

Smart Screen F (S-CS21303)

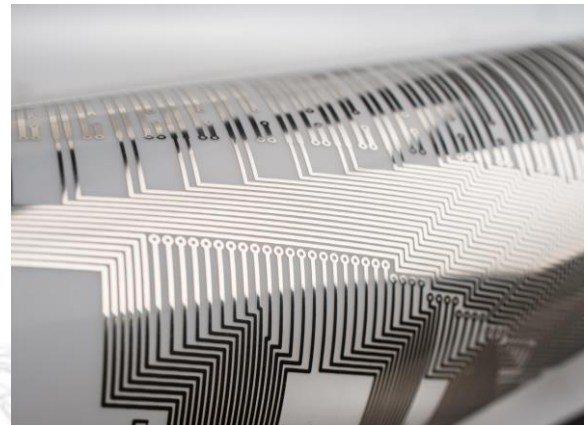
Smart Screen F (S-CS21303) Conductive Ink was developed for the printed electronics market and is particularly well suited for applications requiring **high conductivity** and **high resolution at very low curing temperatures**. This ink, based on silver nano-particles, is perfectly adapted to design conductive tracks on flexible substrates and is suitable to produce antennas for IoT applications.

Process: Flatbed screen printing (down to 80 µm of resolution)

For printing lines below 80 µm, use Smart Screen R (S-CS21306)

Ready-to-Use Ink

Material	Silver nano-particles
Particles content	55 ± 5 wt%
Solvent type	Alcohol/Glycol mix
Viscosity (20°C)	5,000 - 7,000 mPa.s @40s ⁻¹ 4,000 - 5,000 mPa.s @100s ⁻¹
Density	2 g/cm ³
Storage stability	6 months at 18-25 °C



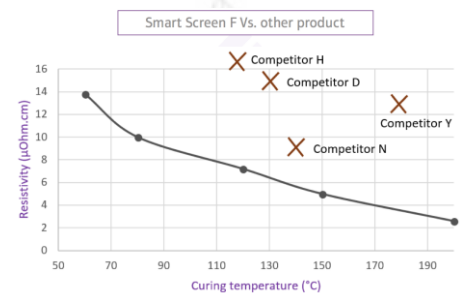
Smart Screen F printed sample

Printing guidelines

Type	Mesh Thickness	Mesh count	Mesh Angle	Emulsion Thickness	Resolution	Theoretical coverage (m ² /kg)	Theoretical dried thickness
Inox	49 µm	325 /inch – 130 /cm	45°	5 µm	100 µm	39	2 µm
Inox	40 µm	400 /inch – 160 /cm	45°	5 µm	80 µm	71	1 µm
Polyester	30 µm	380 /inch – 150 /cm	22.5°	10µm	80 µm	50	1.6 µm
Polyester	34 µm	420 /inch – 165 /cm	22.5°	Capilex CP MacDemid	80 µm	90	1 µm

Sintering Conditions

Curing process	Curing conditions	Resistivity	Nb Silver bulk
Tunnel furnace	60°C/5mn	13.8 µΩ.cm	8.6
Tunnel furnace	80°C/5mn	10 µΩ.cm	6.25
Tunnel furnace	120°C/5mn	7.5 µΩ.cm	4.7
Tunnel furnace	150°C/5mn	5 µΩ.cm	3.1
Tunnel furnace	200°C/5mn	2,6 µΩ.cm	1.6
NIR	Few seconds	4 – 10 µΩ.cm	2.5 to 6.25
Photonic curing	<100ms	3 – 10 µΩ.cm	1.9 to 6.25



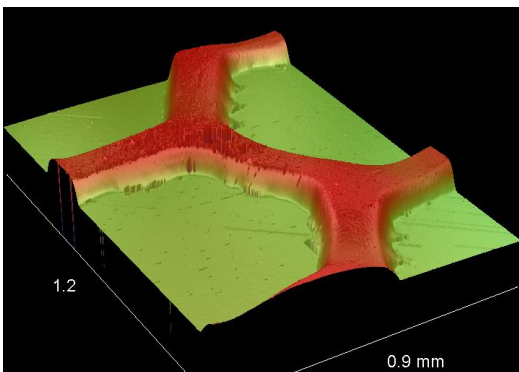
Key advantages & benefits

- Superior adhesion (5B)
- Cost reduced by a factor 2
- Good bending resistance, smooth surface
- Superior conductivity
- High resolution
- Curing process compatibility: photonic, NIR, low vacuum oven, thermal curing
- High nano-particles content
- Non-Toxic (No CMR ink)
- Long shelf-life

Typical printing performances

Specific resistance	5 $\mu\Omega\cdot\text{cm}$
Sheet resistance	25 m Ω/\square
Resolution	80 μm
Thickness	2 μm
Sintering Conditions	5 min at 150°C
Adhesion on PET	5B (ASTM D3359)
Bending radius	2 mm

* Mesh used: Polyester / 150mesh/cm / \varnothing 30 μm



Smart Screen F 3D profilometry

Qualified Substrates (5B - ASTM D3359)

- PET: Melinex 406, Melinex 339, Melinex 520, Arcophane TCA, Arcophane STS, Folex BG-71
- PEN: Teonex
- KAPTON®
- Ceramic

Recommended surface treatment:

- Temperature stabilization
- Argon plasma

Use **ProtectInk S (P-ID21001)** as a protective layer for the ink Smart Screen F

Applications

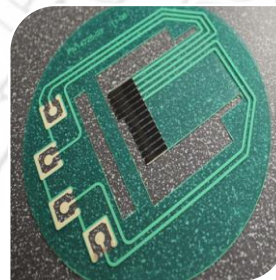
RFID & NFC tag



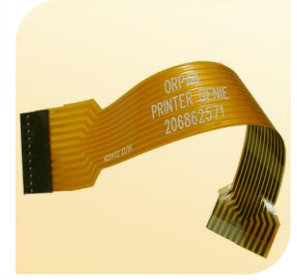
OLED & OPV grid



Flexible PCBs



Flexible printed cables



Shipping & Packaging

- Standard sample order is 100 g
- Standard bulk order is 1 kg
- Standard delivery time is 10 days

Limited Warranty

GenesInk guarantees the quality of its products. Since GenesInk cannot anticipate or control factors and variables under which the products and information will be used, GenesInk cannot guarantee the results. Shelf life of material is defined for unopened containers from date of shipment. The information provided by GenesInk is provided in good faith, and the responsibility is limited solely to the exchange of the product supplied. The information provided in this technical sheet is provided as guidelines and is not intended to represent or warrant or ensure suitability of the product for any specific uses..

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