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# USE and MAINTENANCE MANUAL

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## GlassUp F4

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GlassUp F4

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## Informative letter

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This instruction and maintenance manual is an integral part of GlassUp F4 eyewear and must be easily available to the staff in charge of its installation and maintenance. The user must know the content of this manual. The descriptions and the pictures it contains are not to be considered as binding.

Although the main features of the equipment described in this manual are not subject to change, GlassUp reserves the right to change any part, detail and accessory it deems necessary to improve the glasses, or for manufacturing or commercial requirements, at any time and without being obliged to update this manual immediately.



**WARNING**

**ALL RIGHTS ARE RESERVED ACCORDING TO THE INTERNATIONAL COPYRIGHT CONVENTIONS,**

the reproduction of any part of this manual, in any form, is forbidden without the prior written authorization of GlassUp.

The content of this guide can be modified without prior notice. Great care has been taken in collecting and checking the documentation contained in this manual to make it as complete and comprehensible as possible.

Nothing contained in this manual can be considered as a warranty, either expressed or implied - including, but not limiting the suitability warranty for any special purpose.

Nothing contained in this manual can be interpreted as a modification or confirmation of the terms of any purchase contract.

GlassUp F4

In case of damages or uncorrect operating, please contact GlassUp Customer Care Technical Service at the following address:

**GlassUp Technical Service**

Via Alfeo Corassori, 72  
41124 Modena (MO), Italy  
[www.glassup.net](http://www.glassup.net)  
Tel.: +39 059 7879243




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## Symbols used

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The operations which can be dangerous if they are not carried out correctly are indicated with this symbol.

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## Warranty

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GlassUp F4 glasses have a 12 month warranty from the date of the invoice for companies or workers with VAT number, unless otherwise stated in writing.

The warranty covers all manufacturing and material defects. Replacements and repair operations are covered only if carried out by our company and at our servicing shop. In case of return for repair under warranty, the customer must always send the glasses to GlassUp.

The material to be repaired will have to be sent CARRIAGE FREE.

Once the device has been repaired, it will be sent to the customer CARRIAGE FORWARD.

The warranty does not include:

- ☞ failure caused by wrong use or assembly,
- ☞ failure caused by external agents,
- ☞ failure caused by lack of maintenance or carelessness

### WARRANTY FORFEITURE:

- ☞ in case of arrearage or other breaches of contract,
- ☞ whenever the seals are broken,
- ☞ whenever changes or repairs are carried out on our glasses without our prior authorization,
- ☞ whenever the damage is caused by improper use, bad treatment, bumps, falls and other causes not due to normal working conditions,
- ☞ whenever the device seems tampered with, dismantled or previously repaired by unauthorized staff.

The repairs under manufacturer's warranty do not interrupt it.

**All disputes will be settled in the court of justice of Modena (Italy).**

We thank you in advance for the attention you will pay to this manual and we invite you to inform us of any improvement you will think necessary to make it more complete.

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## Introduction to our company

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The company is marked by the continuous search of brand new ideas to be developed. This business is centred on new innovative ideas, curiosity and research are the main characteristics of every project developed by our team.

GlassUp is also creativity and passion for details. These elements are perfectly integrated in order to work for innovation in the eyewear sector.

Operators and employees in logistics, quality check and safety departments can have access to advanced technologies optimizing timing and performances for industrial machine maintenance.

GlassUp services and technologies allow companies enhancing productivity, reducing maintenance timing and costs, optimizing training results and increasing safety standards at work.

(The management)

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## Product description

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GlassUp F4 glasses are full color monocular, with a 22° FOV and are provided with the following systems:

- LED
- onboard videocamera
- thermographic camera
- lighting system
- safety lenses

The safety lenses guarantee more security and protection.

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## Content and Optional

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The glasses are supplied with a USB socket type C and a 3.5 headphone jack (placed on the lower right part of the glasses).

The glasses packaging contains also a battery charger, a charging cable, headphones and a soft cloth to clean the lenses.

Furthermore, GlassUp offers the following **Optional**:

- Neoprene foam
- Headset with headband
- Lenses of different colours (transparent, grey, dark)

For further information about the available optional, please contact GlassUp team and the dealer.



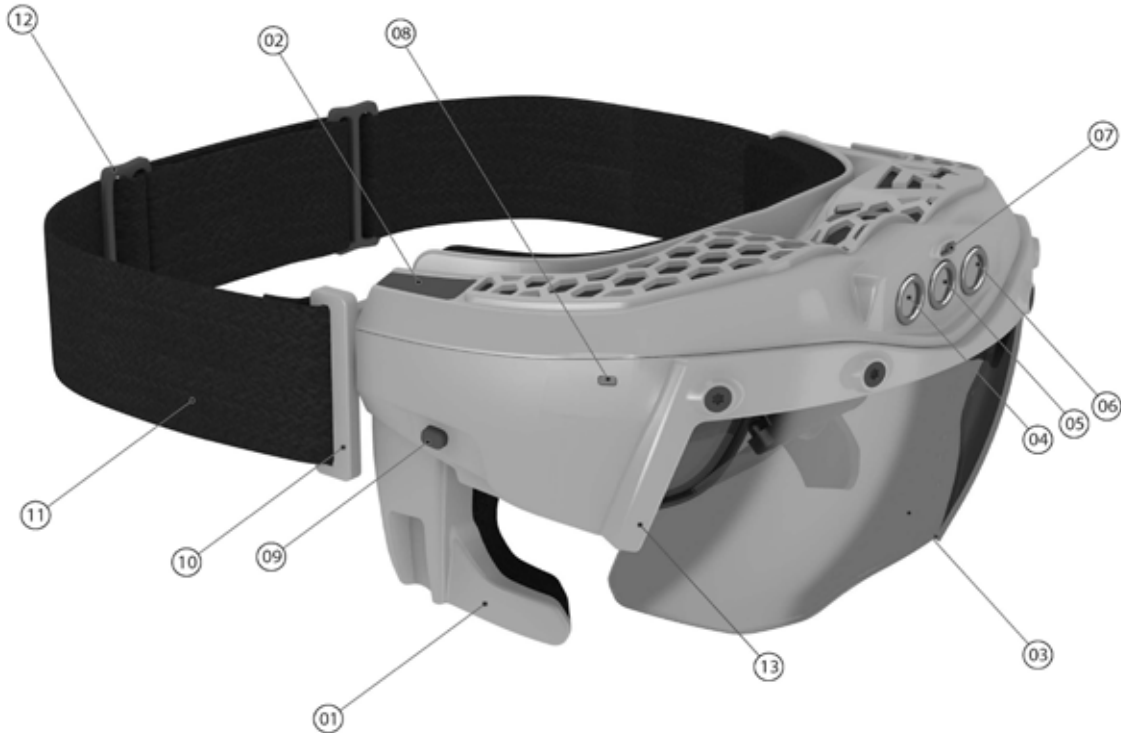
GlassUp F4



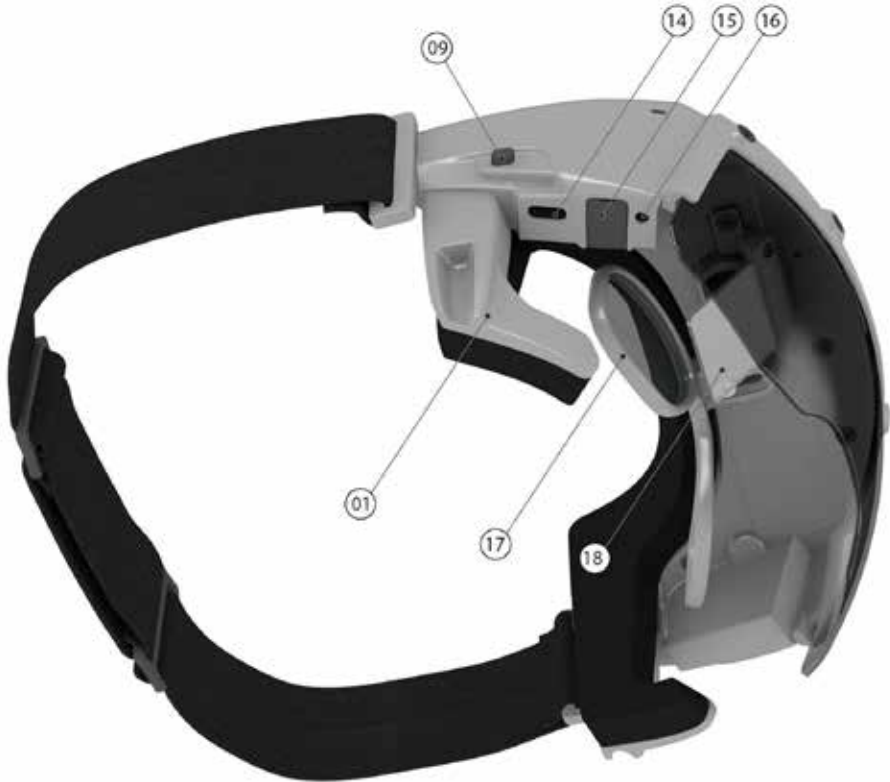


GlassUp F4

GlassUp F4



- 1) Cheekbone protection
- 2) SD Card input
- 3) Front protection lens
- 4) Videocamera
- 5) Lighting LED
- 6) Thermographic camera (if any)
- 7) Lux sensor
- 8) LED indicating active videocamera
- 9) Push button
- 10) Elastic band clip
- 11) Elastic band
- 12) Band size adjustment
- 13) Frame supporting the front protection lens
- 14) USB input





- 15) Audio Jack 3.5 input
- 16) Status LED
- 17) Clipon
- 18) Combiner
- 19) Heat sink
- 20) Foam



## Technical features

GlassUp F4 glasses guarantee considerable precision. Optimize the vision, speed up processes and increase safety standards are the main goals reached by GlassUp with F4 glasses. GlassUp F4 is the first model of augmented reality eyewear for the industrial field.

F4 glasses were completely designed and manufactured in Italy, combining high technology and design, with a special attention to safety and comfort.

GlassUp F4

GlassUp F4	TECHNICAL FEATURES
<b>OPTICAL</b>	
Display	Right eye
LCD Display Driving Method	Color filter Active Matrix LCD
LCD Display Size	0,35"
Aspect Ratio	04:03
LCD Display Pixel Number	640x480 (VGA)
Color	Full Color
Field of View	22°
Screen Size (Projected Distance)	70" a 5 m
Interpupillar distance	55 mm - 71 mm range
Lenses	Light Brown / Gray / Transparent
<b>CONTROLS</b>	
Joypad	9 push buttons
Controls	Power on/off, Factory Reset
<b>SOFTWARE</b>	
OS on Board	Linux
SDK	Android, iOS, Windows, Unity
<b>ELECTRONICS</b>	
Processor	Cortex A9
Videocamera	Full Color, 5 Mega Pixel, 15 FPS
I2C Plug in	32x32 thermographic camera
Sensors	9 axis accelerometer+gyroscope, bush, temperature, lux sensors
SD Card Memory	8GB
Connectivity	WiFi, Bluetooth®
Battery Type	Li-Polymer 5000mAh
Battery Duration	8h
Power Supply AC Adapter (Charger)	100-240 V AC, 50/60 Hz Input; DC5V 0,5 A min Output (included)
Cable	USB 2.0 to USB type C, 1m (included)
<b>GENERAL</b>	
Operating Temperature	5-35°
<b>DIMENSIONS</b>	
Glasses (W×L×H)	180x100x100 mm
External Box (W×L×H)	130x85x30 mm
<b>LANGUAGES</b>	
OSD	English
Apps	Default Application language
Manual	Italian, English, Spanish, Chinese
<b>ACCESSORIES</b>	
Head Support	Elastic Band
Packaging	Headphones

**Field of application**

After about two years of studies in the research and development field, F4 glasses can nowadays cover a wide range of functions, like indoor navigation for logistics aims, e-learning/on the job training, danger detection thanks to an onboard infrared videocamera.

Moreover, since the eyewear is supplied with its own OS (Linux based), the image recognition skills – eventually applicable to quality check or safety systems – are almost infinite.

The **teleservice** app awakes a particular interest. By means of the onboard videocamera and through a proper desktop application developed by GlassUp, remote operators can visualize on videostreaming worker's point of view while on the job. This allows the operator to correctly give instructions to the worker regarding the maintenance.

This type of use implies a **reduction of costs for the maintenance of industrial machines**, that might notoriously have the highest impact on business expenses.



GlassUp F4

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## General safety rules

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This section describes the minimum safety rules that must be followed by the user in order to use the glasses.

### WARNING

Use the product at the prescribed supply voltage.

Use the provided USB cable and AC adapter. The use of a USB cable or an AC adapter different from the ones provided may cause overheating, explosion, malfunction or leaks of liquids.

When using the plug follow the indications below, in order to avoid fire or electric shock.

- Do not insert the AC adapter in a socket where other devices are already connected
- Do not insert the plug in a dusty socket
- Do not hold the plug with bare hands

Do not use the power cable (USB cable provided) if damaged, as it may result in a risk of fire or electric shock.

- Do not modify the power cable
- Do not place heavy objects on the power cable
- Do not bend, twist or pull the power cable with excessive force
- Keep the power cable away from overheated electric devices

Disconnect the product when it is not used.

Do not leave the glasses in a spot exposed to direct sunlight for a long time. Otherwise the sunlight may cause fire or explosions.

Do not leave the glasses with the lenses against any supporting surface or worktop, to avoid accidental damages.

Do not place the glasses next to any heat source.

Do not disassemble the product.

Where any of the following conditions occur, turn the product off immediately, disconnect the power cable and contact GlassUp Customer Care Technical Service.

- In case of any abnormality including smoke, strange smells or noises
- In case water or external objects are inside the product
- In case the housing is damaged

DO NOT try to repair the product by yourself.

Do not use the glasses for a purpose other than the ones specified in the use and maintenance manual.

### **PRECAUTIONS TO USE THE WIRELESS FUNCTION**

- Do not use the product in areas where the electromagnetic waves are forbidden (for example on an airplane, at the hospital).
- Do not use Bluetooth or LAN wireless function near automatic control devices such as automatic doors or fire alarms.
- The electromagnetic waves may cause electromagnetic interferences with medical devices or their malfunction.



## Use

Before using GlassUp F4 glasses, make sure that the battery is fully charged.

### BATTERY CHARGING and Wi-Fi CONNECTION

The battery is located in an external box, that must be connected to a proper socket by means of its specific power cable (see picture below, point 3).

It is also possible to connect the glasses only to the computer or to other electronic devices (see picture below, points 1 and 2); the glasses will turn on, but you can not get connected to any network (the Wi-Fi connection is in the external box).

Expected time to recharge the battery: about 4 hours

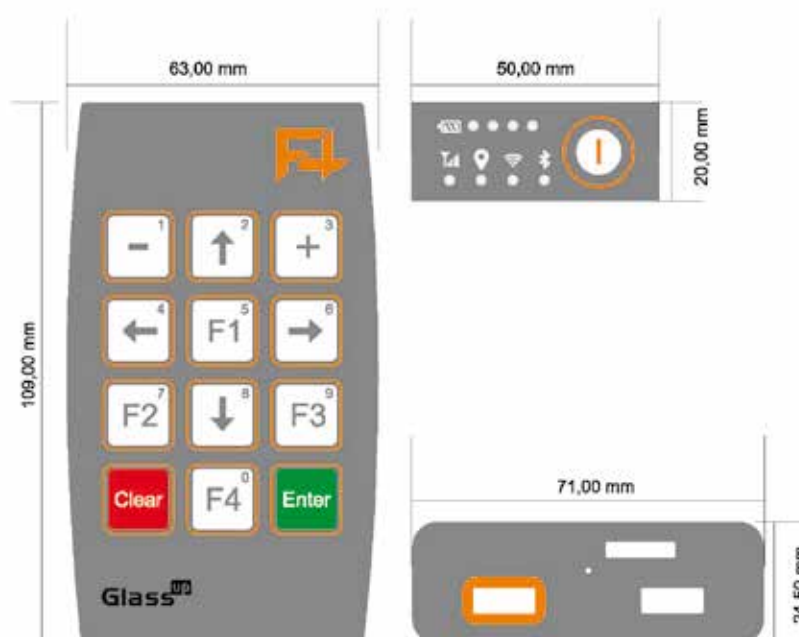
Guaranteed autonomy in normal use conditions: 8 hours

The external box can be connected to the glasses and to the computer at the same time, but in this case the computer is used only to recharge the battery.

The LEDs onboard indicate the phases of viewer lighting.

- during the first lighting moments: blinking red;
- during the main phase of boot: blinking yellow;
- when the glasses are ready: blinking blue

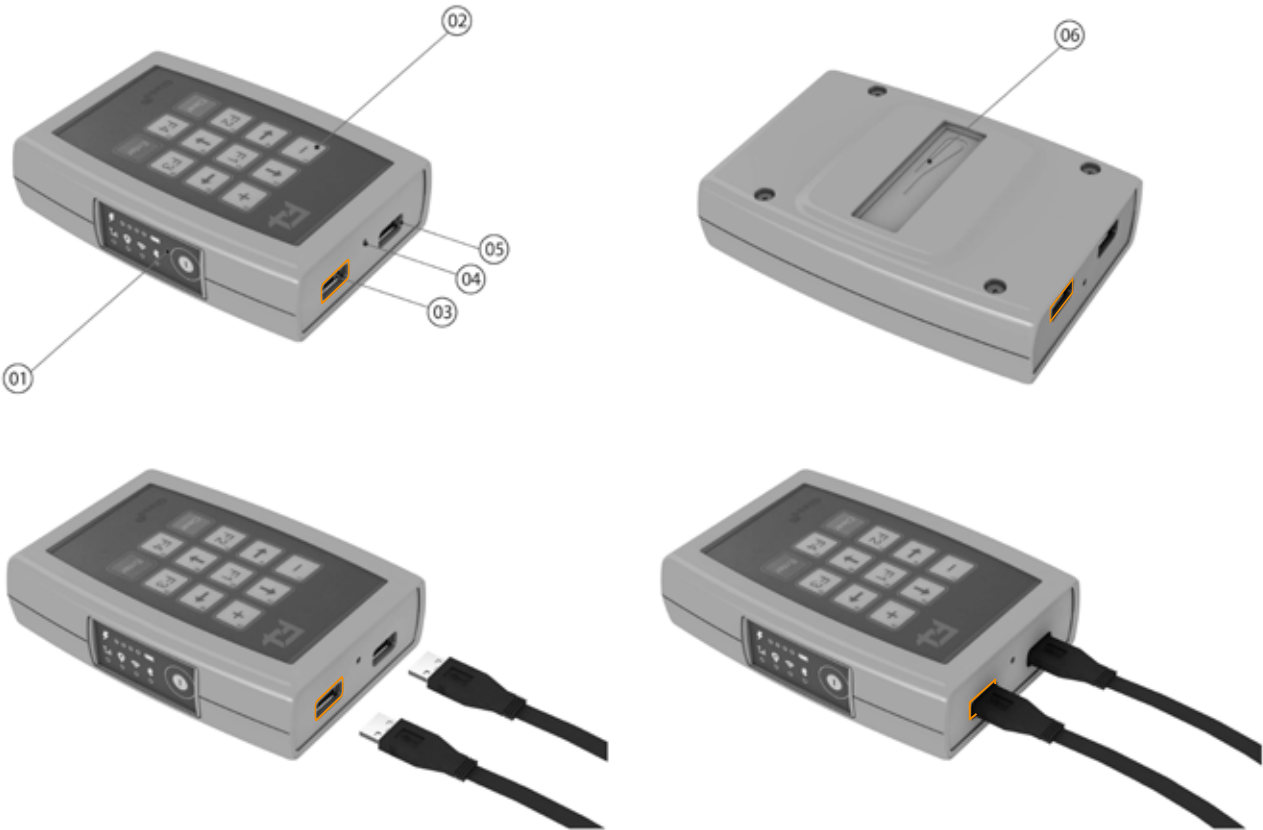
A red LED turns on when the videocamera is on streaming, for privacy reasons.



Some push buttons are placed on the external box to confirm, delete, set and adjust different parameters. F1, F2, F3 and F4 buttons can be set through the software.

A button with the following functions is placed on the right side of the viewer:

- if it is pressed once, it has the same function of "enter" button on the keypad, and can be used for example to get an external call or to give OK to a message
- if it is kept pressed from 10 to 15 seconds (and then released), it resets the glasses Wi-Fi connection back to factory defaults
- it can be set in the same way of keypad buttons, in addition to the reset function



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- 1) Power push button, battery and connectivity LED
- 2) Keypad
- 3) Glasses power USB input
- 4) Reset
- 5) Battery recharge USB input
- 6) Belt clip





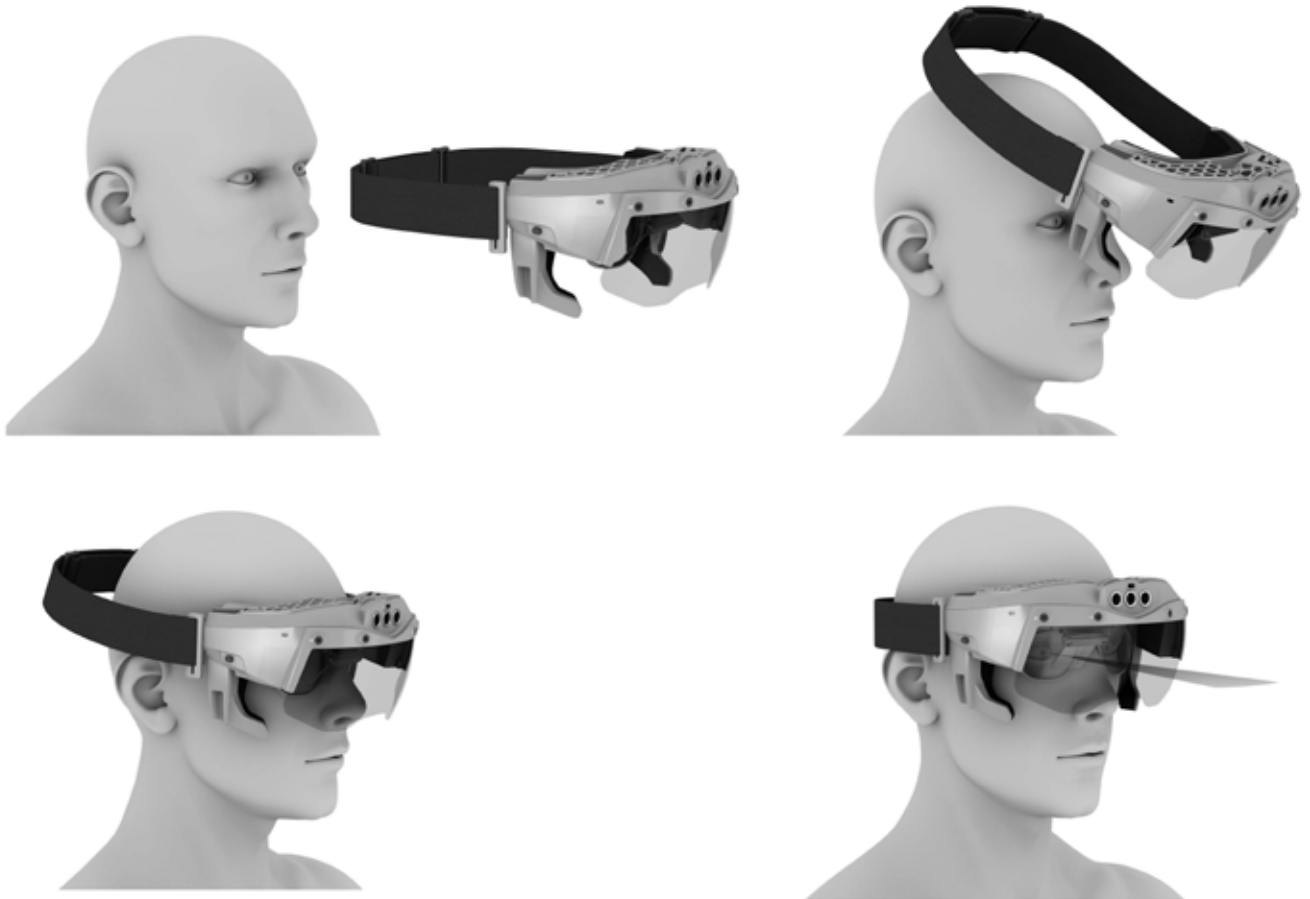
## HOW TO WEAR THE GLASSES

The glasses are provided with an adjustable elastic belt.

The inclination of the mask can be adjusted by means of the proper cheekbone protections.

**WARNING:** Do not use excessive force to enlarge the belt and adjust it correctly.

The external box can be hanged to the belt by means of the proper clip.



GlassUp F4

## FIELD OF VIEW

The augmented reality field of view has a fixed width of 22°.

**WARNING:** Periodically stop viewing the images through the glasses. Using them for long periods may cause eye fatigue. In case the eye fatigue continues even after the break, stop the use of the glasses immediately.

**⚠ WARNING**

Do not use the product in unstable places (for example stairs) and in crowded or dark places. This may cause accidents or injuries.

While viewing the images displayed by the glasses, pay attention to what surrounds you. Accidents may happen caused by dropping or shocks.

Do not handle the product with excessive force. If the glasses should break due to a strong impact, stop the use of the product immediately. Using the glasses after an impact may cause injuries due to broken glass.

Stop the use of the product if the skin gets irritated and consult a dermatologist. The glasses cover or material may cause allergies.

While viewing the images, do not watch the sun or very bright sources directly. This may cause view injuries, even though the eyes are protected by the dark lenses of the glasses.

Do not use the product in case of view problems. This may worsen visual disturbances such as strabismus, amblyopia or anisometropia.

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## Maintenance

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GlassUp F4 The part in foam (or neoprene) is supplied with velcro, that can be removed and washed in the washing machine.

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## Cleaning

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In case you see dust on the image or if the image is blurry, check that there is no dust or any imprint on the lenses.

In case the lenses are dirty or dusty, clean them carefully by means of neutral detergents and dry with a soft cloth.

**⚠ WARNING**

Do not use aggressive agents and/or solvents, such as alcohol or benzene, on the product.

Do not use a wet cloth or solvents to clean the product.

Eventual gaps inside the product may cause malfunctions, explosions or electric shocks.

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## Troubleshooting

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In case of malfunctions, check what follows.

The device does not turn on

- Check if the device is charged
- If the device does not turn on due to discharged battery, the red LED remains turned on while the power push button is kept pressed.
- If the battery is completely discharged, the LED does not turn on immediately after starting the charging phase. Charge for at least 30 minutes.

The device does not visualize the videos or does not allow listening to audio

- Check if the video format is supported
- If the images visualized on the display are without audio, the device could have been set on silent mode

The device does not connect to the network

- Check if the device is connected to the Wi-Fi network

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## Disposal

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Dispose the product in accordance with local regulations.

