

SmartEyeglass

Reference Guide



©2015 Sony Corporation
Printed in Japan
<http://www.sony.net/>



SED-E1

Manuals

- Startup Guide**
Read this guide first.
Describes initial preparation such as charging and connecting.
- Reference Guide (this manual)**
Describes safety precautions or specifications.
- Help Guide**
Provides details about the device's function or how to use the device. Help Guide is available on a smartphone or computer.
<http://rd1.sony.net/help/sed/sede1/ja/>

Before operating the device, please read this guide thoroughly and retain it for future reference.

Owner's Record

The serial number is located under the clip on the rear of the controller. Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. SED-E1

Serial No. _____

For customers in the USA
Please register this product on line at <http://www.sony.com/productregistration>. Proper registration will enable us to send you periodic updates about new products, services and other important announcements. Registering your product will also allow us to contact you in the unlikely event that the product needs adjustment or modification. Thank you.

CAUTION

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

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. SmartEyeglass (SED-E1) has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines.

This SmartEyeglass (SED-E1) has been tested and meets the FCC RF exposure guidelines when used with the Sony Corporation accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

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, 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.

If the battery pack is mishandled, the battery pack can burst, cause a fire or even chemical burns.
Observe the following cautions.
– Do not disassemble.
– Do not crush and do not expose the battery pack to any shock or force such as hammering, dropping or stepping on it.
– Do not short circuit and do not allow metal objects to come into contact with the battery terminals.
– Do not expose to high temperature above 60 °C (140 °F) such as in direct sunlight or in a car parked in the sun.
– Do not incinerate or dispose of in fire.
– Do not handle damaged or leaking lithium ion batteries.
– Do not replace the battery with an incorrect type.
– Keep the battery pack out of the reach of small children.
– Keep the battery pack dry.
– Dispose of used battery packs promptly as described in the instructions.

RECYCLING LITHIUM-ION BATTERIES
Lithium-ion 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, call toll free 1-800-822-8837, or visit <http://www.rbc.org/>.
Caution: Do not handle damaged or leaking Lithium-ion batteries.

For the state of California, USA only
Perchlorate Material - special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate
Perchlorate Material : Lithium battery contains perchlorate

For all other batteries, please view the section on how to remove the battery from the product safely. Hand the battery over to the applicable collection point for the recycling of waste batteries. For more detailed information about recycling of this product or battery, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

The validity of the CE marking is restricted to only those countries where it is legally enforced, mainly in the countries EEA (European Economic Area).

Precautions

On health
• Some people may experience discomfort (such as eye strain, fatigue, nausea, or motion sickness) while using the device. Sony recommends that all viewers take regular breaks while using the device. The length and frequency of necessary breaks will vary from person to person. You must decide what works best. If you experience any discomfort, you should stop using the device until the discomfort ends; consult a doctor if you believe necessary.
When used by a child (especially aged under 6), consult a pediatrician or an ophthalmologist before the child uses the device, since their sight is at early stage of development. Parents should ensure their child follows the cautions and precautions noted in this document.
• Do not look directly at the sun or a strong light through the device even if the supplied dark filter is applied. This may cause visual impairment or blindness.
• Do not use this device near medical equipment. Radio waves may affect cardiac pacemakers and other electronic medical equipment. Do not use the device in crowded places such as trains or in medical facilities.
• The device has a controller that emits radio waves. Therefore, people with medical equipment, such as cardiac pacemakers or defibrillators, will not be able to use this device.

On safety
• The nameplate and important information concerning safety are located under the clip on the rear of the controller.
• Do not use the device while driving a vehicle such as a car, motorcycle, motorized bicycle, or bicycle. It may be a cause of an accident.
• Pay attention to your surroundings such as traffic and road surface conditions when walking.
• Pay attention to your surroundings when using the device for the first time as you may be unaccustomed to the change in view.
• This device has a built-in wireless capability (Bluetooth® function and wireless LAN function). Microwaves emitting from this device may affect the operation of other devices. Do not use this device in the following locations.
– in medical institutions such as hospitals
– in crowded places such as a crowded train
– in airplanes
If there are any problems, do not use the wireless function. Turn off the device immediately in the case of an emergency.
• Do not insert a foreign object in the terminal. The terminal may short out and cause the device to malfunction.

On placement
• Do not place the device in any of the following locations:
– Where there is an excessively high temperature or low temperature
– Near heat sources
– A place subject to direct sunlight, moisture, excessive dust, or excessive mechanical shock
– In a car with closed windows (especially during the summer)
– A sandy place
– A place which causes the device to distort or malfunction
• Align the connected USB cable properly. If the cable is caught in your legs or other part of your body, it may cause the device fall down or may cause you to fall.

On operation
• Those who do not apply to the following conditions will not be able to use this device.
– The interpupillary distance is 54.5mm (2 1/4 in) to 72.5mm (2 7/8 in).
– The head width is 14.5cm (5 3/4 in) to 17cm (6 3/4 in).
• If you are not able to use the device even if you adjust nose pads, consult a contact shown on the supplied warranty.
• The displayed images appear to be about 8 meters away. You will not be able to see these images clearly if you cannot see subjects that are 8 meters away clearly with the naked eye or contact lenses. Also, you may not be able to see these images clearly with contact lenses such as bifocal lenses.
• Note that you may feel display is dazzling when your surroundings get dark.
• If the controller of the device is used near a smartphone, communication of the camera function and wireless LAN may not be available. In such a case, use the controller at a distance from the smartphone.
• The device may be malfunctioning when the whole displayed images turn green, regardless of the function of the application currently being used.
• Do not use the device in a location subject to water, smoke, steam, or excessive dust. Using in such location may cause fire or electric shock.
• Do not use the device during exercise subject to excessive force.

On cleaning
• Do not use sprays or aerosols with flammable gas for cleaning and lubrication. Using these objects on the device may cause an explosion or fire due to sparks from contact with the switch or static electricity, or contact with hot parts.
• Do not use liquid solutions, such as lenscleaning fluid, water, or alcohol-based cleaners.
• Do not rinse the device with liquids such as water.
• Do not use an ultrasonic cleaner or other cleaning equipment. If the device gets wet, stop using immediately.

On copyright
• Television programs, films, videotapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provisions of the copyright laws.

On handling product
• To prevent accidentally swallowing of the device parts, do not put them in your mouth.
• Do not put the device in the fire.
• Subjecting the device to excessive shock or force, or leaving the device in a location subject to direct sunlight may cause the display to become skewed. Using the device with a skewed display may cause eye strain. Check the device following the instructions of "Confirming the Displayed Images" in the Help Guide (Web manual). If you confirm that the display is skewed, consult a contact shown on the supplied warranty.
• Handle the device carefully to avoid smears or scratches. If the display becomes dirty, wipe it gently with a soft lenscleaning cloth.
• There may be a difference between the image shot with the camera of the device and actual subject, or there may be a difference in the uniformity of the brightness in images.

• The device's camera is fixed focus system and there may be difficulty to focus on close subjects.
• The operating temperature of the device is from 5°C to 35 °C (41 °F to 95 °F). We recommend that you do not use the device in an environment outside the operating temperature.
• Charge the battery in an environment with an ambient temperature of 10°C to 30°C (50 °F to 86 °F). The charging efficiency may decrease in an environment outside this temperature.
• The device is not waterproof. Keep liquid away from the device. Special care should be taken when using the device in a rainy, snowy, or humid location, and in a sweaty environment. Please do not let the device fall from your pocket in the washroom. Handling the device with wet hands may cause a malfunction.
• Do not subject the device shock. Doing so may break the glass and cause injury due to broken pieces. If the glass breaks, stop using immediately and do not touch any broken glass.
• Do not disassemble or alter the device. Doing so may cause a malfunction or electrical shock. To change the rechargeable battery, or to inspect or repair the device's interior, consult a contact shown on the supplied warranty.
• Do not insert liquid such as water or a foreign object in the device. Do not use the device in a location where the device is exposed to water or moisture. Do not place objects filled with liquids, such as vases, on the device. If any liquid or foreign object gets inside the device, stop using immediately and consult a contact shown on the supplied warranty.
• Do not cover the device with a cloth or do not put the device where heat release is blocked, such as on a blanket, carpet, or in a bookcase or built-in cabinet. This may cause a fire and electric shock, or distortion of the device.
• Do not hold the controller in your hand for a long time. It may cause inflammation or blisters. People with sensitive skin should be particularly careful.
• Pay attention not to damage your eye with the tip of the vine when putting on or removing the device. Also, be careful not to pinch your fingers in the hinge.
• When the air is dry, you may feel the pain and tingling in your ears and nose. This is not malfunction of the device. It is due to static electricity stored in the human body. If you dress in clothes made of natural materials, static electricity may be reduced.
• When charging or using for a long time, the temperature of the device may raise. This is not a malfunction.

On battery
• If the device will not be used for an extended period, the duration of the rechargeable battery may shorten. Repeating discharging and charging of the battery a few times makes the duration sufficient.
• If the device will not be used for an extended period, recharge the battery every six months to eliminate battery degradation.
• If you do not use the device for a long time, it may take longer to charge.
• When the operation time with the rechargeable battery fully charged becomes almost half of what it originally was, the battery has probably worn out. Consult a contact shown on the supplied warranty for information about replacing the battery.

Others
• Stop using the device if you feel sick.
• Stop using the device if you feel discomfort on your skin and consult to doctor.
• Pay attention to your surroundings when shooting images with the camera.
• There may be slightly defective pixels or bright dots in the displayed images. This is not a malfunction.
• Do not dispose the device with household waste. As the lithium-ion rechargeable battery is built-in in the device and there may be a risk of heat generation, fire, or explosion due to shock or pressure during collecting waste. When disposing the device, first remove the lithium-ion rechargeable battery from the device according to the instructions in "When disposing the device" of this manual (back side), and then follow your local environmental laws and guidelines.
• If you have any questions or problems concerning this device that are not covered in this manual, Startup Guide, or Help Guide (Web manual), please consult a contact shown on the supplied warranty.

What is Bluetooth wireless technology?

Bluetooth wireless technology is a short-range wireless technology that enables wireless data communication between digital devices, such as a computer and digital camera. Bluetooth wireless technology operates within a range of about 10 m (about 30 ft).

Connecting two devices as necessary is common, but some devices can be connected to multiple devices at the same time.

You do not need to use a cable for connection, nor is it necessary for the devices to face one another, such is the case with infrared technology. For example, you can use such a device in a bag or pocket.

Bluetooth standard is an international standard supported by thousands of companies all over the world, and employed by various companies worldwide.

Maximum communication range

Maximum communication range may shorten under the following conditions.

- There is an obstacle such as a person, metal, or wall between this device and the Bluetooth device.
- A wireless LAN device is in use near this device.
- A microwave oven is in use near the device.
- A device that generates electromagnetic radiation is in use near this device.

Interference from other devices

Because Bluetooth devices and wireless LAN (IEEE802.11b/g/n) use the same frequency, microwave interference may occur and resulting in communication speed deterioration, noise, or invalid connection if this device is used near a wireless LAN device. In such a case, perform the following.

- Use this device at least 10 m (about 30 ft) away from the wireless LAN device.
- If this device is used within 10 m (about 30 ft) of a wireless LAN device, turn off the wireless LAN device.

Interference to other devices

Microwaves emitting from a Bluetooth device may affect the operation of devices, such as electronic medical equipment. Turn off this device and other Bluetooth devices in the following locations, as it may cause an accident.

- in a hospital, train, airplane, or a gas station where inflammable gas is present
- near automatic doors or a fire alarm

Notes

- To be able to use the Bluetooth function, the Bluetooth device to be connected requires the same profile as the system's.
Note also that even if the same profile exists, devices may vary in function depending on their specifications.
- Due to the characteristic of Bluetooth wireless technology, the sound played on this device is slightly delayed from the sound played on the Bluetooth device during talking on the telephone or listening to the music.
- This device supports security capabilities that comply with the Bluetooth standard to provide a secure connection when the Bluetooth wireless technology is used, but security may not be enough depending on the setting. Be careful when communicating using Bluetooth wireless technology.
- We do not take any responsibility for the leakage of information during Bluetooth communication.
- A device featuring the Bluetooth function is required to conform to the Bluetooth standard specified by Bluetooth SIG, and be authenticated. Even if the connected device conforms to the above mentioned Bluetooth standard, some devices may not be connected or work correctly, depending on the features or specifications of the device.
- Communication may be interrupted depending on the Bluetooth device connected with this device, the communication environment or the usage environment.

Specifications

Bluetooth

Communication system

Bluetooth Specification version 3.0

Output

Bluetooth Specification Power Class 2

Compatible Bluetooth Profiles

HFP (Hands-free Profile)

SPP (Serial Port Profile)

Wireless LAN

Communication system

IEEE802.11b/g/n

Power, general

Display:

Type

Binocular, see-through

Resolution (horizontal × vertical)

419 × 138 pixel

Field of view (horizontal × vertical)

Diagonal 20° (19° × 6°)

Display color

Monochrome (green)

Color depth

8 bit

Maximum brightness

1,000 cd/m²

Connecting terminal

Micro USB terminal

Camera

Still images: 3 Megapixels

Movies: VGA (640 × 480) 15 fps

Sensor

Accelerometer, Gyroscope, Electronic compass, Brightness sensor, Microphone, Noise suppression sub microphone

Sound

Speaker

Battery life *1*2*3

When the camera is not used: Approx. 2 hours with continuous use

When the camera is used: Approx. 1 hour with continuous use

*1 When using the device under the following conditions.

- The displayed images are always on.

- The setting of the display brightness is the default.

*2 May differ depending on the ambient temperature or application usage.

*3 When you connect to the wireless LAN, battery life becomes shorter even if the camera is not used.

Power

Lithium-ion battery

Maximum charge voltage: 4.25 V DC

Maximum charge current: 0.9 A

Operating temperature

5 °C to 35 °C (41 °F to 95 °F)

Mass

Eyewear: Approx. 77 g (2.7 oz) (excluding the cable)

Controller: Approx. 45 g (1.6 oz) (excluding the cable)

Dimensions

Eyewear:

Folded: Approx. 180 mm × 39 mm × 63 mm (7 1/8 in × 1 9/16 in × 2 1/2 in) (w/h/d)

Unfolded: Approx. 180 mm × 39 mm × 182 mm (7 1/8 in × 1 9/16 in × 7 1/4 in) (w/h/d)

Controller: Approx. 54 mm × 21 mm × 60 mm (2 1/4 in × 27/32 in × 2 3/8 in) (w/h/d) (excluding projected parts)

Cable: Approx. 53 cm (20 7/8 in) (length)

Supplied accessories

Micro USB cable (1)

Carrying case (1)

Dark Filter (1)

Camera cover sheet (1)

Startup Guide (1)

Reference Guide (1)

Warranty (1)

Optional accessories

USB AC adaptor AC-UD20 (recommended)

Design and specifications are subject to change without notice.

When disposing the device

For environment protection, remove the built-in lithium-ion rechargeable battery from the device.

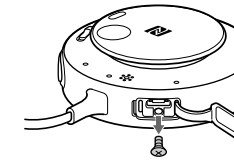
Before removing the rechargeable battery, drain the battery by disconnecting the micro USB cable and using the device only with the battery.

Do NOT open the controller other than when disposing the device.

1. Turn off the device and disconnect the micro USB cable if connected.

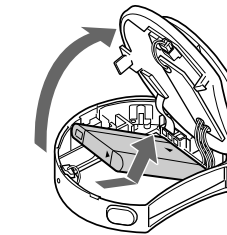
2. Open the micro USB connector cover and remove the screw with a Phillips screw driver.

Use a Phillips screwdriver such as a precision screwdriver which suits the screw size.



3. Remove the rear of the controller.

4. Take the rechargeable battery out from the device.



Trademarks

- SmartEyeglass is a trademark or registered trademark of Sony Corporation.
- Xperia is trademark or registered trademarks of Sony Mobile Communications AB.
- Android™ and Google Play™ are trademarks or registered trademarks of Google Inc.
- The Bluetooth® word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Sony Corporation is under license. Other trademarks and trade names are those of their respective owners.
- The N Mark is a trademark or registered trademark of NFC Forum, Inc. in the United States and in other countries.
- Tweet, Twitter, the Twitter logo, the Twitter bird, and the Twitter “t” are trademarks or registered trademarks of Twitter, Inc.

Other trademarks and trade names are those of their respective owners.

