



## **Resolution and Accuracy for Interactive Whiteboards – The Full Story**

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Overview White Paper

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## Resolution and Accuracy for Interactive Whiteboards – The Full Story

### **INTRODUCTION**

eInstruction offers interactive learning solutions that utilize electromagnetic technology, which provides the greatest set of features and benefits relative to competing technologies. Electromagnetic technology is used throughout the eInstruction® family of products, including the DualBoard™.

The features and benefits of eInstruction® products are described below to assist those making decisions about purchasing interactive learning technologies.

### **RESOLUTION IS THE KEY**

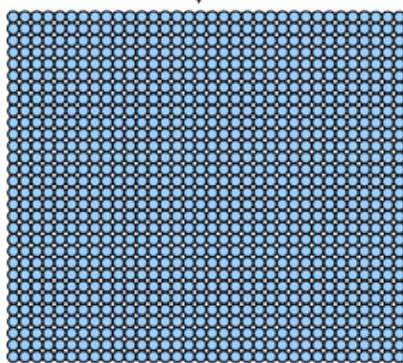
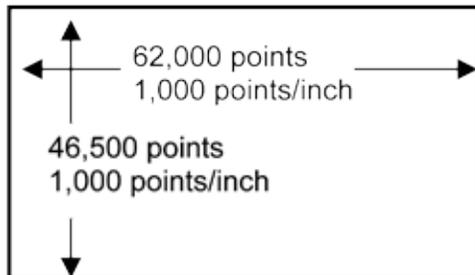
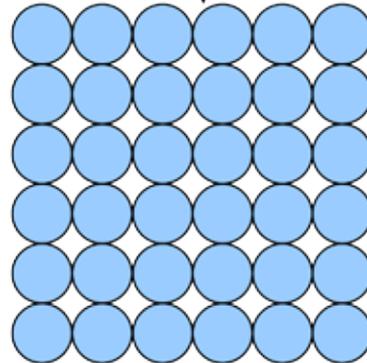
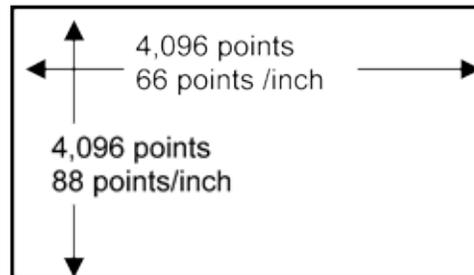
The word resolution is used in many circles and has various meanings depending on the context. When discussing the resolution of electronic displays, such as monitors and interactive whiteboards, the following definition applies:

#### ***Resistive Touch Technology***

Number of points (or pixels) per unit length. Usually expressed as the number of points along the horizontal and vertical sides of a screen or monitor. Each of these points represents a small piece of the information on the screen or monitor.

For example, touch sensitive whiteboards currently on the market claim a resolution of 4,096 points by 4,096 points. This means there are 4,096 points available horizontally across the board and 4,096 points available vertically across the board.

In contrast, DualBoard™ 1279 features a resolution of 62,000 points horizontally across the board and 46,500 points vertically across the board. This means that the DualBoard™ has 15 times the resolution of touch sensitive whiteboards.

**Compare the Resolution of the DualBoard™ vs. Touch Sensitive Boards****DualBoard™***Close-up view of DualBoard™***Touch Sensitive Board***Close-up view of Touch Sensitive Board*

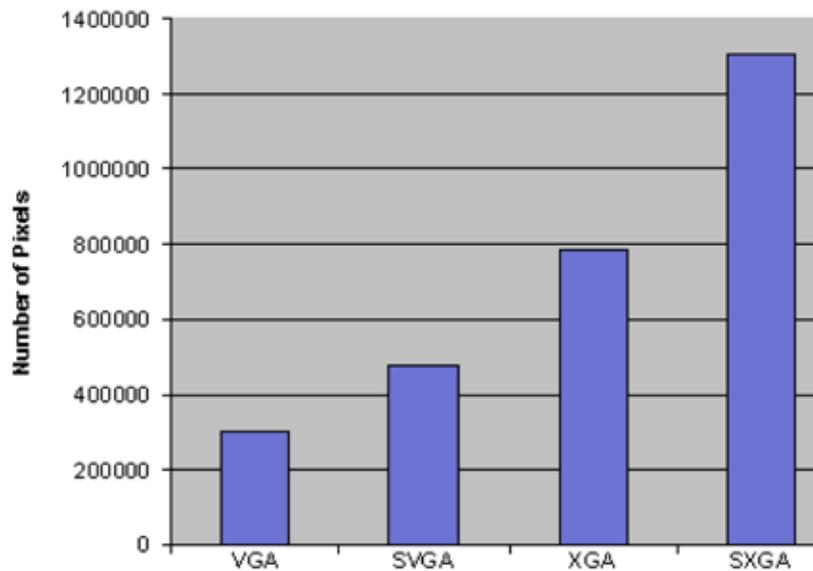
As can be seen in the close-up view of the boards, the DualBoard™ is divided into much smaller pieces or points. This provides the user of the board with more accuracy when performing common tasks such as handwriting practice, manipulating a spreadsheet, and creating a mathematical formula. Accuracy will be discussed at length later in the paper.

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### Projector Resolution vs. Touch Resolution

Manufacturers of touch sensitive interactive whiteboards claim that as long as their board has greater resolution than the projector used with the whiteboard, there will be no impact on the performance of the whiteboard. As seen in the previous diagram, no matter what the projector resolution, the bottom line is that **DualBoard™ users will be better able to select any point on the board since the whiteboard is divided into smaller “selectable” pieces.**

In addition, projector technology is moving forward at a brisk pace, which may soon make the performance of touch sensitive interactive whiteboards even less appealing.



The graph shows that SXGA projectors have more than four times the resolution (points per inch) than their VGA counterparts.

- Touch sensitive interactive whiteboards only have about 16 million pixels of resolution; 12 times that of the SXGA projector of today.
- The DualBoard™ features over 2.8 billion pixels, which is 2,000 times the resolution of the SXGA projector.

By purchasing eInstruction’s Collaborative Classroom Suite, your technology investment will be protected for generations to come and will far outlast similar investments in computers and projectors.

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### Accuracy and Precision are Related to Resolution



Accurate, but not precise



Precise, but not accurate

Two more terms that are often used in connection with interactive whiteboards are accuracy and precision.

- Accuracy is a measure of how well the user can select the desired point on the whiteboard. Accurate means hitting close to the bullseye.
- Precision refers to the ability to select this point over and over. Precise means hitting the same spot on the target.

Greater resolution affords users a better chance of selecting the desired point, since the whiteboard is divided into smaller “selectable” pieces. As stated earlier, the DualBoard™ features 2.8 billion points or pixels to make the task of accurate selections on the whiteboard much more likely.

DualBoard™ is constructed with a fixed electronic grid behind the whiteboard surface. Think of this as a precise and permanent map of the whiteboard that allows the same point to be repeatedly chosen time after time. This is especially important to users such as math teachers that work with equations and need to be able to edit, erase or add to existing information that may include complex formulas.

So, you can see that DualBoard™ gives users the best of both worlds by providing the resolution needed to accurately and precisely select any point on the whiteboard surface.

### Pens vs. Fingers

Another issue in the accuracy and precision discussion is the use of fingers vs. pens on an interactive whiteboard. eInstruction’s interactive pens are more accurate and precise than a finger since the diameter of the pen tip is much smaller than the diameter of a fingertip. The fine tip of the pen can truly exploit the high resolution we provide on our interactive whiteboards.

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### **OTHER BENEFITS OF INTERWRITE INTERACTIVE PENS INCLUDE:**

#### *Natural Writing Style*

Touch sensitive board manufacturers advocate the use of fingers as a more natural method for input. Nothing could be further from the truth! Any teacher of handwriting will insist that using a pen is of much greater value since students will be writing with pens during and after their school careers. However, not all pens are alike! When using the pens supplied with touch sensitive boards, students and teachers must hold their hands such that no part of their hand touches the board as they write with the pen. If their hand does touch the whiteboard, its position will be detected by the board and the resulting input will be incorrect.

#### *Full Mouse Functionality*

eInstruction® interactive pens provide all the features of a standard computer mouse. This allows teachers and students to operate the interactive whiteboard using only the pen, without the need for special onscreen buttons to right click and so on.

#### *Hovering and Proximity*

Another benefit that from utilizing eInstruction® electromagnetic technology is the ability to see where the pen is before making contact with the whiteboard. With touch sensitive boards, the user does not get an indication of their position on the board prior to actually making a selection. This results in false “clicks” if the whiteboard calibration is incorrect. Hovering above the intended click point gives teachers feedback to continue the lesson without interruption. Additionally, hovering can activate tool tips and link tips, providing the user with all the capabilities of their mouse while at the board.

#### *Notes Capture*

By using eInstruction® Expo markers, you can place a flip chart or other paper media on the DualBoard™ surface, write on the paper and capture the information in the computer without the need for a projector. This provides a great tool for teaching and brainstorming sessions.

### **THE CONCLUSION**

eInstruction products provide industry leading resolution and accuracy so users can effectively communicate their ideas. When you purchase a DualBoard™ rest assured that the resolution and durability provided by eInstruction® products will protect your technology investment for many years to come.