



ENTERTAINMENT ROBOT
ERS-1000

Documentation for aibo



Starting your life with aibo™

Provides the introductory information needed for starting your life with aibo.
Please read this document first.



For your safety (this document)

Provides the precautions to ensure safe use and the specifications.



Help Guide (Web Manual)

Provides information concerning communication with your aibo and its growth.
Please access this documentation with your smartphone or computer.

<http://rd1.sony.net/help/aibo/ers1000/en-us/>



Owner's Record

Record the model and serial number (which are located behind the lid on aibo's torso) in the space provided below. Refer to these numbers whenever you call your Sony dealer regarding this product.

Model No. ERS-1000

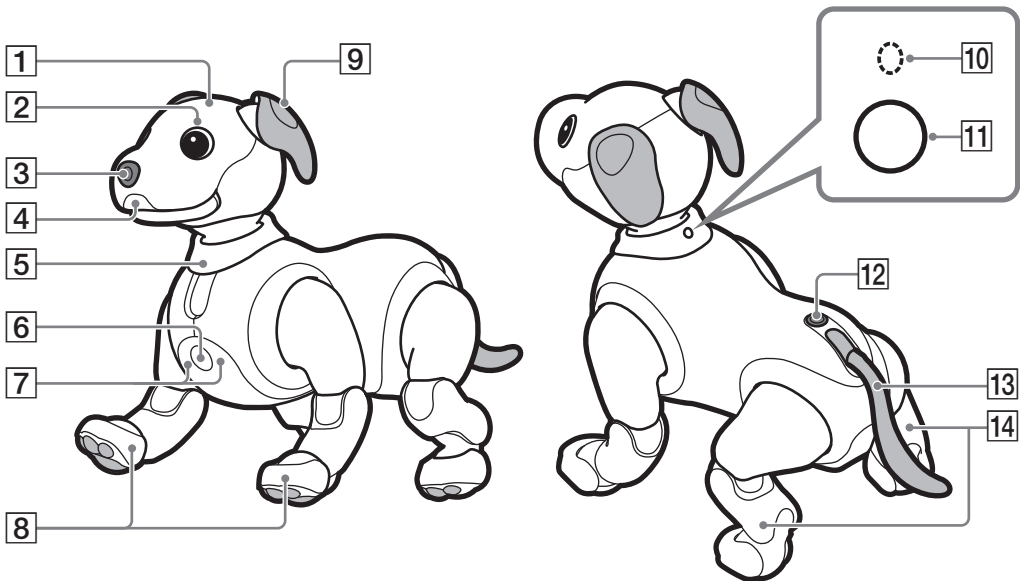
Serial No.

Product key

Parts and Controls

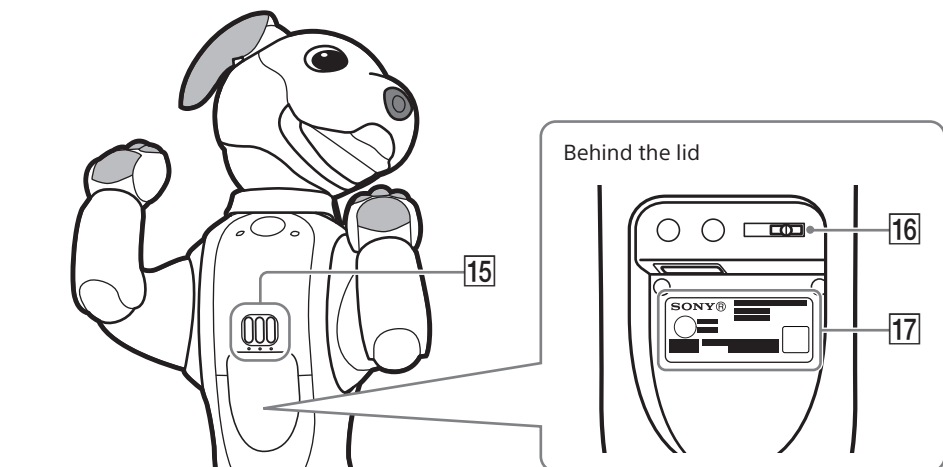
The following shows the parts and controls referred in the Notes on Use section of this document. For the locations of any other parts and controls and their features, refer to the Help Guide.

aibo



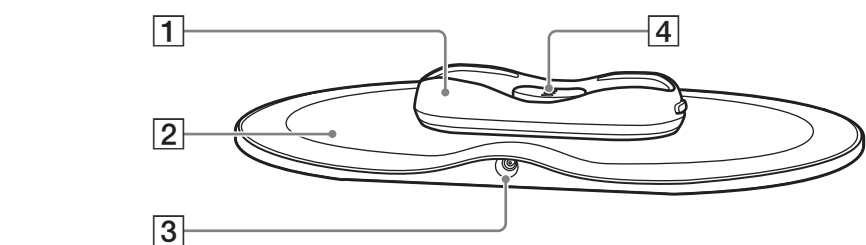
- | | |
|-----------------------|---|
| 1 Head | 10 Status LED |
| 2 Eye | The status LED indicates aibo's state as follows: |
| 3 Nose camera | Lit in green: powered-up state |
| 4 ToF sensor | Lit in orange: battery charging state |
| 5 Neck | Lit in red: sleep state |
| 6 Motion sensor | Flashing in red: error state |
| 7 Ranging sensors (2) | |
| 8 Forepaws | 11 Power button |
| 9 Ear | 12 Loin camera |
| | 13 Tail |
| | 14 Back paws |

On the torso



- | |
|---|
| 15 Charging pins |
| 16 Network switch |
| 17 Model name label (the model, serial number and FCC ID) |

Charging station



- | |
|--------------------|
| 1 Charging stand |
| 2 Charging mat |
| 3 Supply terminal |
| 4 Charge connector |

WARNING

To reduce fire or shock hazard, do not expose the unit to rain or moisture.

IMPORTANT SAFETY INSTRUCTIONS

-SAVE THESE INSTRUCTIONS

DANGER

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS

If the shape of the plug does not fit the power outlet, use an attachment plug adaptor of the proper configuration for the power outlet.

CAUTION

Observe the following cautions, as there may be a risk of heat generation, fire or explosion.

* Lithium-ion battery is built into the product.

- Charge the product by the designated charging method.
- Do not place the product in or near fire, such as near a fireplace, or put the product in a microwave.
- Do not leave the product in a car in hot weather.
- Do not store or use the product in a hot and humid place such as in a sauna bath.
- Do not disassemble, crush or pierce the product.
- Do not expose the product to excessive shock such as dropping from a high place.
- Do not expose the product to high temperatures above 60 °C (140 °F).
- Keep the product dry.
- Dispose of the product appropriately.
- Charge the product by the designated charging method in the instruction manual.
- Do not expose to extremely low temperatures of -20 °C (-4 °F) or lower or extremely low pressures of 11.6 kPa or lower.

Use a nearby wall outlet (wall socket) when using the AC Adaptor. If any malfunction occurs, disconnect the plug from the wall outlet (wall socket) immediately to disconnect from the power source.

Use of optical instruments with this product will increase eye hazard.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Note:

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

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. The following FCC IDs have been tested and found to comply with FCC radiation exposure limits in all operating modes and orientations of the host platform.

FCC ID: AK8145899511

FCC ID: AK8145890811

This device and its antenna(s) must not be co-located or operating with any other antenna or transmitter except Grant condition. Users are not permitted to modify this transmitter device. Any unauthorized changes made to this device could void your authority to operate this device.

Supplier's Declaration of Conformity Trade Name: SONY

Model: AL001

Responsible Party: Sony Electronics Inc.

Address: 16535 Via Esprillo, San Diego, CA 92127 U.S.A.

Telephone Number: 858-942-2230

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment must not be co-located or operated in conjunction with any other antenna or transmitter.

The FCC IDs are located behind the lid on the aibo's torso. To see the IDs, please remove the lid.

Notes on Use

On the packaging material

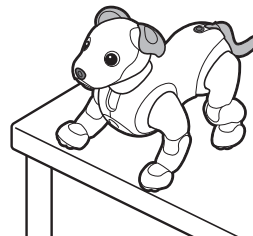
Please retain the packaging material. If needed, it provides a secure means of transporting your aibo.

When powering off aibo in case of emergency

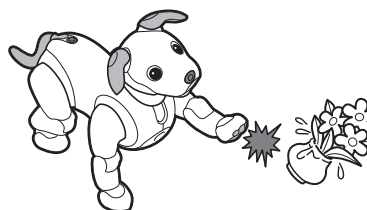
Press and hold the power button at the back of the neck for 2 seconds to power off aibo. If this does not work, press and hold the power button for 10 seconds or longer to forcibly power it off. A forced power off may cause loss of data and settings.

On handling aibo

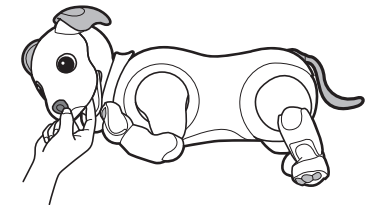
- Do not use aibo on a place from which aibo may fall off or on an unstable place, for example, with vibration or an uneven surface.
aibo may fall off or fall over, resulting in a physical injury or a malfunction of aibo.



- Do not place fragile or dangerous objects around aibo.
aibo moves around on its own and may cause damage to your property or a freak accident.



- Do not put your hands or fingers in gaps around aibo's movable parts.
Your hands or fingers may get caught between aibo's body and parts, resulting in a physical injury.



- Do not lift or swing around aibo by grasping its head, ear, tail, forepaw, back paw, or loin; or twist these parts.
Moving any of aibo's movable parts beyond its limit may break the part, resulting in a physical injury.
aibo's ears and tail come off from the body when they are forcefully pulled. This is designed for safety and does not indicate a failure. For attaching the removed ears and tail back to the body, refer to the Help Guide.



- Do not use aibo outdoors to avoid ingress of water or foreign matters. Such ingress may cause a malfunction of aibo.
- Do not use aibo on a hard floor, such as a concrete floor, to avoid the risk of scratching aibo or its malfunction.
- Do not use aibo on a slippery floor or a shag carpet. aibo may fail to sit up or move forward. It is recommended that you use aibo on a wooden floor or a carpet with short threads.
- Do not exert excessive force on aibo to prevent its activities.
- Keep aibo's movable parts free of anything that restrict their movements, such as a sticker or a ribbon.
- Do not lubricate aibo's movable parts.
- Do not allow a strong physical impact (e.g. dropping aibo) or excessive force (e.g. putting a heavy object on aibo) exerted on aibo to avoid the risk of its malfunction.
- aibo's operating temperature range is from 5 °C to 35 °C (41 °F to 95 °F). Use of aibo in an extremely cold or hot place where the temperature falls below or exceeds the range may cause a malfunction of aibo.
- Do not leave aibo in a place subject to excessive dust or cigarette smoke.
- Do not leave aibo in a place subject to extremely high/low temperatures or high humidity. The interior temperature of a closed vehicle parked under the blazing sun or in summertime rises considerably high. Leaving aibo in such a vehicle may cause deformation of aibo or its malfunction.
- aibo's network features are solely applicable to the networks in USA. Depending on the country or region, restrictions are imposed on use of radio waves. Use of aibo's network features in such countries or regions may result in a violation of law.
- Do not use aibo in an aircraft. Radio waves from aibo may affect the operation of the aircraft to cause an accident due to a malfunction of the aircraft equipment.

See the back side.➡

- Do not use aibo’s network features when aibo is likely to approach within a radius of 15 cm (6 in.) from persons implanted with electric medical equipment, such as an implantable cardioverter defibrillator or an implantable cardiac pacemaker. Radio waves from aibo may affect the operation of the electric medical equipment. Take either of the following actions to turn off the network features.
 - Slide the network switch on the torso to OFF.
 - Press and hold the power button at the back of the neck for 2 seconds to power off aibo.
- At a place subject to intensive direct sunlight, such as by the window in daytime, aibo’s sensor may malfunction.
- Protect aibo’s cameras and sensors from being scratched or soiled with dust or fingerprints. Scratches or soil residues on their surface cause aibo’s detection capabilities to deteriorate.
- If residues of dust or fingerprints are found on aibo’s camera or sensor covers, do not touch them with bare hands. Instead, blow them off with a commercially available blower or wipe them off with a soft cloth.
- Do not use aibo on a place where aibo might fall off or at a place surrounded by obstacles or within reach of small children. By falling or colliding, aibo may damage your property or cause a physical injury or a malfunction of aibo. Please be advised that Sony assumes no liability for any damage or loss that you may suffer as a result of such fall or collision.

Moisture condensation

If aibo is brought directly from a cold place to a warm place, moisture may condense inside or on the surface of it and cause a malfunction of aibo. If moisture condensation has occurred, leave aibo without turning on the power.

Heat generation

- aibo and the supplied AC adapter may generate heat while they are in use. Heat generation is caused by the operation of internal electric circuits or the electric current that flows during battery charge and does not indicate a malfunction. The amount of heat generated by aibo depends on its activity.
 - When aibo or the supplied AC adapter is extremely hot to the touch with compared to its usual state, press and hold the power button at the back of the neck for 2 seconds to power off aibo. Unplug the power cord of the AC adapter from the AC outlet. Then, visit the online support page and see the troubleshooting information.
- #### On handling the charging station
- To let aibo charge its battery on its own on the charging station (self-charging) and get up from there, do not place objects, that may disturb aibo’s activities, around the charging station. For more information, refer to the Help Guide.
 - Do not touch the charge connector with bare hands to avoid causing a bad contact.
 - Do not exert force on the charging station, for example, by putting your hand or elbow on it.
 - Do not step on or kick the charging station.
 - Do not exert a strong physical impact on the charging station or drop the station.
 - Do not leave the charging station in a place subject to abnormally high temperatures, such as inside a closed vehicle parked under the blazing sun, to avoid the risk of deformation or a malfunction of the charging station.
 - Do not allow the charging station exposed to water.

On charging the battery of aibo

- Charge the battery under the condition where the ambient temperature is within the range from 5 °C to 35 °C (41 °F to 95 °F). If the temperature is out of this range, the battery may not be fully charged.
- While you are charging the battery or using aibo, aibo’s body temperature may rise. This, however, does not indicate a malfunction of aibo.
- Even if you do not intend to use aibo for an extended period of time, charge the battery every 6 months to keep it from deteriorating.
- If aibo has not been used for an extended period of time, it may take more time to charge the battery.
- If the battery power wears out in about a half of its standard battery life, the battery life may have come to an end. For replacing the battery, visit the online support page and see the information about battery replacement.

On handling the AC adapter

- Use the supplied AC adapter with the charging station. Use of any AC adapter other than the supplied one will cause a malfunction of aibo.
- For connecting the AC adapter to a power source, use an AC outlet that is easy to access. When there is an issue with the operation of aibo, immediately unplug the power cord from the AC outlet to cut the power supply.
- The supplied AC adapter is exclusively designed for use in USA. Do not use the adapter in any other countries or regions, or with any other voltages.
- Do not connect the AC adapter to an electronic voltage transformer designed for travelers to avoid the risk of heat generation or a malfunction of the adapter.
- When you leave home, for example, for vacation and do not intend to use the supplied AC adapter for an extended period of time, unplug the power cord from the AC outlet.
- The supplied power cord is exclusively designed for aibo’s charging station. It should not be used with any other electric devices.

Notes on the Auto photos function of aibo

- Use the Auto photos function in compliance with the moral standards.
- Taking photos of others and/or making such photos open to the public may result in a violation of privacy or portrait rights. Before you take photos of others, be sure to obtain their consent.

On handling the SIM card

- The SIM card in aibo is solely provided for use with aibo. Do not use it with any other products.
- When you removed the SIM card from aibo, be sure to keep it from missing and watch over small children to prevent them from swallowing the card.
- For removing the SIM card, refer to the Help Guide.

On cleaning

- When aibo or the charging station is soiled with small particles and dust, gently wipe them off with a dry, soft cloth.
- Do not use any volatile agent, such as alcohol or paint thinner, to avoid damaging the finish.

On Wi-Fi communication

Please be advised that you are expected to pay any necessary costs for connecting aibo to a Wi-Fi network.

On data compensation

In the event that your data is not recorded and thus unavailable for retrieval due to some reasons, such as a malfunction of aibo or a communication error, please be advised that Sony assumes no liability for compensating lost data.

About Software

Information about aibo’s system software

By updating the system software, you can add new functions to aibo, improve user experience of aibo, and enhance security of aibo. Please use the dedicated app, My aibo, to keep your aibo updated.

Information about the third-party software

The entertainment robot, aibo contains the software that includes software components publicly available as the source code or as free software or its derivative granted for use under the license agreement imposed by the software right holder other than Sony Corporation (hereinafter referred to as “third-party software”). To use any third-party software, you are bind to comply with its license agreement. The license agreement of each third-party software is provided on the website at the following URL. You are advised to visit this website and read each and every license agreement.

<http://oss.sony.net/License/ERS-1000/>

Some of the third-party software is applicable to GNU General Public License (GPL) or GNU Lesser General Public License (LGPL) described on the website at the above URL. With compliance to the GPL/LGPL conditions, you are entitled to obtain, alter, and distribute the software code of such software. The software code of each of such software is provided on the website at the following URL. To download the software code, access the website and select “ERS-1000.”

<http://www.sony.net/Products/Linux/>

Please be advised that no answer will be provided by Sony to the inquiry concerning the contents of the software code.

Specifications

aibo

Movable parts

Head: 3 degrees of freedom
Mouth: 1 degree of freedom
Neck: 1 degree of freedom
Loin: 1 degree of freedom
Forepaws/Back paws (4): 3 degrees of freedom
Ears (2): 1 degree of freedom
Tail: 2 degrees of freedom
(22 degrees of freedom in total)

Buttons and switch

Power button
Volume button (+, -)
Network switch

LED

Status LED, Network LED

Displays

OLED (eyes) (2)

Cameras

Nose camera (1), Loin camera (1)

Terminals

Charging pins, SIM card slot

Sound

Speaker, Microphones (4)

Sensors

6 axis detection systems (head, torso) (2)
(3 axis gyro/3 axis acceleration)
Motion sensor
Ranging sensors (2)
ToF sensor
Light sensor
Head sensor, Jaw sensor (Capacitive type touch sensor)
Back sensor (Pressure sensitive/capacitive type touch sensor)
Paw pads (4)

Power consumption

Approx. 14 W (in standard mode operation)

Battery life

Approx. 120 minutes (in standard mode operation)

Dimensions (w/h/d)

Approx. 180 x 293 x 305 mm (7.1 x 11.5 x 12.0 in.) (not including the protruded parts)

Mass

Approx. 2.2 kg (77.6 oz)

Operating temperature

5 °C - 35 °C (41 °F - 95 °F)

Communication system

Mobile network communication function (Data transmission): LTE
Wi-Fi: IEEE 802.11b/g/n

Charging station (Charging stand, Charging mat)

Power supply

19.5 V DC

Output voltage

19.5 V DC: 2.3 A (for charging aibo)

Charging time

Approx. 3 hours*

Dimensions (w/h/d)

Charging stand: Approx. 171 x 29 x 74 mm (6.7 x 1.1 x 2.9 in.)
Charging mat: Approx. 392 x 24 x 284 mm (15.4 x 0.9 x 11.2 in.)

Mass

Charging stand: Approx. 101 g (3.6 oz)
Charging mat: Approx. 466 g (16.4 oz)

Operating temperature

5 °C - 35 °C (41 °F - 95 °F)

* The charging time may vary depending on the condition, such as the activity of aibo or the ambient temperature.

AC adapter

Input

100 - 240 V AC (100 V AC for the power cord)
50 - 60 Hz, 1.2 A

Output

19.2 V AC, 2.3 A

Operating temperature

5 °C - 35 °C (41 °F - 95 °F) (temperature gradient of 10 °C (50 °F)/hour or less)

Dimensions (w/h/d)

Approx. 92 x 41 x 27 mm (3.62 x 1.61 x 1.06 in.)

Mass

Approx. 165 g (5.8 oz)

Connection cord length

Power cord: approx. 1 m (39.4 in.)

Supplied accessories

SIM card (inserted in aibo)
Charging station* (ERA-1001)
* Referred to when the charging stand is attached to the charging mat.
AC adapter
Power cord
Pink ball
Starting your life with aibo™
For your safety (this document)
Product key

Design and specifications are subject to change without notice.

Trademarks and copyrights

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When Transferring or Disposing of aibo

About handling personal information and others

Before you transfer or dispose of your aibo, you are strongly advised to delete the data, including personal information, by selecting [Settings] - [Initialize aibo] from the menu on the dedicated app, My aibo. If you transfer or dispose of your aibo without deleting the data, the personal information can be viewed and/or used by a third party.

Note

Sony assumes no liability for any damage or loss that you may suffer as a result of unauthorized viewing and/or use of the undeleted data by a third party.

RECYCLING RECHARGEABLE BATTERIES

Rechargeable batteries are recyclable. You can help preserve our environment by returning your used rechargeable batteries to the collection and recycling location nearest you. For more information regarding recycling of rechargeable batteries, visit www.sony.com/electronics/eco/environmental-management

Caution: Do not handle damaged or leaking Lithium-Ion batteries.

