VOLFONI® CREATIVE 3D TECHNOLOGY

GUEST ARTICLE

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ABOUT THE USAGE OF DIFFERENT 3D SYNC - TECHNOLOGIES

For the past ten years, 3D has developed in various markets, from cinema to virtual reality, through home theater, museums, education, or events.

Because of the different needs of these applications, specific ways to synchronize 3D projection with 3D shutter glasses have emerged.

Today, we see three key technologies: DLP-Link, Infrared (IR) or Radiofrequency (RF), with unique advantages making them each the strongest in different markets and applications.

DLP-Link :

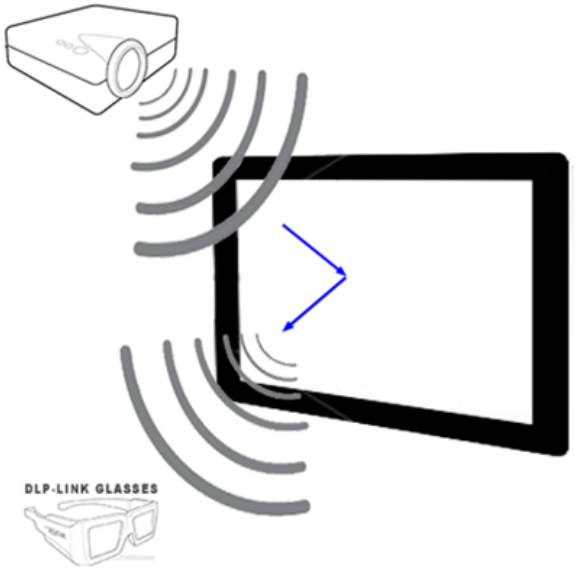
The first synchronization system mentioned above is the DLP®-Link, which refers to the DLP® projection technology, invented in 1987 by Dr. Larry Hornbeck from Texas Instruments.

This projection technology is largely used in office, education and home projectors. Most consumer products today carry the label “3D ready”. This in fact means they provide a DLP-Link 3D sync-signal. This system synchronizes the projection of left and right images with LCD shutter glasses through a white flash occurring between the images. This is not visible with the naked eye.

The main advantage of this approach is to offer a simple “plug and play” solution. The DLP-Link shutter glasses and the projector work instantly together without any additional emitter or accessories.

The main disadvantage of this system is that the sync-signal does not allow a very large distance from the projector, meaning that it is not suitable for large audiences. Additionally, it is not resistant against external factors such as stray light (artificial or natural) or infrared signals operating at the same time.

Nevertheless for a home installation or educational presentation with a limited number of viewers, it works at its best.



Infrared (IR) :

In contrast to the DLP-Link technology, the IR systems, do not mix the sync-signal with the images, but provide a separated IR flashing. This is usually provided by an IR-Emitter attached to the projector's "3D sync out" connection: 3-pin Mini-DIN, BNC or GPIO.

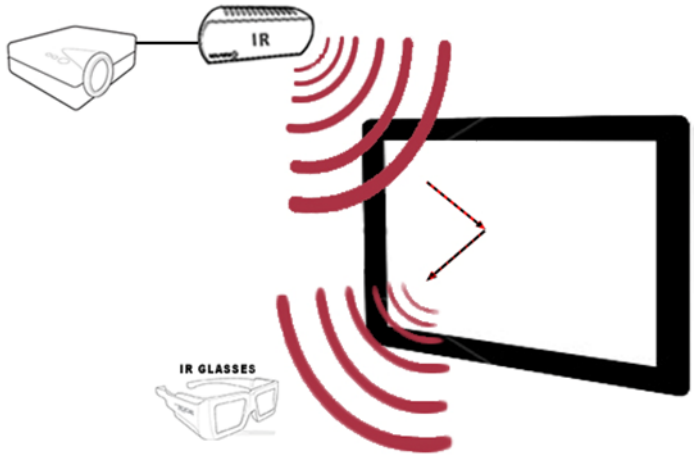
The emitter is turned on with the projector starting a 3D content. The IR-signal is projected on to the same screen as the image and covers the audience in the same way the projector does. This makes it convenient to install and easy to provide a 3D signal to the 3D glasses of the audience.

The advantage of this technology is a very stable and strong signal that allows to cover large audiences. Depending on the installation you may add additional emitters to maintain a strong enough signal reaching all viewers.

The disadvantage of this technology is that it requires a direct line of sight between the emitter and the glasses. This might be easy to achieve in auditoriums, but is more difficult in interactive VR installations where the user moves and might actually be the obstacle between the sync source and the glasses. In these constellations multiple emitters from different directions, can be the solution.

Finally the IR signal may also be disturbed by other light sources that glasses IR receptors might be misreading for 3D signals.

In controlled environments that can be protected from these light sources, the IR technology has been widely adopted, as for example in cinemas, museums or corporate presentations.



Radiofrequency (RF) :

Finally the radiofrequency is a sync-signal that is becoming more largely adopted recently.

It also works with a specific emitter that connects to the projector. They generally work in the so-called ISM spectrum (industry, science and medical), a bandwidth available for proprietary RF solutions.

The advantage of this technology is that it does not require a line of sight between the emitter and the glasses. With emitters of different power levels available and their 360° coverage, the place of installation can be chosen quite freely. The viewers just need to be within the radius of the emitter.

Another advantage is that the RF signal is pretty resistant. Alternative visible light sources or IR do not affect it. So it can work along with IR cameras or other light flashes operating other parts of an installation. Even other RF systems generally provide individual channels that allow parallel operations.

This system is very well suited for virtual reality (VR) applications. Indeed VR systems usually integrate an IR camera system for position tracking. So with RF technology, this tracking and 3D visualization do not interfere and highly complicated inter-application synchronization are a thing of the past.

This capacity to make VR installation easier through RF-sync-signals is a key factor of success for Volfoni, a high-end 3D system specialist. Volfoni has been following these technology trends by offering 3D solutions for each application and technology mentioned above.

The EDGE VR from Volfoni, for example, is an active 3D glasses model, equipped with both RF and IR receivers. Synced with the right emitter, they can work to their best depending on the environment there are used in. Additionally the EDGE VR allows a 3-position switch to be used as a selector for different RF channels. So one

user might use the same glasses to move from one 3D system in your lab to the other, without having to change them.

On top of these sync-advantages these glasses also carry more intelligence, that allows for example to communicate precise battery levels or to control the 3D modes used.

This information exchange between the glasses and their setup control software makes the EDGE VR the reference 3D glasses in the field of Virtual Reality.

With an ActivHub RF50 emitter, the number of channels managed can be increased to 12, meaning 12 VR installations operating at the same time without any interference in their 3D projection.

« After 10 years during which we have seen different sync-signals emerging for specific applications, the maturing RF-sync might actually have the potential to replace the older signals in the next five years. » says Jean-Luc Ros, Professional Market Manager - Volfoni.