EPV Screens Sonic AT8 isf eFinity Acoustically Transparent Projection Screen

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EPV Screens is the custom installation division of Elite Screens. Headquartered in Southern California, they provide a wide range of screen materials and finished screens to the custom install market. Electric/motorized screens, edge-less screens, and fixed-frame screens are included in their product portfolio. The screen materials offered include punched acoustically transparent, polarized, high-gain, ambient light rejecting, ultra-short-throw, solid materials with a range of gain, and the subject of this review, a multi-layer woven acoustically transparent material. To stop light that gets through the acoustically transparent screen, EPV Screens has made the traditionally-separate light absorbing black layer integral with the white image-side of the screen. That makes assembly of the screen easier than other AT screens that still have the black layer mounted separately from the screen layer. This black material prevents light that passes through the white projection layer from reflecting from behind the AT screen bouncing off of the wall or other objects behind the projection screens and contaminating images with excess light that shouldn't be there. The frame for this review is EPV Screens' EDGE FREE® frame supplied with all the Sonic AT8 isf eFinity screens. EPV Screens says the Sonic AT8 isf eFinity screens are compatible with ultra-short-throw projectors, short-throw, and standard throw projectors.

Sonic AT8 ISF eFinity screens are available in the following sizes: diagonal sizes in 16:9 format are 110-, 120-, 135-, and 150-inches. The 120-inch size was used for this review. For 2.35:1 format, the diagonal sizes available are: 138 and 158 inches. The frame included with these Sonic AT8 isf eFinity screens can be used as either an edgeless screen with no bezel, or a thin 9mm wide black bezel trim can be installed around the edges giving a sharp-edged cutoff of the image rather than using the screen borderless. Customers can be easily shown the difference and decide which way to go. The wall mounting brackets included with these screens allow sliding the screen left or right to get perfect centering with the projector. This next feature is something I wouldn't have expected, but this line of screens comes with an integral LED backlighting kit. This is a home theater décor touch, so people entering the prepared theater room will be greeted by a soft color wash around the perimeter of the frame if it is close to a wall. The color can change or be turned off when movies start, or it can be left on during movies. The LED light will degrade images a bit if left on during movies. But sometimes the effect in the room is more important to the owner than the ultimate in image quality with the LED lighting turned-off. If the screen is used as freestanding, the LED lighting can still be used, though the effect will be unpredictable due to different surroundings in each theater room.

The isf in the product name refers to Imaging Science Foundation. This organization is one of a couple of ways to get video calibration training, but they also evaluate products for a fee to provide an extra level of customer confidence that the product in question will provide consistent and predictable technical-optical performance following calibration of the theater. I attended isf calibration training perhaps 15 years ago, a time when calibration wasn't easy and inexpensive colorimeters were unreliable. UHD/HDR did not exist then, so calibration was sharply focused on HD content. With a projection screen, isf certification means that people other than the screen manufacturer have confirmed the projection screen doesn't do unexpected or strange things to color or luminance at different light levels and that color reproduction over the entire gamut of the source material is presented accurately by the screen material. The eFinity part of the product

name refers to the edgeless frame supplied with these projection screens.

There are two ways to use an acoustically transparent projection screen. The first is the previously mentioned wall-mount. Wall-mounting will, of course, mean that the L-C-R loudspeakers at a minimum will have to be "in-wall" models with the screen hung in front of them. You can leave those speakers' grills off since the projection screen will hide them from view. The other way to use an AT screen is to place it free-standing (or inside a faux wall with a hole the size of the screen) with space behind the screen to place conventional speakers on stands. I used the second method, putting "standard" box-type loudspeakers behind the free-standing AT projection screen.

EPV Screens says that the Sonic AT8 isf eFinity projection screen reduces high frequencies by 3 dB from 8,000 Hz to 20,000 Hz. You may be thinking "But every note acoustic instruments produce is below 6,000 Hz." And that is correct, mostly. There are sounds in high quality recordings that are higher than 6,000 Hz. But they are primarily harmonics, overtones, and ambient sounds. Things like the extremely high-pitched sounds some humming birds make might be noticeably affected by the high-frequency attenuation the screen causes. This small amount of high-frequency attenuation is a fact of life for every acoustically transparent projection screen. I do find that solid screens with punched holes that allow sound through have a bit more of a sonic signature than woven AT projection screens. Good woven AT screens will sound a bit better in general since the entire screen surface lets sound pass through, not just the tiny holes in solid screen material. This hopefully, puts the range of sounds above 8,000 Hz in proper perspective. For the pickiest listeners, all that is needed in terms of correction is for an audio processor to boost frequencies 8,000 Hz and higher by about 3 dB to equalize their sound after it is affected by the acoustically transparent projection screen. This is typical for all types of acoustically transparent projection screens. They can't ever be 100 percent acoustically transparent. But the Sonic AT8 isf eFinity screen was sonically "colorless" with loudspeakers placed behind the screen. You can't put any kind of screen in front of a loudspeaker without some effect on sound. What acoustically transparent projection screens try to do is to make the attenuated frequency region as small as possible and to make the change as uniform and predictable at all frequencies as possible. If the screen manufacturer can do that, "fixing" the sound with a simple adjustment like +3 dB from 8,000 to 20,000 Hz in an equalizer is simple and effective in making the projection screen even closer to being completely acoustically transparent.

You can even preview what an acoustically transparent projection screen will sound like without EQ just by reducing the treble control in your existing system to reduce high frequencies by 3 dB. I think you will find the difference is pretty subtle, and not even audible in a lot of content because there's just not a lot of sound in the 8,000 to 20,000 Hz range.

Perforated acoustically transparent screens can use the same sort of "known" coatings used on solid screens. The amount of light lost with perforated screens can be easily demonstrated by putting a second solid projection screen behind a perforated screen. Enough light comes through to the second screen that you can tell what is happening in the images. With woven fabric screens made for 4K and 8K video images like the Sonic AT8 isf eFinity, the method of "weaving" the fibers is critical to the perceived image quality. Acoustically transparent screens always leak some light, whether perforated or woven. If that light was allowed to reach a reflective surface, it would bounce off and hit the back of the screen becoming visible and not coordinated with the frame being displayed. Any light passing through that black backing that AT screens have, bounces off of a wall or other objects behind the projection screen. That reflected light has to pass through that black layer a second time before it reaches the back of the projection screen. That means the black material behind the screen material can be "open" enough for sound to pass-through with little effect, while light is very significantly eliminated.

Assembly is straight forward with sections of frame joined with strong brackets holding setscrews that are tightened to hold the frame pieces together. I found it easy to assemble the screen with all four corners being exactly 90 degrees. Measuring both diagonals tells you quickly if the screen is "square" or slipped a little towards a parallelogram. If both diagonal measurements are the same, the frame is "square" and all the brackets can be tightened to lock the frame into that perfect shape.

After assembly, I began viewing a wide range of content, much of it in UHD/HDR from discs or streamed. During this process I observed lots of familiar images from movies and TV shows looking for any signs that the AT screen produces any visible bleeding or moiré. Bleeding is when light travels along fibers used to make the AT projection screen. One of the characteristics you want from woven AT screen materials is that the fibers do not allow the light to "spread" through the fibers causing light to "bleed" from bright image areas to adjacent dark areas. That means the AT fibers have to block light fairly effectively from traveling sideways to stop the bloom issue. I never saw anything that looked detectably different from the Stewart Filmscreen StudioTek 100 reference screen in terms of "bloom" or "spread" of high luminance pixels into nearby dark pixels. Color shift was insignificant and would be calibrated-out during final system calibration anyway. Moiré is another potential problem caused by interference patterns created by woven fabrics and high-res digital images. more can happen in punched screens and in geometrically woven screens when any "pattern" on the screen material interacts with the extremely small pixel size of 4K and 8K projectors. Evenly spaced punched holes or evenly spaced weave patterns can produce more if the light isn't reflected uniformly back to the viewers. I didn't detect any moiré in video content or test patterns from the Spears & Munsil

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MSRP of size reviewed - $3.585
Warranty – 5 years parts and labor (US & Canada)
Made in: USA

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UHD/HDR test/calibrate disc. So even though can can see the weave when you are very close to the screen, that texture doesn't interact with the high-res pixels to produce a moiré pattern. Having seen moiré from a punched screen before convinced me I want nothing to do with any screen that can produce moiré patterns. The Sonic AT8 isf eFinity screen was blessedly free of anything I could detect in terms of moiré.

For audio evaluations, I added 3 dB with a graphic equalizer in the processor for 8,000 to 20,000 Hz. Most of us who have protected our hearing from damage successfully, will still lose the ability to hear the highest audio frequencies as we age. I could hear a difference in the sound with and without the 3 dB boost in high frequencies, but it sure wasn't an obvious difference. And it certainly was small enough that many, probably most, owners of this screen material would not notice a high frequency deficit of 3 dB. Especially so when watching movies. The additional focus your brain requires for video and sound, compared to music without video, tends to reduce your sensitivity to sound differences also. It was actually easier to hear the effects of the 3 dB of EQ when listening to high quality music recordings without video than it was to hear differences in movie soundtracks. The difference in the 3 dB high frequency boost is pretty benign. And if your room is a little too reflective due to hard floors or glass, you might actually welcome the 3 dB of attenuation.

A UHD/HDR projector with laser/phosphor illumination system and native UHD imagers (no pixel shift) was used for evaluating the projection screen. When it came to measuring the gain of this screen, I measured a difference of 3.5 fooot-Lamberts (fL) less light, while measuring peak white, from the Sonic AT8 isf eFinity screen than from the StudioTek 100 reference screen with 1.0 gain. Gain specs for AT projection screens are often overstated in this market. The primary cause is manufacturers quoting higher-than-actual gain specs for AT screens. If a manufacturer comes to market with a new AT screen and says it has a gain factor of 0.8 and buyers look at the spec for other AT screens and sees that all of them are rated from 0.9 to 1.2 gain, when all of them fall below 1.0 gain due to light lost through perforations or through the weave. So if you give your AT screen an accurate gain spec, your screen appears to be "worse" than other AT screens even though it may be better. I've measured gain of AT screens from 0.7 to 0.9, while the screens had factory specifications between 0.9 and 1.2. EPV Screens quotes 1.0 gain for the Sonic AT8 isf eFinity screens. That means the peak white measurement for the StudioTek 100 screen and the EPV Screen should be the same if they both have 1.0 gain. With the peak white measurement being about 3.5 fL lower for the Sonic AT8 isf eFinity screen, the actual gain is closer to 0.91, but that is quite "close" to the 1.0 factory spec for gain. Another AT screen I measured several years ago advertised 1.2 gain and measured 0.8 gain, a rather large disparity. Color was very close to the StudioTek 100 reference screen indicating good performance of the EPV screen material.

Pricing for the Sonic AT8 isf eFinity screens ranges from $3,226 to $5,292 with the reviewed 16:9 120-inch diagonal costing $3,585. New EPV Screens (US & Canada) carry a 5-year warranty starting at installation. The LED kit and optional black border edge are included with each size screen size. I had a difficult time picking a favorite between the edgeless appearance and using the black edge trim. The edgeless screen has a dramatic appearance, perhaps because it's not the "normal" look for a projection screen. But the black edge trim gave a little extra definition to the edges. I can understand owners choosing either option for their permanent setup and it's nice to have the black edge trim should you find that framed-look more appealing. The black edge trim is very thin, so the screen has a fresh, modern, and light-weight look when it is installed compared to 3- or 4-inch wide black-velvet-covered frames.

Viewing *Spider Man: Far from Home*, I found the Sonic AT8 isf eFinity screen initially very similar in overall "look" to the reference screen. The images were not identical, but they were so similar I don't think the average viewer would notice. After receiving training from image scientists about recognizing image defects in both still and moving images over a 10-year period, I find I consistently see things other viewers never notice until I pause the image and point out the problem. After I do that, everybody sees it pretty well. There was nothing about the Sonic AT8 screen's properties that made images seem to have less apparent depth, less contrast, or any other distracting property. The movie's action and surroundings looked natural and the Sonic AT8 material was so neutral, it was difficult to remain focused on looking for image problems. After four or five minutes of looking for problems related to the screen and not seeing anything, I would find myself lost in enjoying the entertainment rather than looking for issues in images. This movie was a good test for more because of the weave textures in the various Spider Man costumes are a bit different and could be the sort of geometric image element that might reveal moiré in images, but that never happened with the Sonic AT8 material. Scenes with lots of motion were rendered without any alteration of the sharpness or softness of the motion. Very thin visual elements like spider webs remained clear and well defined even against challenging backgrounds. Smoke and other features with fades in them (nighttime street light in the fog, for example) were rendered with the visible roiling of the smoke well defined at all times. Black levels were as good with the EPV screen as with the reference screen. And the brightest objects with dark backgrounds did not produce any obvious bloom around the bright object.

Placing the L-C-R loudspeakers behind the screen at a height roughly in the middle of the screen produces a satisfying soundfield. There is something about having the loudspeakers behind the screen that produces a slightly different audio experience. It's difficult to explain, but there's more of a smooth sweep of sound from left to right and right to left when the center channel loudspeaker is not below the projection screen as it is when I use solid projection screen material. I don't notice the center channel sound dipping down when sound sweeps horizontally across the screen when using solid screens, but there is something more integrated about that sweeping sound when the center channel is raised to the same height as the L & R loudspeakers.

I also checked the performance of the Sonic AT8 screen material with 1080p and 720p content, both upconverted by the projector to UHD resolution. I didn't expect that to reveal any issues with the projection screen and nothing did appear over 30 hours of viewing just 1080p and 720p content, both from discs and streamed. I even used some 1080p 3D Blu-ray discs with the Sonic AT8 isf eFinity screen just to make sure that worked as well as everything else and that was also reproduced without any visual artifacts. *How to Train Your Dragon* was one of the 3D titles I watched. The impressive animation quality came though quite well with sharp edges and great colors. Ghosting or un-merged objects (they look like 2 overlapping flat images) was no more or less frequent than when using the reference screen. Detail in clothing and

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scales on the dragons was impressive, even with the resolution being limited to 1080p (upconverted by the projector for display). The intentional sense of motion captured in some of the flying scenes was well presented and as good as it is on the reference screen. Frame-packed 3D with active LCD shutter glasses was used during the 3D evaluation.

A final evaluation with complex still images, about 100 of them with high levels of details, can help reveal screen problems you don't see in moving images, but with the Sonic AT8 isf eFinity screen, every image displayed with every detail intact. Even highly detailed geometric patterns from buildings and interior décor were displayed properly without any sparkly pixels or bleeding that would harm apparent contrast within the image.

Conclusion

The Sonic AT8 isf eFinity projection screen was a pleasure to assemble and use. I was unable to find any of the drawbacks that often come with acoustically transparent projection screens. The EDGE FREE frame gives you the option of using the screen frameless or with a stylish 9mm wide black edge/bezel trim. The black light absorbing layer being attached to the screen material saves an assembly step over AT screens that have the black backing fabric installed as a second independent "screen" in the same frame. I was a little puzzled by the inclusion of the LED lighting with each screen at first, but looking at marketing photos of the screen with the lighting surrounding the screen does indeed make quite an impression when you walk into a finished theater room. There's an extra bit of drama from that color splash. And since the lighting is something you can turn on and off with automation systems, you can have your installer set the system up so that the lights are on when the movie is paused or stopped, and turn off again when a movie starts playing. I was quite happy with the performance of the screen and those interested in using an AT projection screen should consider the Sonic AT8 isf eFinity screens. Highly recommended. **WSR**