

CAUTION

Notice for customers: the following information is only applicable to equipment sold in countries applying EU directives

This product has been manufactured by or on behalf of Sony Corporation, 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan. Inquiries related to product compliance based on European Union legislation shall be addressed to the authorized representative, Sony Deutschland GmbH, Hedelfinger Strasse 61, 70327 Stuttgart, Germany. For any service or guarantee matters, please refer to the addresses provided in the separate service or guarantee documents.

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).



Hereby, Sony Corp., declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. For details, please access the following URL : <http://www.compliance.sony.de/>

This equipment has been tested and found to comply with the limits set out in the EMC regulation using a connection cable shorter than 3 meters.



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.



Disposal of waste batteries (applicable in the European Union and other European countries with separate collection systems)

This symbol on the battery or on the packaging indicates that the battery provided with this product shall not be treated as household waste.

On certain batteries this symbol might be used in combination with a chemical symbol. The chemical symbols for mercury (Hg) or lead (Pb) are added if the battery contains more than 0.0005% mercury or 0.004% lead. By ensuring these batteries are disposed of correctly, you will help prevent potentially negative consequences for the environment and human health which could otherwise be caused by inappropriate waste handling of the battery. The recycling of the materials will help to conserve natural resources.

In case of products that for safety, performance or data integrity reasons require a permanent connection with an incorporated battery, this battery should be replaced by qualified service staff only. To ensure that the battery will be treated properly, hand over the product at end-of-life to the applicable collection point for the recycling of electrical and electronic equipment.

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.

Precautions

On health

- Some people may experience discomfort (such as eye strain, fatigue, nausea, or motion sickness) when 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. Please use at your own discretion. If you experience any discomfort, you should stop using the device until the discomfort ends; consult a doctor if you believe necessary. This product is not intended for use by children, therefore, children should not use it.
- Avoid using the device in vehicles or environments where strong vibrations or strong acceleration may occur, because there is a higher possibility that you experience discomfort.
- If you experience any discomfort on your skin, you should stop using the device; consult a doctor or visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative, if you believe necessary.
- 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 or operating a car, motorcycle, motorized bicycle, ship, boat, train, aircraft, any other vehicle or heavy machinery. It may be a cause of an accident or it may be against the law.
- Pay attention to your surroundings, such as traffic and road surface conditions, when walking.
- When using the device, give your eyes a chance to adjust to the change in view. Pay careful attention to your surroundings while wearing the device.
- Pay attention to your surroundings when shooting images with the camera.

- This device has built-in wireless capability (Bluetooth® function and wireless LAN function). Microwaves emitted from this device may affect the operation of other devices. Do not use this device in the following locations.
 - in medical facilities such as hospitals
 - in crowded places such as a crowded train
 - in airplanes
 - near automatic control equipment such as automatic doors and fire alarm equipment
- If there are any problems, do not use the wireless function. Turn off the device immediately in the case of an emergency.

On photos and copyright

- You should only take photos in environments where you are permitted to do so. You should always get permission from your subject before taking photos.
- Various countries have laws regulating taking photos of people or things. It is your responsibility to make sure you comply with applicable laws when using the product.
- 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.

No compensation for damaged content or recording failure

- Sony cannot compensate for failure to record or loss or damage of recorded content due to a malfunction of the camera or recording media, etc.

On placement

- Do not place the device in any of the following locations:
 - Where the temperature is extremely high or low
 - 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

On operation

- This device may not be able to be used by people whose interpupillary distance is outside the 54.5mm to 72.5mm range.
- If you are not able to use the device even if you adjust the nose pads, visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.
- 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 bifocal contact lenses.
- Note that you may feel like the display is dazzling when your surroundings become dark.
- There may be a difference between the image shot with the camera of the device and the actual subject, or there may be a difference in the uniformity of the brightness in images.
- The device's camera comes with a fixed focus system and it may be difficult to focus on close subjects.
- If the controller of the device is too close to a smartphone, photo data transmission and wireless LAN communication may not be available. In such a case, use the controller at a distance from the smartphone.
- If the whole displayed image turns green, even if you change to another application, the device may have malfunctioned. Visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.
- Do not use the device in a location subject to water, smoke, steam, or excessive dust. Use in such a location may cause fire or electric shock.
- Do not use the device during extreme exercise.
- Align the connected USB cable properly. If the cable gets caught in your legs or other parts of your body, it may cause the device to fall down or may cause you to fall.

On handling the product

- To prevent accidental swallowing of the device parts, do not put them in your mouth.
- Do not burn or put the device in fire.
- Do not dispose of the device with household waste. As the lithium-ion rechargeable battery is built-in to the device, there may be a risk of heat generation, fire, or explosion due to shock or pressure during collecting waste. When disposing of the device, first remove the lithium-ion rechargeable battery from the device according to the instructions in "When disposing of the device" of this manual, then follow your local environmental laws and guidelines.
- Subjecting the device to excessive shock or force 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 Screen Alignment" in the Help Guide (Web manual). If you confirm that the display is skewed, visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.
- The operating temperature of the device is from 5°C to 35 °C. 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. The charging efficiency may decrease in an environment outside this temperature.
- The device is not waterproof. Keep liquids away from the device. Special care should be taken when using the device in rainy, snowy, or humid locations, and in a perspiring environment. Please do not let the device fall into water, such as a bathtub or washbasin. Handling the device with wet hands may cause a malfunction or shock.
- Do not subject the product to a shock of any kind. Doing so may break the glass and cause an injury due to broken pieces. If the glass breaks, stop using immediately and do not handle any broken glass with bare hands, and especially without proper protection.
- Do not wind the cable of the controller around the eyewear or controller. It may cause a malfunction.
- 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, visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.
- Do not insert liquid such as water into 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 gets inside the device, stop using the device immediately and visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.

- Do not insert a foreign object in the terminal. The terminal may short out and cause the device to malfunction.
- While the device is charging or running, do not cover the device with 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 low-temperature burns or blisters. People with sensitive skin should be particularly careful.
- Pay attention not to damage or poke your eye with the tip of the temple 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 pain and tingling in your ears and nose. This is not a 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 periods of time, the temperature of the device may rise. This is not a malfunction.
- There may be slightly defective pixels or bright dots in the displayed images. 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 a fully charged rechargeable battery becomes almost half of what it originally was, the battery has probably worn out. For information about replacing the battery, visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.

On cleaning

- Handle the device carefully to avoid smears or scratches. If the display becomes dirty, wipe it gently with a soft lens cleaning cloth.
- 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 lens cleaning 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.

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 visit the Customer Support website (shown at the end of this manual) to consult with a Sony representative.

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

NFC

Communication system
NFC Forum Type 3 Tag compliant

Power, general

Display:
Type
Binocular, see-through (transmittance 85% or more)

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

Connector
Micro USB port

Camera
Still images: 3 Megapixels

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

Sound
Speaker

Battery life *1*2*3*4
When the camera is not used: Approx. 150 minutes with continuous use
When the camera is used: Approx. 80 minutes 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.
- *4 The battery life may vary depending on your smartphone.

Power
Lithium-ion rechargeable battery
Maximum charge voltage: 4.25 V DC
Maximum charge current: 0.9 A

Operating temperature
5 °C to 35 °C

Storage temperature
-15 °C to 50 °C

Mass
Eyewear: Approx. 77 g (excluding the cable)
Controller: Approx. 45 g (excluding the cable)

Dimensions
Eyewear:
Folded: Approx. 180 mm × 39 mm × 72 mm (w/h/d)
Unfolded: Approx. 180 mm × 39 mm × 182 mm (w/h/d)
Controller: Approx. 54 mm × 21 mm × 60 mm (w/h/d) (excluding projected parts)
Cable: Approx. 63 cm (length)

Supported OS
Android 4.4 or later

Supplied items

- Micro USB cable (1)
- Carrying case (1)
- Dark Filter (2)
- Camera cover sheet (1)
- Nose pad (small) (1)
- Startup Guide (2)
- Reference Guide (1)
- Warranty (1)

Design and specifications are subject to change without notice.

When disposing of 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 use the device only with the battery.

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

1. Turn off the device and disconnect the micro USB cable if connected.
2. Open the → micro USB port cover and remove the screw with a Phillips screwdriver.



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

3. Remove the rear side of the controller.



4. Take the rechargeable battery out from the device.

Trademarks

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For frequently asked questions and support contact information, visit the following website:
Customer Support
<http://developer.sonymobile.com/products/smarteyeglass/support>

For use by developers in testing and creation of applications for SmartEyeglass platform.

Diese Anleitung richtet sich an Entwickler, die mit dem Testen und Erstellen von Apps für die SmartEyeglass-Plattform betraut sind.

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SED-E1

English

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 (instruction manual)
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/h_uce/



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

