

## XPAND YOUNiversal Electronic 3D Eyewear Shutter Offset Configuration via PC Application Explained

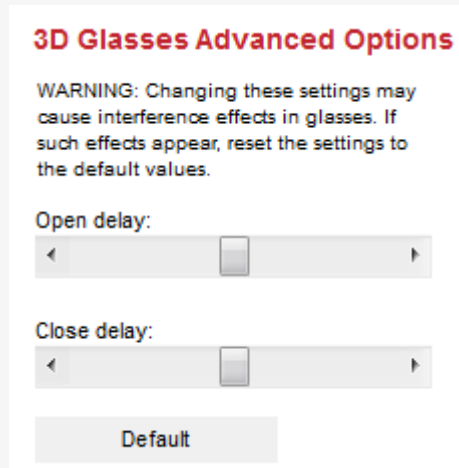
The XPAND YOUNiversal Firmware Updater allows users to tweak the XPAND 3D eyewear shutter timings. Although the default timings have been carefully calibrated, a broad spectrum of other shutter responses may be achieved with help of the 3D Glasses Advanced Options sliders “Open delay” and “Close delay”. The influence of repositioning these two sliders will be explained on an imaginary IR protocol.

### Content:

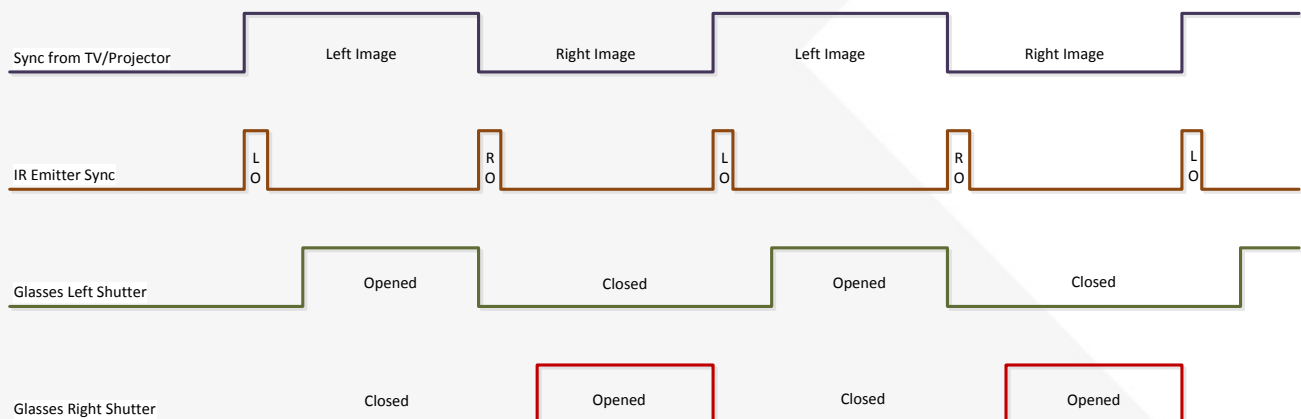
Default settings .....	2
Changing Open Delay .....	3
Changing Close Delay .....	4
Changing Offset .....	5

## Default settings

With the default settings both sliders are in the middle of the allowed settings. This represents the factory calibrated value.



On the timing diagram one can see the default relations between the Sync from TV/Projector (frame sync), IR Emitter Sync and Glasses Left and Right Shutter response. Note that each IR protocol has specific default timing relations.



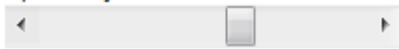
## Changing Open Delay

When the Open Delay setting is modified, XPAND 3D eyewear opens the shutter correspondingly. In our example the Open delay has been increased. Dashed line on the timing diagram represents default value as a reference.

### 3D Glasses Advanced Options

**WARNING:** Changing these settings may cause interference effects in glasses. If such effects appear, reset the settings to the default values.

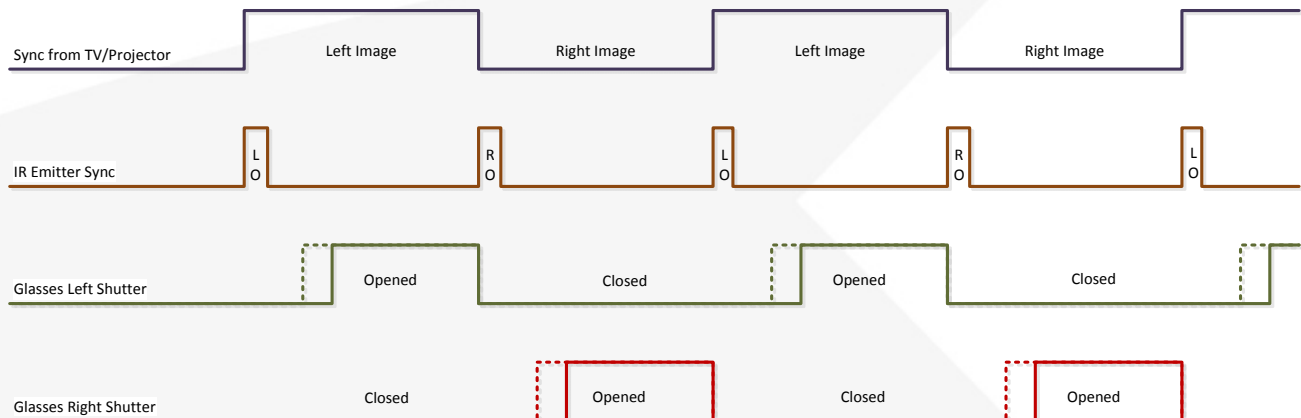
Open delay:



Close delay:



Default



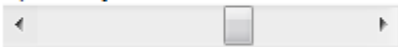
## Changing Close Delay

Additionally to the previous change the Close delay has been shortened. With this change we have effectively changed the duty cycle of the XPAND 3D glasses controlling both Open and Close delays. Dashed line serves as a reference of the default factory calibrated values.

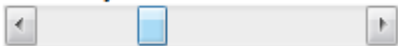
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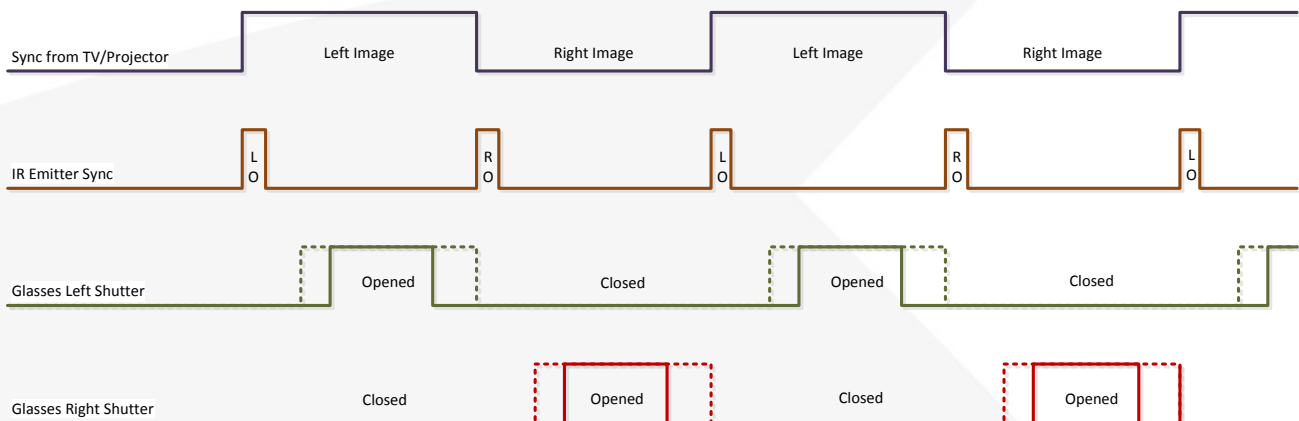
Open delay:



Close delay:



Default



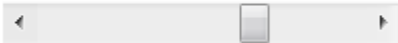
## Changing Offset

Until now it should be obvious that if one changes the Open and Close delays in opposite direction, one changes the duty cycle of the 3D eyewear shutter response. However, if one makes a change of both sliders in the same direction, the duty cycle remains the same while the offset is changed. Example below shows the setting where only offset has been changed.

### 3D Glasses Advanced Options

**WARNING:** Changing these settings may cause interference effects in glasses. If such effects appear, reset the settings to the default values.

Open delay:



Close delay:



Default

