Electronic Paper (E-paper)

By Amstore Innovation Ltd
Amstore Innovation designs and creates solutions for our customer to deliver long lasting, affordable, portable motion E-paper (no wires) to places where it was once thought impossible or impractical. Our key products are:

- Advertising
- Product Integration
About e-paper

What is e-paper?
Electronic Paper is an enhancement to regular print. It fuses electronic technology with print to offer an attention grabbing and innovative form of digital display. It is designed to help you stand out and get noticed by drawing attention to the eye.

How it works:
A printed overlay is placed over an e-paper display sheet. When combined, the print and technology work together to bring the product to life. Small ‘coin’ batteries are built into the electronic PCB that programs and powers the units.

WHY USE e-paper?
It is difficult to stand out and get noticed in today’s world of high competition and fast evolving technology. E-paper is a portable, wireless and light weight solution that creatively animates conventional print, making it look ‘alive’. The result is an eye catching proposition that will help your product stand out.

Features of e-paper
1. Flexible, durable / shatterproof
2. Self powering - internal batteries means it doesn’t require an external power source
3. Long lasting - often up to 12 months
4. Custom or standard shaped - so it can be designed to suit the location and product requirements
5. Cost effective
6. Small and compact so can be efficiently placed in difficult locations.
How we do it

Using Electronic Paper, we bring the static world to **MOTION**!

Our solutions are self-contained solutions and do not require a power outlet.

- 10x10cm display
- Battery Powered
- 6 months run time
Bringing e-paper to life

**Overlay**

Overlay (top layer) with full colour print / design

**E-paper (Underlay)**

The e-paper layer is only black and white (no colour)

**Overlay + E-paper**

When the overlay is placed over the surface of e-paper, the full color design is brought to life
The controller is located on the back of the acrylic bracket, powered by 2AA battery or coin battery.
Benefits of using e-paper

1. No Wires – Battery or Solar Powered
2. Paper-Thin: Light Weight, & Flexible
3. Crystal Clear Display – No Blurry Images
4. Very Low Power Consumption – 2 AA Batteries can last 6 months
5. Water Proof & Shock Proof – No Glass (like an LCD)
6. No Heat – Cool Running
7. Attracts More Attention

(Bar Graph) produced by Procter & Gamble Inc
Motion POS / Advertising is more than 2x Effective than Static / non-animated Ads.
E-paper for retail / shelf promotion

- shelf shouter
- bulk display
- Point of Sale
- strips
- stock stand
- E-Paper price display
E-paper – Product display / Product promotion

- large display
- exposure stand
- counter display
- two sides display
- set packages
- magazine cover- outer
- magazine cover- inner
Ordering e-paper

**PRE-PRODUCTION**
- **CLIENT:** Emails Overlay artwork to Amstore and confirms size
- **AMSTORE:** Creates animated e-paper underlay
- **CLIENT:** Confirms Quantity
- **AMSTORE:** Confirms to price to produce and deliver

**SAMPLE PRODUCTION**
- **CLIENT:** Orders sample (Price TBC depending on size. Payment 1 required)
- **AMSTORE:** Produces sample (1-2 weeks)
- **CLIENT:** Approves the sample

**ORDER**
- **CLIENT:** Places full purchase order. Payment 2 is required.

**MASS PRODUCTION**
- **AMSTORE:** Begins Mass-Production (7 – 10 weeks)

**DELIVERY**
- **AMSTORE:** Deliver products to the address specified
The E-POP product line consists of Display Sheets, Controllers, and related accessories.

The sheets themselves are less than 1 millimeter thick and can be flexed slightly (up to a radius of curvature of 10 inches).

E-Paper display sheets are plastic sheets that switch between dark and light states. They are available in many sizes up to 370*520mm.
About electronic-ink

Electronic ink is a proprietary material processed into a film for integration into electronic displays. Although a revolutionary in concept, Electronic ink is a straightforward fusion of chemistry, physics and electronics to create this new material.

The principal components of Electronic ink are millions of tiny microcapsules with the diameter of a human hair. In one incarnation, each microcapsule contains positively charged white particles and negatively charged black particles suspended in a clear fluid. When a negative electric field is applied, the white particles move to the top of the microcapsule where they become visible to the user.

This makes the surface appear white at that spot. At the same time, an opposite electric field pulls the black particles to the bottom of the microcapsules where they are hidden. By reversing this process, the black particles appear at the top of the capsule, which now makes the surface appear dark at that spot.
How it works

Cross-Section of Electronic-Ink Microcapsules

Top Transparent Electrode
Positively charged white pigment chips
Clear Fluid

Subcapsule addressing enables hi-resolution display capability

Negatively charged black pigment chips

Bottom Electrode

Light State

Dark State

NOTE: Copyright E Ink Corporation, 2002. Image not drawn to scale - for illustration purposes only.
Specifications

Visual Performance

- **Display Type:** Reflective Electronic Paper Display (electrophoretic)
- **Colors:** Black and White
- **Contrast Ratio:** 7:1 (typical)
- **Reflectance:** 41% (typical)
- **Image Stability:** Remains legible for months
- **Viewing Angle:** Near 180°
- **Image Update Time:** 240-400 milliseconds

Physical Characteristics

- **Thickness:** about 0.9mm
- **Border:** 6 mm minimum between active area and outer edge
Technical Parameters

**Power Requirements**

- **Drive Voltage:** +/- 15 volts
- **Power Draw:** Static Image: None; Image Update: 12 microwatts/cm²

**Electronic Control**

- **Drive Method:** Custom created controller

**Environmental Characteristics**

- **Operating temp. range:** -10° to 60° Celsius
- **Storage temp. range:** -25° to 75° Celsius
- **Humidity tolerance:** 90% relative humidity at 40° Celsius for 240 hours
- ***Durability:** Display is shatterproof
Thank You

http://amstoreinnovation.com/e-paper/