

# Electronic Skins

- dynamic personalization
- multiple color switching
- image preserved if power is lost
- unlimited viewing angle
- viewable in bright light
- paper-thin and lightweight
- “no power” needed
- custom-fitted to a flat shape including holes if desired

Reflex Electronic Skins enable real time, consumer selected visual personalization. Only 65 microns thick even with active liquid crystal technology inside, our electronic skins can slide into the slimmest of applications. Its color rapidly switches on command, transforming any accessory into a unique, changeable personal style statement. A layer of the electronic skin brings spirit and liveliness to the most lackluster of surfaces, even the electronics industry’s standard gray plastic enclosures. Our electronic skins use absolutely no power to maintain which color is already rendered on the surface—they are battery-friendly for mobile style.

## TECHNOLOGY

Reflex Electronic Skins consist of active layers, shown in Figure 2, that combine to create a multitude of hues.

Each layer of an electronic skin is additive color and is either reflective or transmissive; color variations result from switching between these two modes.



[Figure 2] Cross section of an electronic skin where inside surfaces are coated with conducting polymers.

With eSkin,

transform

a lifeless, standard accessory

into an

instantly personalizable,  
color-morphing  
style statement.



[Figure 1] Reflex electronic skin embedded in a cellular phone, dynamically switching colors on demand.

## APPLICATIONS

The freedom of individual expression and the polished, tailor-made look of custom fitting electronic skins easily expands into a wide array of product applications. Mobile devices and cellular phones are platforms that are ideally suited for the personal touch only Reflex Electronic Skins can deliver with low power consumption, non-traditional shapes, and multiple color switching.

Reflex Electronic Skins are a perfect fit for: cellular phones, mobile devices, laptops and computers, MP3 players, mobile entertainment cases, video game controllers, stereos, toys, carrying cases, clocks, furniture, and jewelry.

## INTEGRATION

Reflex Electronic Skins are plastic, can be manufactured to fit any 4in<sup>2</sup> flat shape (Figure 4) and any shape hole requested may be sliced from it. Our electronic skins are created to conform to specific product-sized templates. See “Product Design Guidelines” (below) for specific integration requirements. With over four square inches of an electronic skin, it is now possible to give customers the customization they desire by personalizing their accessories and giving them a voice of visual attitude.

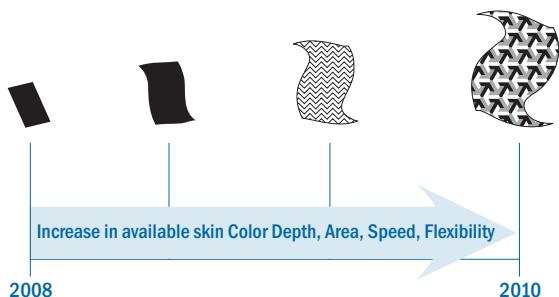
### Availability

Availability and cost of this custom product are dependent on quantity, shape, and area. Contact Kent Displays, Inc. for more information.

### Product Design Guidelines

To integrate a custom Reflex Electronic Skin, the current requirements are (see Figure 3 for future guidelines):

- any flat shape within 4in<sup>2</sup> maximum area
- can have holes within maximum area
- Interconnect ledge: 5mm x 30mm



[Figure 3] Reflex Electronic Skins Technology Production Outlook 2008–2010, showing increase in Color Depth, Available Area, Speed, and Flexibility.

## IN DEVELOPMENT

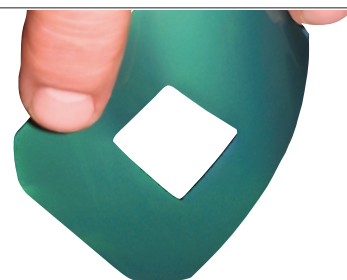
Kent Displays Inc. is continually investing in product improvement, testing the scientific limits in all aspects of the company's developing technologies. The vibrant colors that already make Reflex Electronic Skins so appealing are currently available for product integration. With further evolution of eSkin, area, speed, flexibility, and color depth will all be increased (Figure 3), and color depth will be available in 3 bit color, each layer updating sequentially.

### Pattern

The ability to decorate our electronic skins with fixed patterns, shown in Figure 5, will be available in future production. Thin strokes in patterns can already be rendered in development, resulting in intricate designs customers will desire.



[Figure 5] Development stage: patterned and curved Reflex Electronic Skins applied to a cellular phone. (actual photos)

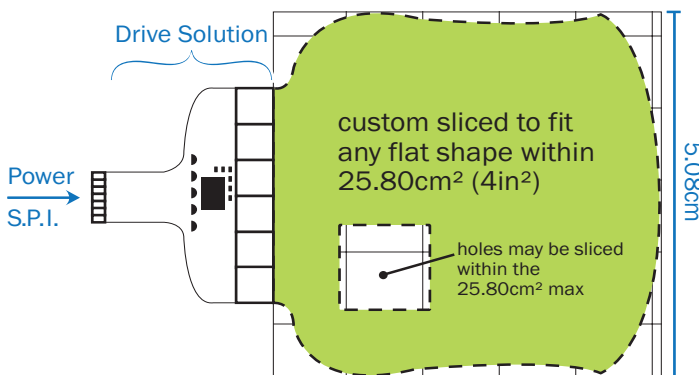


### Curve

With the material used in Reflex Electronic Skins, it will soon be possible to manufacture dimensionally curved, flexible displays which conform to a diameter of approximately one centimeter!

## Specifications

Area	any flat shape may be custom sliced within 4in <sup>2</sup> max, including holes	
Color and Reflectance	consistent, extremely bright and vivid color	
Curvature	Flat	
Handling	<ul style="list-style-type: none"> <li>• delicate and extremely thin</li> <li>• handle with care until integrated</li> </ul>	
Power	.23mW/cm <sup>2</sup> for 3 seconds	
Temperature	Current Models	Next Generation Models
	[Storage]	-10° C to 50° C
[Operation]	10° C to 45° C	0° C to 80° C
Thickness	approximately 65 μm	
Weight	0.0089 g/cm <sup>2</sup>	



[Figure 4] Available area and ledge to scale (4in<sup>2</sup>).