

# CLEAR CONDUCTIVE SENSORS



**Aesthetic demand calls for devices and electronics to continue to be smaller and sleeker throughout consumer and industry markets alike. Technological demand calls for them to be smarter, though smaller, and manufacturers also have environmental and cost factors to consider. Enter Clear Conductive Sensors - an innovative e<sub>2</sub>ip technology leading the advancement of curved applications.**

Clear Conductive Sensors by e<sub>2</sub>ip technologies are translucent circuits manufactured using additive processes, where translucent and conductive ink is silkscreened on a flexible substrate. As part of a curved capacitive keypad, the integration of Clear Conductive Sensors will be used to achieve capacitive sensing. Unlike ITO films which have been used for decades and are relatively brittle and limited in formability, this solution offers greater flexibility.

The circuits are ideal for when space saving is a priority. Thin and lightweight, they allow for additional design freedom and will reduce the overall weight of a product. Cost-effective and environmentally-friendly, this technology can be seamlessly integrated into various applications such as wearable devices, appliances, medical HMI and more.

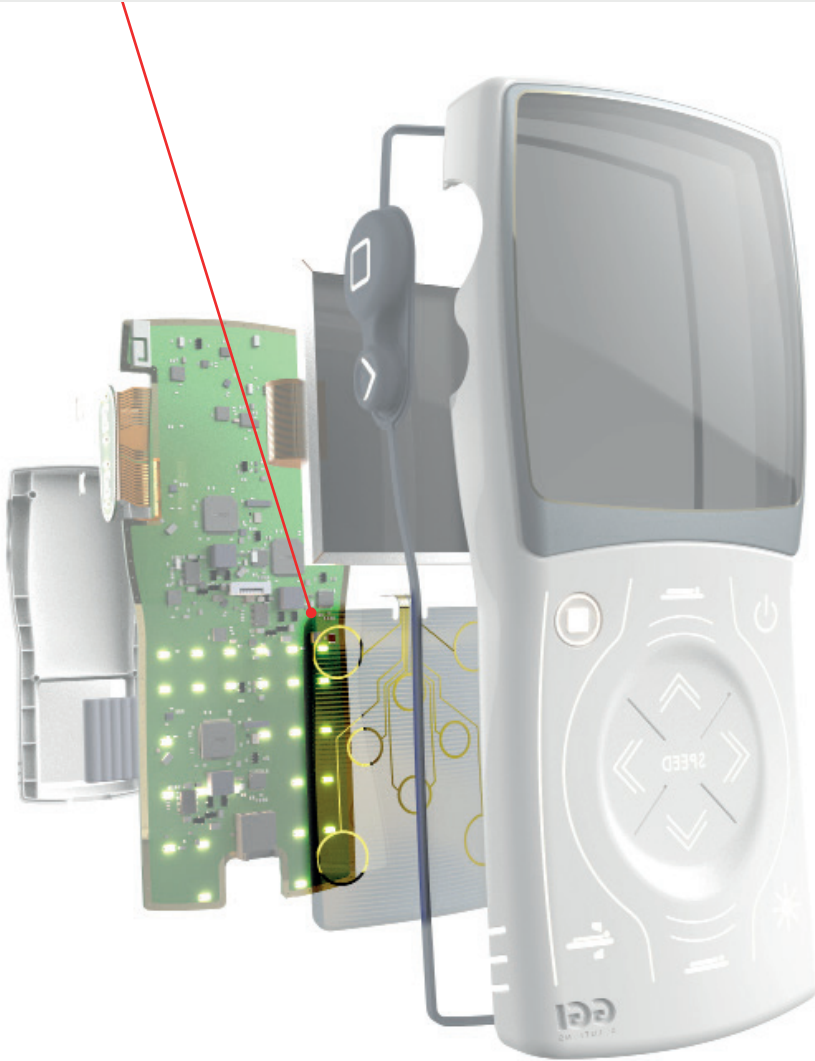
## Sectors

- Wearables
- Medical
- Industrial
- Transportation
- White goods
- Agriculture
- Consumer

## Key Features & Benefits

- Stretchable
- Mouldable
- Thin
- Biocompatible
- Cost-Effective
- Easy to use
- Flexible
- Lightweight

Clear Conductive Sensors integrated into a remote control.



### **Translucent**

The translucency of the circuit allows light to pass through for optimal keypad backlighting.

### **Customizable**

Buttons and capacitive areas can be designed in a multitude of shapes or icons.

### **Adaptable**

Various capacitive sensing options are available to suit a wide range of design needs. They can be printed as proximity sensors, as an actuation mechanism or simply as capacitive touch.

### **Flexible**

The circuits are bendable, stretchable and printable on different substrates and thicknesses, suitable for a variety of curved applications.

## Conformity

e<sub>2</sub>ip' Clear Conductive Sensors meet regulatory standards for aerospace, medical, industrial, white goods and defense.

## Technical Information\*

<b>Technology</b>	Printed Self-Capacitive Sensing Pads
<b>Ink</b>	Translucent conductive ink, Silver ink, molecular ink
<b>Substrates</b>	PET, PEN, PC, Polyimide film, TPU
<b>Thickness</b>	127 µ to 508 µ
<b>Maximum circuit size</b>	56 cm x 81 cm
<b>Key Diameter</b>	Lower than 10 mm.
<b>Line width and spacing</b>	Min 0.25 mm / 0.25 mm
<b>Translucent ink resistivity</b>	250 Ω/sq typ.
<b>Electrical Interface</b>	Nicomatic & Amp 2,54 mm headers, ZIF tail termination down to 0,50 mm. Other tail terminations available on request.
<b>Minimum bend radius</b>	12 mm

\* The technical specifications above apply to our standard design. Specifications may differ depending on customer's requirements.

## Environmental Specifications

Test	Procedure	Result
Crease and bending	ASTM F1683 – 09 Crease and Bending test	PASS
Temperature & Humidity	ASTM F1596-07, Level 1 (-40°C / +85°C)	PASS
Silver migration	ASTM F1596-07, Level 1 (40°C / 90% RH for 10 days)	No migration
Temperature and Altitude	DO-160F	PASS



**Electronics should not get in  
the way of design freedom.**

For more information, speak with  
a specialist at e<sub>2</sub>ip technologies.

We're always looking forward to  
hearing from you!

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