XPAND Cinema 3D Glasses

Active 3D Glasses

Model No. X101 User Guide

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Product Overview



XPAND Cinema 3D Glasses are profesional quality, easy-to-use glasses for 3D cinema, a part of XPAND 3D cinema system for creating stereoscopic images based on **active 3D technology**. With active 3D technology, two slightly different versions of the same image: the right- and left-eye versions are shown on the screen sequentially and the active glasses separate these two images by blocking each eye using liquid crystal shutters. The human brain then combines these images and creates the illusion of a third dimension to a viewer. The glasses must be synchronized with the image presented on the screen which is done via Infrared signal. The synchronization signal is fed from a digital projector to the XPAND system which generates IR pulses to be received and recognized by the glasses. This approach yields the highest performance, a wide viewing angle, immunitiy to head tilt problems and eliminating crosstalk.

The **XPAND Cinema 3D Glasses** work in automatic modes – there is no power switch to turn the glasses "ON" or "OFF". Upon receiving the glasses, they are in the Off Mode and the lenses appear green. When the glasses are "OFF", the electronic circuit periodically checks for a presence of a valid IR signal. If a valid IR signal is present, the glasses turn »ON« and the electronics start the Warm-up sequence.

Operation Modes

Warm-up Mode - During the Warm-up mode the lenses remain opaque for the entire Warm-up period which lasts for two seconds. At the end of a Warm-up period the glasses go into normal Run Mode.

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Run Mode - In this mode, the lenses open and close in sync with the projector to deliver the 3D experience to the viewer.

Clear Mode - When in Run Mode, after the glasses lose a valid synchronization signal, they go into the Clear Mode (both lenses appear clear). In the Clear Mode, both lenses remain open, so that the viewer can see normally through the glasses. The lenses remain open until the glasses receive the sync signal again. If the glasses do not receive any signal in five minutes they go into Off Mode.

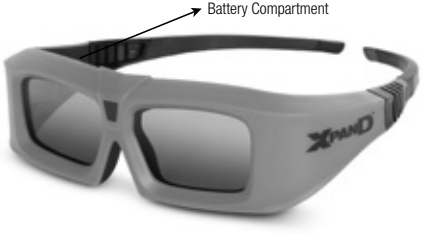
Off Mode - In this mode the lenses appear green since they are not driven by the electronic circuit which remains powered and checks for a presence of a valid synchronization signal.«

Low-Battery Mode - The glasses check for the low battery condition just before going into the Off Mode and also before going to the Warm-up Mode (the latter check is available fromDecember 2009). If the battery life is insufficient the lenses will begin blinking slowly (both lenses are closed and briefly flash open simultaneously once every two seconds) to indicate the Low-Battery condition and will prevent the glasses from going to Run Mode. The control circuit is designed so that the low battery condition does not appear during the Run Mode when watching a movie. The only possibility to exit the Low-Battery Mode is by replacing the battery.

Battery Life - The battery should provide enough energy for 250 hours of use in Run Mode when the projector is set for “Triple Flash, 6:2”, and 300 hours of use in Run Mode when the projector is set for “Double Flash, 4:2”.

Replacing the battery

Battery is encapsulated in a plastic case which acts as a sealing cover. There are two slightly different versions of the battery cases. Both of them are replaceable using a key (the key is provided with the purchase of new batteries). The older version



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of the battery has a sealing ring that comes separate from the battery case. The newer version of the battery has a sealing ring attached to the battery case for easier handling, as shown in the drawings below.

The older generation battery case is recognized by three circular shaped holes evenly distributed on the outer surface. The newer version battery case has a cavity instead of one hole and two D-shaped holes.



Old Generation



New Generation

Step by step replacement – old battery case:

To remove the battery

1. Hold the key firmly when the 3 pins are inside the 3 pin holes of the battery case.

2. Turn the key counterclockwise to “o” position.

3. Take the old battery out and remove the old sealing ring. Do not reuse the old sealing ring.



Position of the key when removing the battery

Installing the battery

1. Carefully place the new sealing ring inside the battery compartment so that it lays flat and is not twisted.

2. Put the new battery inside the compartment in the “o” position and make sure that the sealing ring remains flat and untwisted (this is extremely critical if the glasses are to be sealed and you are using a dishwasher to clean them).

3. Hold the key firmly when the 3 pins are inside the 3 pin holes.

4. Turn the key clockwise to “c” position.

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Step by step replacement – new battery case:

To remove the battery

1. Hook the key in the cavity of the battery cover and press the key against the cover so that the 2 pins are sitting firmly inside the pin holes.

2. Turn the key counterclockwise to the mark at the pin hole.

3. Pull the old battery out using the hook on the key.



Position of the key when removing the battery

Installing the battery

1. Place the new battery into the housing in the position with the mark at the pinhole aligned with arrow on the frame (Image 3) and press it with the key hooked to the battery case so that the battery sits firmly inside the housing.

2. Turn the key clockwise to "c" position.



Inserting new battery

Please note: If you are replacing the old battery case with the new one, you will need both keys for the procedure. When ordering new batteries please inform your local dealer that you also need the old key.

Testing of the glasses

Testing of the glasses prior to distribution to a user can be performed using the AT100 Active Glasses Tester. The AT100 is "ON" if the "ON/OFF" button is pressed and the red LED is lit. The AT100 is designed to generate a low intensity IR signal that, when passed within 2 feet (60 cm) of the XPAND Cinema 3D Glasses, causes the lenses to flicker in response to the IR signal. Both lenses should flicker at a visible rate and in doing so indicate that the glasses are functioning properly and are ready for distribution. If the lenses do not flicker, the battery is empty and should be replaced before further use. The AT100 shuts off automatically after several hours or can be turned off manually.

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Handling Instructions

Storage

It is recommended that the glasses be stored away from any IR source such as fluorescent lights. It is sufficient to cover the glasses so that any IR signal does not accidentally trigger the glasses on. The storage temperature should be standard office temperatures as higher temperatures reduce battery life. In cinema, the optimal storage solution is the XPAND Trolley – these trolleys were designed to provide the cinemas with optimal solution for storage, handling, distribution, service and collection of XPAND Cinema 3D Glasses.



Handling

The durable and robust frame is designed to protect the electronics and the lenses, however **the lenses are susceptible to cracking if the glasses are twisted**. **Do not twist or bend the glasses!** Broken lenses are not covered by the warranty. The glasses should be held by the frame in order to avoid getting fingerprints on the lenses or scratching them. The user must be aware of these limitations and avoid any twisting, bending, rotation or manual adjustment.

Cleaning



XPAND carefully designed cleaning and sanitizing wipes that maximize the life-time of the glasses. Usage of wipes minimizes the handling cost (as the glasses are cleaned by the user), maximizes the durability (as the glasses are not exposed to high temperatures). The sealed glasses are also designed to be washed in a dishwasher on a short washing cycle (2 minutes) where the washing temperature should not exceed 45° C (113° F). No steaming allowed. We recommend using mild machine detergents which are not ammonia based. The glasses can also be washed using liquid soap and warm water. When cleaning by hand the lenses should be dried using a lint free, soft, drying cloth. **Do not use paper towels as they can scratch the lens!**

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General Health And Safety Warning

Warning!

Carefully read and follow all warnings in the User's Guide to reduce health risks associated with viewing media in 3D. Before allowing a child to view 3D media, Parents or Guardians must read and follow the warnings and ensure that the child understands and follows the warnings.

May Cause Seizures

Some people have a condition that can cause them to experience seizures or lose consciousness momentarily while viewing certain kinds of flashing lights or patterns. These persons may have seizures while watching some kinds of television pictures or playing certain video or computer games. Persons who have not had any previous seizures may still have an undetected seizure condition.

If you or anyone in your family has experienced symptoms linked to a seizure condition, including experiencing seizures or a loss of awareness, consult your physician before viewing 3D media.

We recommend that Parents or Guardians observe their children while the children use 3D glasses. Discontinue use immediately and consult your physician if you or your child experience any of the following symptoms: dizziness, altered vision, eye or muscle twitching, involuntary movements, loss of awareness, unconsciousness, disorientation, or seizures. Do not use 3D glasses for extended periods of time.

May Cause Eye Fatigue

Some users have reported dizziness, headaches, or eye fatigue as a result of viewing media in 3D. Discontinue use if you or your child experience any of these conditions. Do not use 3D glasses for extended periods of time. Parents or Guardians should limit use by children to no more than a few hours per day.

Young Children

The vision of young children (especially children under the age of six) is still under development. Consult your doctor (such as a pediatrician or eye doctor) before allowing young children to watch 3D video images or play 3D videos games.

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Parents or Guardians should supervise young children to ensure they follow these recommendations.

Choking Hazard: Keep Out of Reach of Small Children

Babies and young children could choke on small pieces associated with 3D glasses. Keep the 3D glasses out of reach of small children.

Stereoscopic Viewing May Cause a slight After-Effect in Your Vision

Your eyes change to accommodate viewing through stereoscopic glasses. Wait a few moments after you remove the 3D glasses for your eyesight to return to normal before resuming your regular activities.

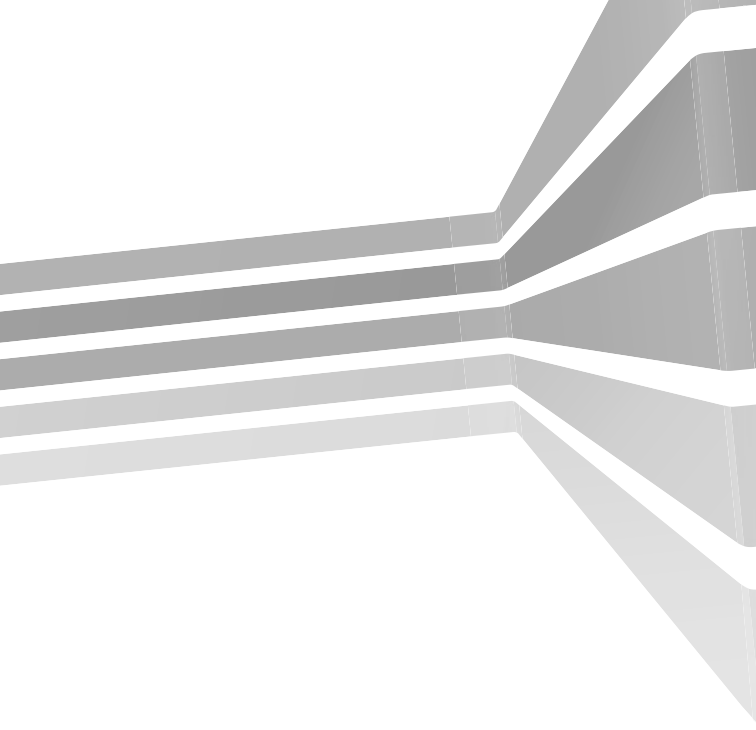
Do Not Use 3D Glasses for other purposes than viewing 3D visual content

Do not wear 3D Glasses as sunglasses or safety glasses. Never wear 3D glasses while driving, swimming, or operating machinery. Do not use near staircases, ledges or balconies. You may risk falling during or after use.

Never use 3D glasses if you are tired, fatigued, or ill.

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