

The Truth About Interactive Whiteboards and Active Screen Area

The way you measure matters

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Making sense of screen size

One of the most common interactive whiteboard* specifications is screen size, which is usually measured on the diagonal, i.e., the measurement tells you the distance from one of the top corners to the opposite bottom corner. Interest in this particular specification is high because people believe it tells them how much usable whiteboarding space an interactive whiteboard offers. They may not be aware, however, that the method of measuring usable whiteboarding space can vary from one interactive whiteboard manufacturer to another.

Virtually all interactive whiteboard manufacturers provide a diagonal screen-size measurement, but not all of them mean the same thing by it. For example, some manufacturers include an outside bezel in their measurement, while some do not. Some will also indicate the height and width of their board, excluding the bezel, but the diagonal measurement will include the bezel. Some manufacturers will include height, width and diagonal measurements, but the board may not be wholly interactive, in which case usable whiteboarding space would be less than the measurements suggest. When comparing screen-size specifications from different manufacturers, it is important, then, to understand the precise meaning of the measurement.

Inactive areas versus active areas

At SMART, with sixteen years of interactive whiteboard user testing and research experience, we have consistently found that people really want to know how much usable whiteboarding space they will have. Over the years, we have adopted a standard measurement, *active screen area*, which tells users precisely how much whiteboarding space they will get. On a SMART Board™ interactive whiteboard, for instance, active screen area is synonymous with actual screen size. That means that the projected image fills the entire screen, right up to the edge of the bezel, and the entire screen is interactive.

Aspect ratio refers to the ratio of an image's width to its height. A 4:3 aspect ratio means that the image width is 1.33 times the height. It is a simple ratio based on the Pythagorean Theorem $a^2 + b^2 = c^2$.

This way of defining active screen area is straightforward, but not everyone takes the same approach. Some manufacturers design boards that do not strictly take into account standard 4:3 projector aspect ratios,

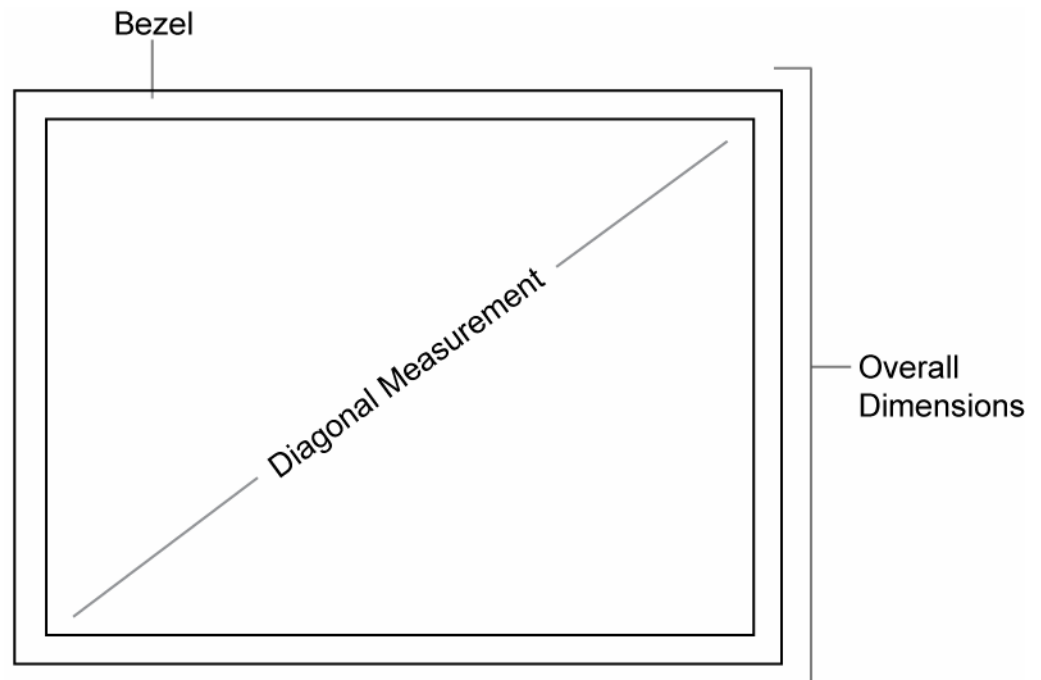
* This white paper discusses only front-projection interactive whiteboards. SMART offers a variety of rear-projection interactive whiteboards. For more information, visit www.smarttech.com.

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which then creates difficulties when defining active screen area. For example, a screen that measures 78.8" (200.2 cm) on the diagonal must measure 64" (155.4 cm) across and 46" (116.6 cm) high (excluding the bezel in all measurements) in order for a standard 4:3 projector image to fill the screen to the edge of the bezel.

However, some interactive whiteboards limit where on the screen the image can be projected, i.e., the whole screen is not interactive. In these cases, there may be corner markers on the screen indicating which part of the board is interactive – usually the area inside the markers. With these boards, the active screen area would be smaller than the diagonal measure suggests because a small frame of inactive space exists at the outer edges of the screen. It is also important to take into account the aspect ratio of the projection area within the corner markers. If the area is not 4:3, then the image may not fill the space properly.

Still other manufacturers include the bezel or an icon strip in their measurements, which means the specification is not necessarily measuring active screen area. Some include the bezel in width and height measurements but not in the diagonal measurement. In all cases, it is best to ask what is being measured and how.



The diagonal measurement indicates screen size, so it should not include the bezel. Active screen area indicates usable whiteboarding space, so it should not include the bezel or any non-interactive areas. The active screen area's aspect ratio should be the same as the aspect ratio of the image projected onto the board.

The final measure

When choosing the best interactive whiteboard for your needs, it is important to consider the different ways that active screen area is calculated. Ask exactly what a diagonal measurement includes. Although one interactive whiteboard's measurement on the diagonal may suggest you are getting more whiteboarding space than another's, that may not be the case. Also ask if the aspect ratio of the board or projection area is 4:3 so you know whether a standard projected image will properly fit the space. Be wary of 4:3 boards whose screen measurements contain inactive areas; if they do, aspect ratio may be secondary, and you may have less whiteboarding space than you think.

SMART has been designing and providing interactive whiteboards since 1991 – longer than any other interactive whiteboard manufacturer in the world. It has installed more interactive whiteboards in more countries than all other manufacturers combined. Part of that success comes from having a strong team of research scientists and engineers who, in the design of our products, ensures our interactive whiteboards work with standards being set in the industry and with the other technologies that work with our products, such as computers and projectors.