Preventing Pressure Damage to Digital Signage Screens

White Paper
Digital Signage and Video Walls are commonplace today with growth forecasted to continue at double digits rates for the next several years. Screens are everywhere you look and offer instant information, tailored advertising or customized video in virtually unlimited ways.

Today’s screens are designed for a large variety of applications from direct light, waterproof, daily hours of use, as well as a range of different bezel widths and resolutions. The most common trends with screens are higher resolutions and narrower bezels. Screens sizes are also increasing.

In order to efficiently install a multi-screen video wall, almost a decade ago, mounts were developed to “pop” out, allowing each corner, height and in some cases lateral adjustments, to be made, then push the screen closed to check and repeat as necessary, until the correct location is achieved. This allows the installer to ensure the screens are properly aligned, creating the best possible image.

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**Introduction**

Some installers and manufacturers suggest not applying pressure to the center of the screen while others, especially as resolutions increase and bezel widths decrease, suggest not contacting the front of the screen along the bezels or in more and more cases, simply not touching the screen surface.

In the last decade, since “pop-out” style mounts arrived on the market, they have not changed significantly, however, screens have. Resolutions were in the region of 720 x 480 only 6 years ago, while today, 8k screens boast resolutions of 7,680 x 4,320 dpi. Bezels on digital signage screens were commonly over 7mm, just recently LG launched a 0.44mm bezel.
How Damage Occurs

When building a multiple screens digital signage video wall, most all professional mounts, require that the screen is pushed in to close it. Commonly used by most leading brands and the lower priced alternatives, are compression springs. The extension and compression of the springs assist in opening “popping” out the screen. To store this potential energy in the spring, it requires kinetic energy be exerted on the screen in the form of pressure or force. Depending on the screen weight and spring used, the force can easily exceed 150N which equates to over 15Kgs. or 33 Lbs. of force.

Repeatedly applying this pressure to the screen or bezel, commonly required when the video wall is being installed, can lead to reduced screen life, pressure damage (permanent pressure marks), cracks or breaking of the screen itself. The constant adjustments of the screen, in combination with the compression spring, requires that it be opened and fully closed repeatedly. During servicing this opening and closing of the screen is also required.

Pressure damage can also be caused by flexing the screen during alignment. As a marketing gimmick, some mount suppliers keep increasing the micro-adjustment range of their mounts, so they can make claims to help sell their product. However, as installers know, bending a screen that is not meant to be bent, causes pressure and stress on the screen. If the mount adjusts with a screwdriver or Allen key it is all too easy to force adjustments without realizing the stresses that are being placed onto the screen resulting in reduced lifespan or damage to the screen. If the wall being mounted to is not flat, use spacers or shims to level the mount with the wall, to avoid having to over-correct the screens. Handwheels allow you to feel the force and be aware of the effects of the adjustments being made and limited ranges are sufficient to align screens when installed by a professional installer, without having to bend the screens.

Professional installers should select mounts designed to protect and support the quality and life of the screen, while making installation efficient, and convenient.

Similarly, opening the screen involves it being “popped” out from the wall. Many mounts can “pop” out quite aggressively, requiring the installer to further touch or apply pressure to the screen to control the opening speed.

What Pressure Damage Looks Like

Depending on the type of screen, as well as how much force is applied, different forms of pressure damage can occur. Simply pushing the screen closed with too much force, due to the design of the mount, can cause an impact on a neighboring screen and damage the bezel or even crack the glass. Even low pressure is thought to add some wear to the pixels in those areas and over time can shorten the life of them. Pixels can also be damaged to the point where they no longer work. To check for this type of damage a bright very colorful image is best.

Besides giving the image a pixelated appearance, a shadow-like mark or one that looks like a “bruise” can also occur. It all depends on how much pressure is exerted. The higher the pressure, the more likely it is that this distortion will be permanent. Therefore, it is critical, that the handling of the screens is done with care, during both installation and maintenance.

Today, it is common to see installers pushing on the bezel, because pushing in the center of the screen is believed to cause issues. However, when you push on the bezel, you are much more likely to be flexing the screen, as the screen is connected to the mounting arms. Placing any force on the screen beyond the mounting arms, will cause the screen to flex or curve in a convex direction. Flexing is not good for the screen, diodes, and as bezels become slimmer, they also become more sensitive to pressure and flexing.

Damage Control

Unfortunately, once it is damaged by pressure, a flat screen cannot be fixed. Given how common this kind of damage is, it will come as no surprise that most of the leading manufacturers don’t include repairs or replacement from such damage in their product warranties. Therefore, the installer must assume the cost of replacement, if the screen is damaged by pressure or cracked during installation or servicing.

It is a fact that screens, damaged due to an application of pressure, cannot be fixed. But can they be protected from it? Usually, this type of damage happens during the installation, maintenance or cleaning of the screen. Therefore, avoiding screen damage means one must use substantial caution, whenever handling them.
INNOVATIVE
SOFT-TOUCH
AND NO-TOUCH
TECHNOLOGY

AlpsAV has pioneered new mounting solutions that significantly reduce, or even eliminate completely, the need to apply any pressure to screens.

Soft-Touch Technology
The Soft-Touch mount eliminates compression springs and uses an assistive piston, thereby significantly reducing the amount of pressure required, to close and open the screen. In fact, instead of requiring more force to close the screen, Soft-Touch technology reduces pressure on the screen as the screen closes, making it easy to check alignment and make fast and simple adjustments, quickly achieving proper alignment.

Additional features include, a central X-arm design for easier unrestricted access to cables and components behind the screen. A compact, flat wall plate increasing the available wall space for cable management or wall mounting additional equipment. The perforated screen mounting plate for quick and convenient connections for cables or equipment. Large comfortable handwheels for micro-adjustment of height, lateral and all four corners ensuring perfect alignment. The White finish offers better contrast between cables, components and the mount, a full screen fixing kit, and VESA extension kit up to 600 x 400 landscape or up to 400 x 600 for portrait.

No-Touch Technology
This patent pending, No-Touch technology, is well-suited to support the next generation of digital signage screens. Using an ultra-thin control wand, screens are moved in and out without needing to touch the screen at all. The wand can be used to control all AlpsAV No-Touch mounts, for fast and easy access to any screen. As screen resolutions increase and bezel widths decrease, avoiding touching or placing pressure on the screen is simply common sense.

The No-Touch also shares the same centrally located X-arms, compact, flat wall plate, perforated screen mounting plate, large comfortable handwheels for micro-adjustments, 600 VESA extension arms for Landscape or Portrait mounting and unique White finish for better contrast between the mount and components.
About the Author

AlpsAV is a new company, Co-Founded by Reintechnik GMBH, with over 20 years in engineering and design of commercial automated manufacturing equipment and consumer products. The companies own their manufacturing facility as opposed to outsourcing to a variety of other factories, ensuring step by step quality control and managed costs while minimizing total cost, ensuring products are of the highest quality at the best possible price.

AlpsAV will be attending the 2019 InfoComm show in Orlando, Florida, USA to introduce these products and more. Please visit our booth 3181 and check out our exciting time and cost saving mounting solutions. Please visits us at www.alpsav.com, or e-mail us at contact@alpsav.com.

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