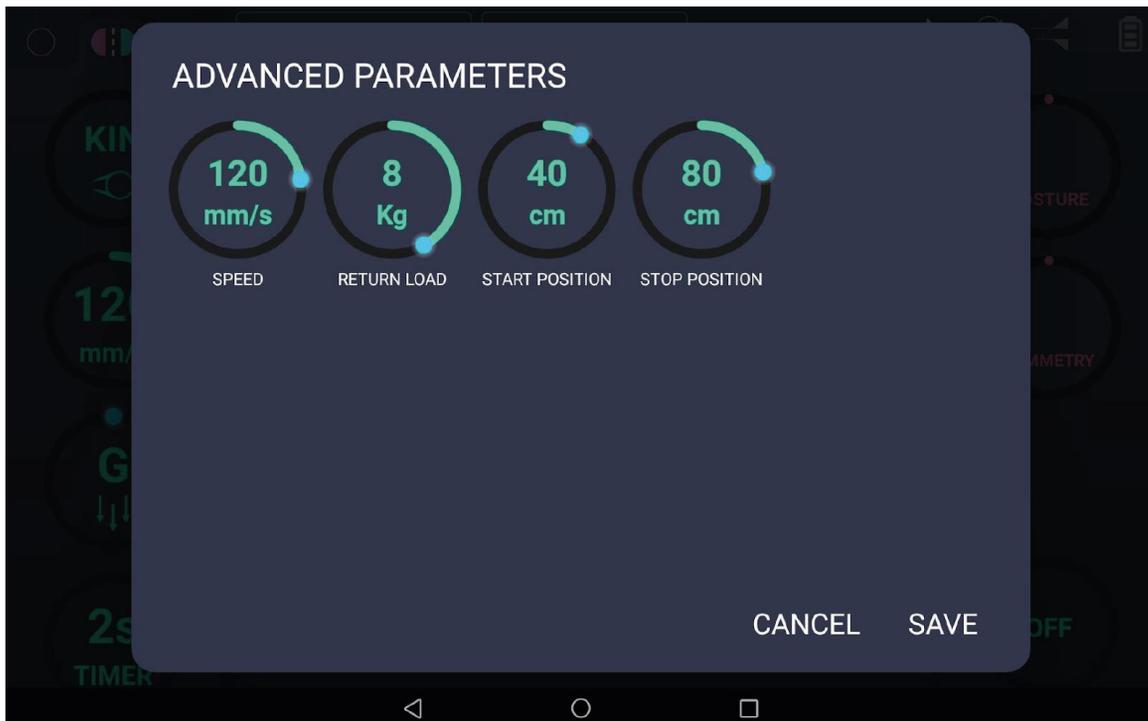
Useful combined with the real-time force graph, to measure maximums at different joint angles. Useful also for TRX exercises. Do not use to suspend or lift persons or objects.

## II Isokinetic load:



**KIN:** isokinetic load. In this mode you do not set a load (except for maximum load) but the movement speed imposed by the machine. The user will oppose resistance based on his/her strength.

Settings:

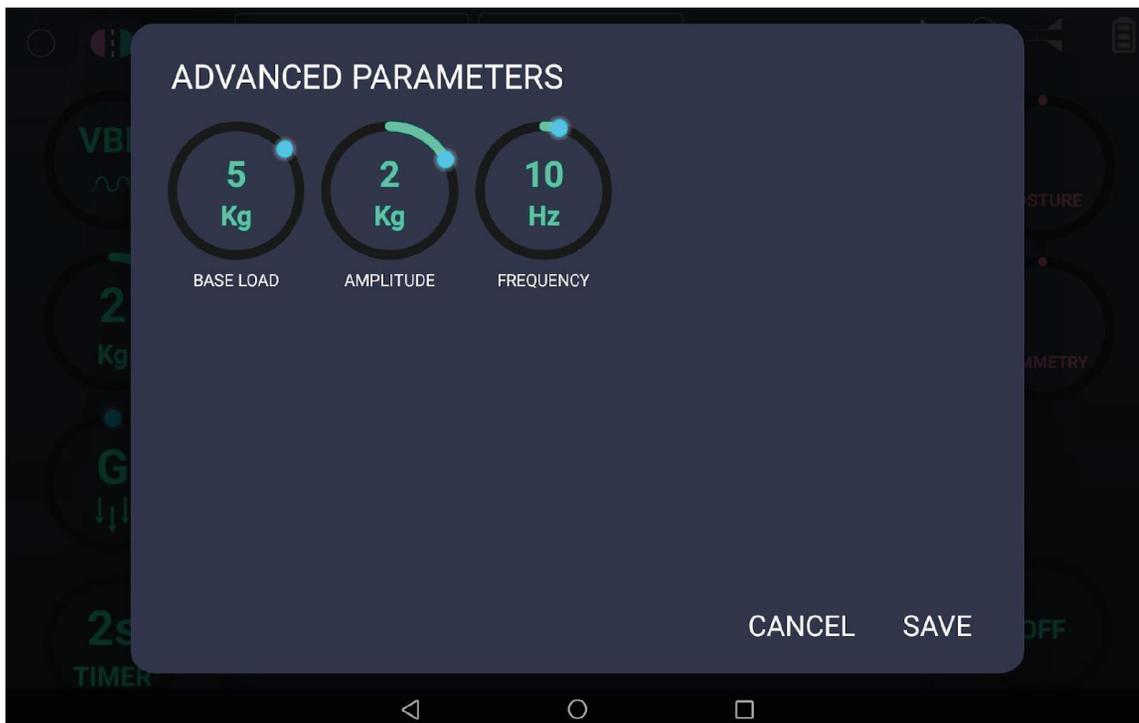


- **SPEED:** speed imposed by the machine
- **RETURN LOAD:** maximum resistance that the motors can exert, above which the motor stops imposing a constant speed.
- **START POSITION:** minimum position from which the machine starts to impose a controlled speed.
- **STOP POSITION:** final position at which the phase change takes place and the cable returns to constant speed.

**Vibrant load:**

**VBR:** vibrant load. The motors create cable vibrations with variable amplitude and frequency.

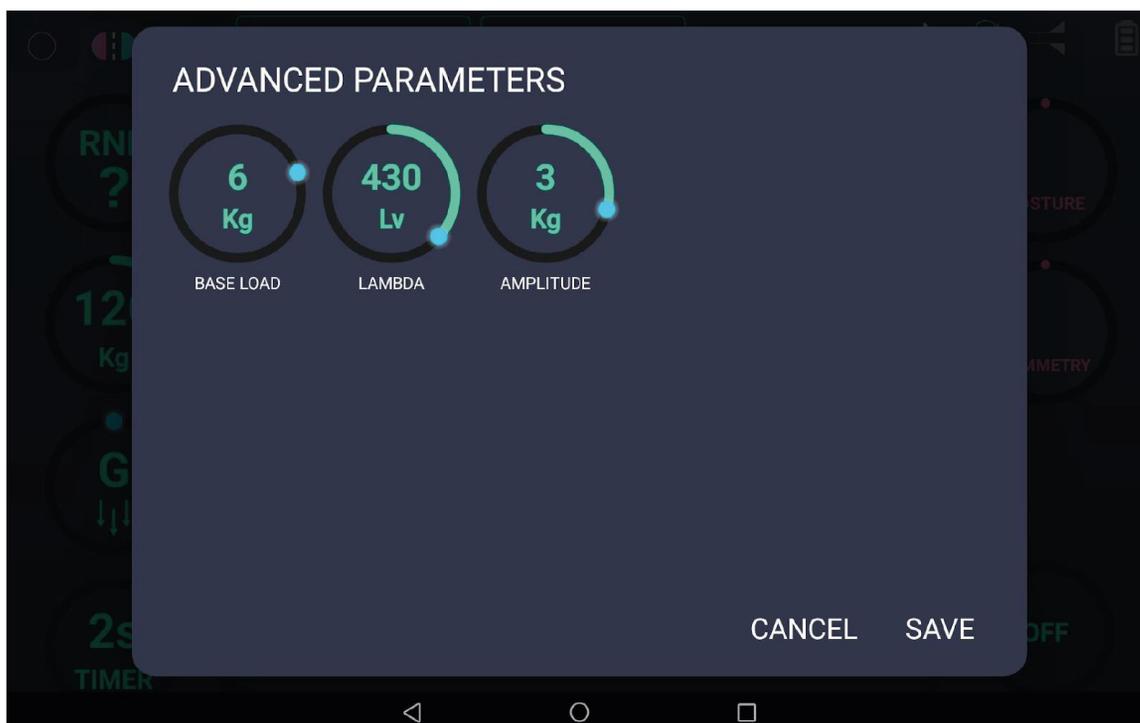
## Settings:



- **BASE LOAD:** average base load, e.g. 10 kg.
- **AMPLITUDE:** amplitude of the vibration, e.g. 4kg (resulting in a base force of 10kg with oscillations of +/-4kg, i.e. the load will vibrate between 6 and 14kg).
- **FREQUENCY:** frequency of vibration. Use care with frequency values between 15 and 25 Hz as they are potentially harmful to the spine and joints.

**Random Load:**

**RDN:** Random load. In this mode, Sintesi exerts a variable, unpredictable force. Useful for proprioception, balance exercises and neuromuscular re-education.

**Settings:**

- **BASE LOAD:** base load to which random force fluctuations are added.
- **LAMBDA:** speed with which the load changes unpredictably. The lower the value, the quicker the change.
- **AMPLITUDE:** maximum amplitude of random load variations. E.g. with a base load of 10 kg and amplitude of 4 kg, you will have an average load of 10 kg and fluctuations of +/- 4 kg i.e. the load will change randomly between 6 and 14 kg, with the speed set by the LAMBDA parameter.

## Switch-on recap

1. Check that the equipment is correctly installed in its horizontal or vertical configuration.
2. Check that all the power/data supply cables are properly connected to the equipment and that the battery is charged.
3. Switch on the equipment by means of the switch power-on button on the battery.
4. This will initialize the system and the led lights on the tubular modules will turn red.
5. Use the tablet to access the control system, using the dedicated app. Press START to start the initialization procedure.
6. The equipment carries out automatic adjustments. The yellow light indicates that this procedure is under way. During the adjustment/initialization procedure do not interact with the equipment.
7. When the led lights turn green, the equipment is ready to receive instructions from the control interface of the app.
8. From this moment, the user can send instructions to the equipment regarding:
  - a. load level (from 0 to 50 kg per single tubular module or up to a total of 100 kg on two tubular modules);
  - b. the direction from which the load arrives;
  - c. load profile.

	<p><b>WARNINGS</b></p> <p>Distractions from the surrounding environment can cause a loss of stability and balance.</p> <p>Use of the equipment by two persons simultaneously is prohibited.</p> <p>The equipment must be used only for the purpose for which it has been designed and made. Any use other than the above shall be considered</p>
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## Ordinary Maintenance

It is good practice to always keep the equipment clean and dust-free, in compliance with standard sanitary standards, as it is used in sport facilities by more than one person.

To clean the footboard and the tubular modules, proceed as follows:

- press POWER OFF to switch the equipment off;
- pull out the power plug from the wall socket;
- clean the surfaces with a lightly dampened cloth;
- switch off the tablet, clean it with a lightly dampened cloth.

	<p><b>WARNINGS</b></p> <p>Take care not to apply too much force when cleaning the control panel or the areas with icons and instruction labels.</p> <p>Make sure that the tablet and equipment have been switched off before cleaning the tablet.</p> <p>The safety level of the equipment is ensured only if an accurate inspection is carried out every two weeks to check for damage and/or wear.</p>
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For maintenance operations other than those described in this manual, please contact the AKUIS Technical Service team.

## Malfunction

In case of malfunction/problems, failed switching on and/or starting of the equipment, suspend all activities, disconnect power/data cables and call the AKUIS service centre.

NOTE: in case of an emergency, let go of all gripping elements, press the red emergency button on the battery and disconnect all power/data cables. Contact the AKUIS technical service team.

If the power cable is damaged, it must be replaced by the manufacturer or by its technical service centre or by other qualified person, in order to prevent all risks.

## Technical Support

The Akuis Technical Support Service includes:

- telephone consultations;
- definition of service work covered by warranty and customer-paid service.

When contacting our Technical Support Service team, you need to provide the following details:

- machine model;
- purchase date;
- serial number;
- accurate description of problem.



### **WARNING**

**Work performed on the equipment by persons not authorized by AKUIS will invalidate the warranty.**

## **AKUIS TECHNICAL SERVICE DEPARTMENT**

VIA AITA MENOTTI 2, 33028 TOLMEZZO (UD)

Tel.: +39 0433 850100

Email: [support@akuis.tech](mailto:support@akuis.tech)

[www.akuis.tech/support](http://www.akuis.tech/support)

## Storage

In the event of prolonged inactivity, store the equipment:

- in a dry, clean place, covered with a sheet to protect it from dust;
- in a room with temperature between -10 °C (14°F) and +70°C (158°F) and humidity between 20% and 90%.

For best protection, use the original packaging.

## SECURING THE PRODUCT

To prevent uncontrolled use of the product, remove the power supply cable and place it in a safe place.

## Disposal

It is important to prevent all possibility of the equipment becoming a source of danger, therefore do not allow children to play with it. During prolonged inactivity, it is important to switch it off and disconnect the power supply cable.

Do not abandon the equipment in the environment, in public areas or private areas used by the public.

The equipment is made of recyclable materials, such as steel, aluminium and plastic, which must be disposed of in accordance with current regulations on urban waste, through firms specialized in urban and environmental health. Local regulations for disposal of obsolete products and packaging materials must be complied with.

It is prohibited to dispose of waste from electrical and electronic equipment as urban waste. Current legislations require this type of product to be collected according to a specific system of adequate treatment, recovery and recycling.

Illegal disposal of electrical and electronic equipment or improper use can cause serious damage to the environment and effects on people's health.

Pursuant to the measures implemented by European Union member states, private citizens residing in the European Community can dispose of used electrical and electronic equipment in designated separate waste collection centres.

If the product has commercial use, contact your dealer or the AKUIS Customer Support Service team in your country, to arrange for collection and disposal of waste from electrical and electronic equipment.

For disposal of electrical and electronic equipment in non-EU countries, contact local authorities.

Correct disposal of the product contributes to the prevention of potential adverse effects on the environment and on human health.

Average product life: 5 years.



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