

E Ink : White Paper - Amatek Design 2016

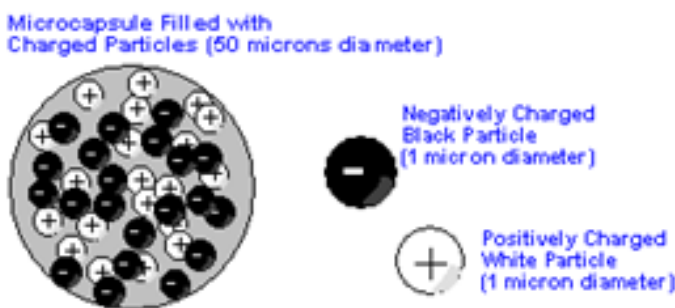
Definition

The E Ink Corporation was founded in 1997 and makes electronic paper display (EPD) subsystems for handheld devices using E Ink Vizplex Imaging Film. While initially only available in monochrome, the color E Ink displays were introduced in 2010. Products include a seven-segment display film for smart cards, shelf labels, shipping labels and partially complete substrates for e-books.

Long Battery Life, High Resolution and Flexible

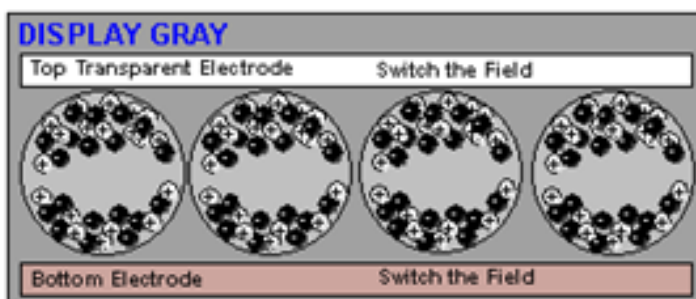
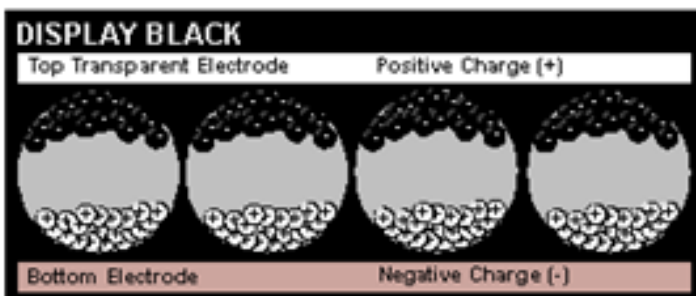
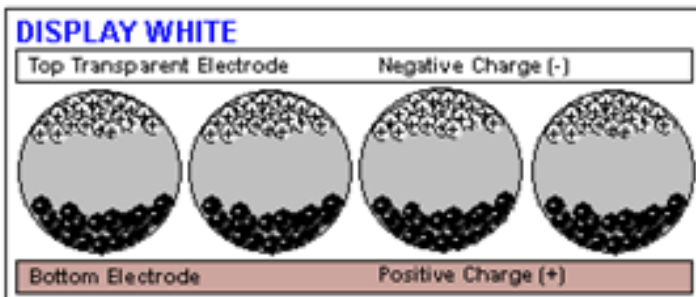
Due to the zero power display capability EPD screens can run up to 30 times longer than LCD screens without recharging. Unlike LCDs, which need constant refreshing, once an EPD display is rewritten, it holds its content indefinitely.

The resolution of EPD devices in production is 167 dpi, compared to 96-120 dpi on LCD screens. Since EPD supports up to 400 dpi, the resolution limitation is in the device electronics.



Microcapsules Filled with Fluid and Particles

The E Ink Vizplex film is made of microcapsules filled with fluid and many charged black and white particles composed of ink pigments. The microcapsules are coated on the film and laminated to the top electrode. Row and column drivers are attached, and the module is shipped to customers who add the bottom electrode.



Sandwiched between the electrodes, the black and white particles are drawn to the viewing surface when the opposite charge is applied. The EPD technology stems from the early 1990s when Dr. Joseph Jacobson of MIT Media Labs improved upon an earlier approach from Xerox PARC that used larger beads and more power. E Ink Corporation was founded to refine the MIT technology.

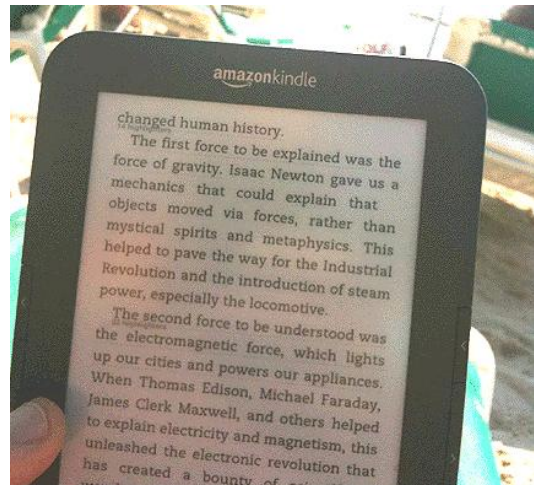
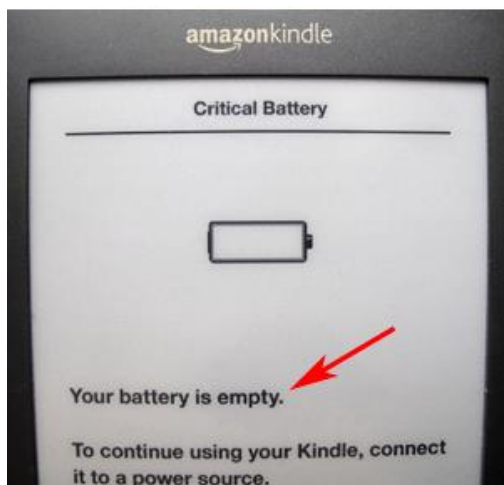
Opposites Attract

The charged particles are attracted to the opposite charge on the electrodes, drawing them to the appropriate side. Up to 16 shades of gray are produced by switching the field with varying durations at the pixel location, causing the black and white particles to mix.

E Ink : Applications

The Brightest Light

Unlike LCD displays, E Ink screens are readable in the most intense light such as a bright sunlit day at the beach for example with the Amazon Kindle.



E Ink with Touch-screen



Amatek Design has had first hand experience in design and developing with E Ink screens on an electronic locker product.

The E Ink display screen was interfaced with a resistive touch screen pad to an STM32 microprocessor.

The keystrokes were decoded and related to the active areas of the E Ink display. These elements were integrated into a touch-screen PIN pad for access control.

Your E Ink project can be successful with Amatek Design's experience and knowhow.

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