

## Electromagnetic Technology and Its Advantages in Interactive Products

The interactive products from Numonics – the Intelliboard<sup>®</sup> (I-Board), the  Interactive Presentation Manager<sup>®</sup> (IPM) and the  Digital Presentation Appliance<sup>™</sup> (DPA) - use Numonics' patented electromagnetic technology. Other technologies used by available interactive products on the market are “resistive” or “laser.” The electromagnetic technology has very definitive advantages. To understand these advantages, it is necessary to understand the technology. Here is a simple explanation:

### Electronic Pens:

Numonics' interactive products feature an “electronic multimedia pen” that generates both left and right mouse functions. The electronic pen acts as a tiny transmitter. As the user writes on the board, the pen sends a signal to a wire grid behind the writing surface of the interactive board, generating a current in the wire grid. The characteristic of this current is a function of the pen position on the writing.

### Wire Grid:

The wire grid behind the writing surface layer of the interactive products acts like an antenna, receiving the signals emitted by the pen. The characteristic of current generated in the grid is linear and unique for every 0.001 inch (0.0254 mm) point along the X- and Y-axes. This high resolution allows the determination of the absolute pen position along the entire writing surface of the interactive board with 1000 lines-per-inch (lpi) resolution for the I-Board and IPM, and 500 lpi for the DPA.

### Electronic Circuit Board:

A solid state electronic circuit board is located inside the pen tray at the bottom of each interactive board. Large Scale Integrated Circuits (LSI's) receive and decode the currents in the grid wire. The resulting digital X, Y coordinates are transmitted to the computer through a serial RS 232 serial cable to the communications port or via a USB adapter to the USB port.

## Advantages Achieved from Electromagnetic Technology

**Classroom Tough Product:** the electromagnetic signal passes through any non-metallic material, so it is possible to use a very hard Formica surface. The surface material is well suited for harsh environments.

**Shock and Vibration Resistance:** the wire grid is bonded (glued) in place so that the wire grid maintains its precise position even if the board is submitted to extreme shock and vibration. There are no moving parts to be damaged.

**High Resolution:** write as small as possible - the 1000 lpi resolution insures that details will be visible on the printed copy.

**Fast Response:** the electromagnetic technology is linear; decoding the signal is relatively simple. The LSIs are digitally processing the codes at high speed, so there is no perceptible lag between the actual writing on the board and the appearance of the corresponding image on the computer monitor.