

Dorland Industrial Intrinsically Safe Smart Glasses

Quick Guide



Ex_Glasses01

Safety Instructions

Ordinary mobile glasses can not meet the explosion-proof requirements in dangerous places, so they are not allowed to be used in dangerous places that may cause explosion. The areas that may cause explosion include: fuel area (such as under the deck of a ship, transportation and storage facilities for fuel or chemical products), places with chemical substances or particles (such as particles, dust or metal powder) in the air, such as gas stations, oil depots, etc.

The industrial intrinsically safe smart glasses Ex_Glasses01 produced by Beijing Dorland has been certified by the national explosion-proof certification authority, and meets the requirements of GB3836.1-2010 explosive environment Part 1: General requirements for equipment, GB3836.4-2010 explosive environment Part 4: equipment protected by intrinsically safe "I" and GB12476.1-2013 electrical equipment for combustible dust environment Part 1: General requirements and GB12476.4-2010 / IEC61241-11: 2005 electrical equipment for combustible dust environment Part 4: intrinsic safety "iD" standard requirements. It is suitable for zone 1, zone 2, zone 21 and zone 22 of explosion hazard field.

Basic parameters

Explosion-proof grade: Ex ib IIC T5 Gb / Ex ibD 21 T100°C

Certification No.: CCR1 19.2280

Protection grade: IP67

Safety Warning

Safety performance of industrial intrinsically safe smart glasses Ex_Glasses01 can be guaranteed only in strict accordance with the instructions in this section. Please read the instruction carefully before using. If you have any questions, please contact the manufacturer immediately.

Safety Rules

Safety performance of industrial intrinsically safe smart glasses Ex_Glasses01 base the users obey the following rules.

- a) The product can not be used in explosion danger zone 0.
- b) Don't use headset, data cable plug devices in the explosion hazardous areas.
- c) Don't use the flash function in explosion hazardous areas.
- d) Don't use the vibration function of the phone in explosion hazard areas.
- e) Please keep away the high-temperature region when using Ex_Glasses01.

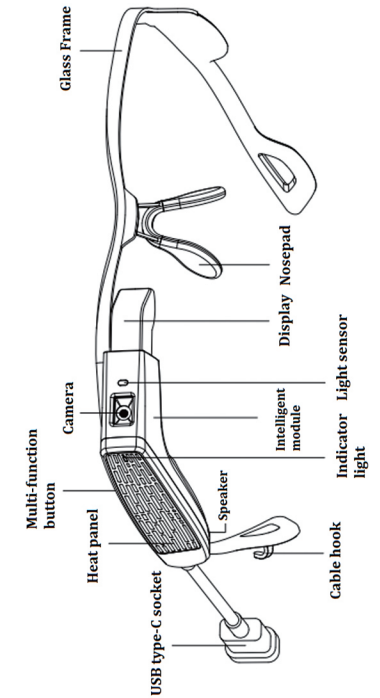
Failure and damage processing

If Ex_Glasses01 has lost its safety performance, please stop using in explosion hazardous areas, and ship the failure glasses back to the manufacturer for testing.

Situations that may cause failure of Ex_Glasses01 explosion-proof performance include the following ones:

- The product shell is damaged;
- Storage place does not meet the storage conditions;
- Damaged during transport;
- Explosion-Proof mark is unrecognized;
- Other functions fail.

Component introduction

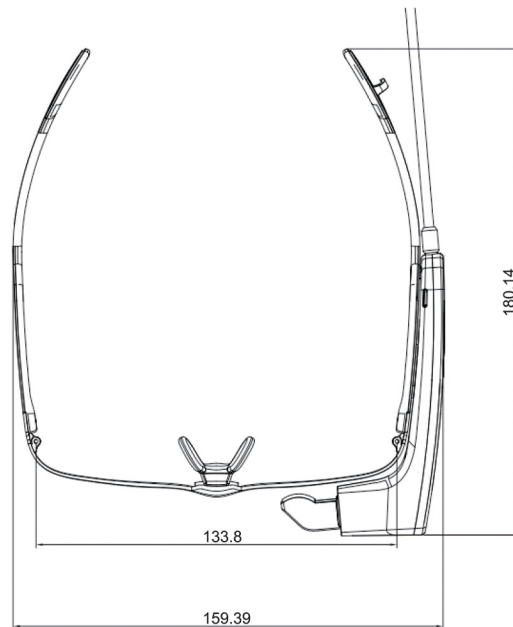


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Ex_Glasses01 Size chart



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Ex_Glasses01 is a robust smart glasses device independently developed by Beijing Dorland System Control Technology Co., Ltd. With versatile functions including HD video shooting, AI recognition, remote video collaboration, etc. In structure, it adopts three-proofing design, which makes it easy to clean and durable; in hardware, glasses is embedded with a power efficient VPU chip, which makes it fast in object detection and recognition with high accuracy; in software, there are a variety of SDKs to support customers' dedicated business.

Ex_Glasses01 connects to android host through USB cable for both power supply and data transmission. Corresponding programs are installed on the android host, which realizes innovative first-perspective human-computer interaction with video, audio, AI content and other data, at the same time liberates the hands of operators. Ex_Glasses01 smart glasses do not have batteries and wireless radiation and is suitable for long-term use.

General introduction

Ex_Glasses01 smart glasses mainly consists of two parts: smart glasses and smart glasses service program (Ex_Glasses01 SDK), which are described below.

Smart glasses use a new type integrated main control chip and embedded vector processor and support localized deep learning and computer vision computing. The camera uses Sony 13-megapixel high sensitivity light sensor, combining with professional ISP image processor to ensure high-quality image data acquisition.

The display part uses an OLED display with a 640x400 pixel dot matrix and refracting plus reflecting resin prism to provide a high-quality near-eye display effect. Smart glasses also contain a speaker and a microphone for sound interaction. In addition, smart glasses are designed with a physical button for quick operation. It connects with intelligent terminal through USB2.0 interface to realize networking, storage, and customized applications.

Ex_Glasses01 service program (Ex_Glasses01 SDK) is a smart glasses develop suite containing Ex_Glasses01 device driver and services. The precondition for running the SDK on a mobile phone is that the phone system should be with Android version higher than 5.1 and with OTG function. Please make sure that this APP is resident in memory and trusted by the system and would not be cleared when it's hibernating. If the APP developed by users tries to obtain the resources of Smart Glasses by calling the services of Ex_Glasses01 Suite, such APP needs to be monitored for service validity in order to perform exception handling when the service is lost.

Ex_Glasses01 SDK is divided into basic version and pro version. The basic version has simple functions, only including audio, video and data interaction related API interfaces, which is suitable for the use of audio and video interaction scenarios; the pro version has AI capabilities, including all the functions of the basic version, as well as the deep learning framework (Laffe) and the attached face2.0 human face detection, tracking and recognition model. Laffe framework enables third-party models to run on glasses to meet customization requirements. The face 2.0 algorithm model can capture face continuously, which is suitable for police, bank and other scenes requiring face recognition.

Appearance



Shown as above, Ex_Glasses01 mainly consists of:

- 1.1 Glasses frame
- 1.2 Intelligent module
- 1.3 Data cable

The Ex_Glasses01 themselves do not have a battery and do not use wireless protocols to communicate with other devices. After the glasses are inserted into the smart terminal or the mobile phone, the smart glasses are powered through the connection cable, and the data connection is performed at the same time. We can also see in the figure above that the camera and the display of the Ex_Glasses01 are in the front position close to the human eye for easy viewing. The smart glasses adopt magnetic design between the intelligent module and the glasses frame for easy wearing and storage. The glasses frame can be adapted to different nose holders, myopia lenses, sunglasses and industrial goggles, and can be worn alone.

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Function introduction

All the functions of the Ex_Glasses01 are designed and optimized for the aims of "Freeing Hands, Increasing Efficiency, Remote Collaboration, and Intelligent Recognition". Different applications can be installed on mobile phone such as cameras, facial recognition, and remote collaboration for corresponding application. Users can transmit and upload the videos and photos shot by Ex_Glasses01 by operating in mobile phone app.

APP name	Function	Note
Camera	Snapshot, video record	Free
Ex_Glass Arise	Dual-way communication, AR mark, message, pictures	Need to purchase accounts
Ex_Glass FORCE	Face detection, recognition, command dispatch	Need to purchase accounts

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Temperature index

The typical working scene of Ex_Glasses01 is continuous video recording or remote video transmission, and the maximum power consumption scene is continuous face detection. The following is the temperature index of each part of the smart glasses. The test conditions are as follows:

- Operating temperature: -20--+50°C
- Storage ambient temperature: -30--+70°C
- Environment humidity: 75%
- Position: Placed on a standard head mold

Ex_Glasses01 temperature is in compliance with following data:

Part (°C)	glass (Finger)	Plastic (Face)	Plastic (Finger)	Metal (Finger)	Scenario
Slight use	40	36	40	40	Standby
Typical use	43	39	45	43	A/V recording
Heavy use	46	42	50	46	Face recognition

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Detailed Specification

Category	Content	Detailed parameters
Model	Ex_Glasses01	
IP Grade	IP67	
Ex-mark	Ex ib IIC T5 Gb / Ex ibD 21 T100°C	
Certification No.	CCRI 19.2280	
CPU	Movidius® Myriad2	2 LEON Cores @600MHz
Memory	512MB DDR3	933MHz PoP
Camera	Photograph	USB 2.0 Take photos with 8 million effective pixels
	Video	USB 2.0 1280x720(16:9) @15/30fps 1920x1080(16:9) @ 15fps
	Camera indicator light	Yes
Voice	Microphone	Single digit microphone
	Speaker	Single speaker
Screen	dpi	640x400 nHD+
	Automatic brightness adjustment	Yes
	Optical structure	Fold the trans prism
	Display module Angle adjustable	Yes
Sensor	Acceleration sensor	Yes
	Geomagnetic sensor	No

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Sensor	Gyroscope	Yes
	Light sensor	Yes
Power supply	Battery	No
	Rated voltage	5V
	Protective voltage	5.83V
	Minimum operating voltage	4.5V
	Rated current	400mAh
	Rated power	2.0W
	Interface	USB type-C
Positive and negative connector		Yes
USB		Yes
Slight use	Frame	Beta titanium alloy frame
	Lens	Resin set lens and lens frame
	Mirror leg	TR90 nylon material
	Nose pads	Resin material
	Tighten belt	Yes
Other	Weight	73g
	Appearance of size	18*15.3*1.9 cm
	Operating temperature	-20--+50°C
	Storage ambient temperature	-30--+70°C
	Drop	1.5m

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Precautions

- Please keep the product away from the magnetic equipment. The radiation of the product may erase the information stored on the magnetic equipment.
- Please do not place the product, battery and charger in appliances with strong electromagnetic field, such as induction cooker and microwave oven, otherwise it may cause circuit failure, fire or explosion.
- Do not place the product, battery and charger in high temperature area or low temperature area, otherwise it may cause the product, battery and charger failure, fire or explosion.
- The working temperature of the product is kept between - 20 °C and 50 °C. If the product is placed in an overheated or supercooled area, the capacity and service life of the product may be reduced. When the temperature is lower than 0 °C, the performance of the product is especially limited.
- When the product touches the ear, please do not turn it on or off, so as not to affect human health.
- In order to comply with the RF leakage regulations, when you wear the product or use its data function, please keep the distance between the antenna and your body at least 1 inch (2.5cm).
- The signal interference of the product may affect the adjacent TV, radio or computer.
- Please comply with the international specification of RF radiation and use the product accessories specified by our company.
- When using this product, please abide by the relevant laws and regulations, and respect the privacy and legitimate rights of others.

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- Before cleaning and maintenance, please turn it off. If it is still connected to the source, you should unplug the charger from the power outlet, and disconnect charger and phone to avoid electric shock, short-circuit of battery or charger.
- Do not disassemble the phone. Only authorized institutions are allowed to repair this product.

Safety warning

- Please turn it off before the phone is close high-precision control electronic equipment, or it may cause electronic equipment failure.
- Equipments will be influenced by the phone include: audiphones, pacemakers, fire alarms, automatic doors and other automatic control equipments. Users who are using electronic medical auxiliary equipment should confirm whether the radio wave will influence it or not with service center of the equipment.
- Pacemaker manufacturers recommend that the distance between the phone and a pacemaker should be kept at least 15 cm to avoid potential interference. Please do not carry the phone in your breast pocket; Please use the different side ear with pacemaker to answer calls to minimize the potential interference.
- Please do not bring the phone into the operating room, intensive care unit (ICU) or coronary care unit (CCU).
- In medical facilities where using mobile phones is prohibitive, please follow their instructions and regulations.
- Please pay attention to tone, volume, vibrate settings of the phone, so as not to influence heart disease patients.
- In inflammable and explosive areas, do not remove, install or charge the battery, so as not to cause explosion or fire.

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Enterprise Website

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