Smart Films INTERNATIONAL

PNLC ADHESIVE FILM

WHITE REVERSE MODE

Adhesive Polymer Network Liquid Crystal (PNLC) smart film switches between opaque and clear states instantly. When power is OFF, the crystals align, allowing light to pass through for full transparency. When power is ON, liquid crystals (LC) scatter light, making the film opaque.

ADVANTAGES

Fast Switching Time
Changes from clear to opaque in less than a second

Low Power
Consumes less than 0.5 W/ft^2 (5 W/m^2) when ON

Ultra Clear
Transmits 88% of visible light when OFF

UV Protection
Blocks 99% of UV rays, reducing interior fading

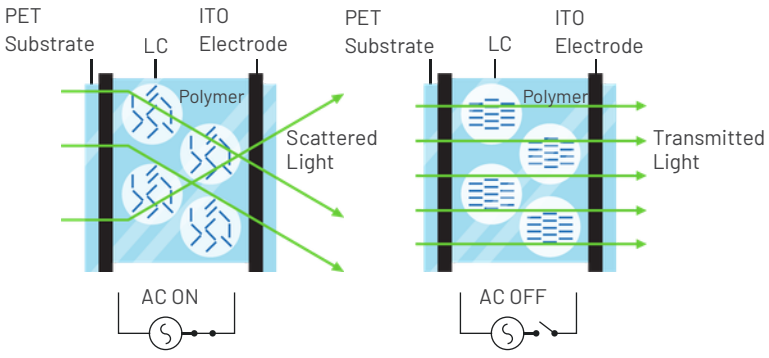
Long Lasting
Lasts over 15 years and endures 80 million switching cycles

Wellbeing
Allowing natural daylight

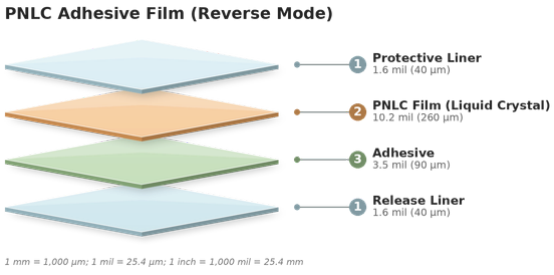
Low Haze
Maintains haze below 10%, preserving crisp views

Control
Certified controllers offer ON/OFF and dimming

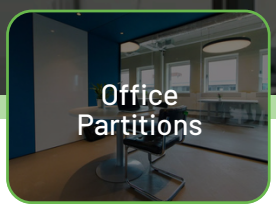
WORKING PRINCIPLE

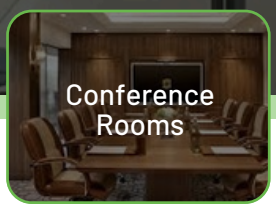


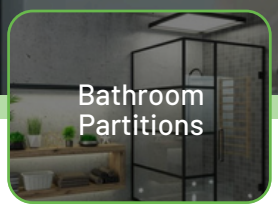
LAYERS STRUCTURE

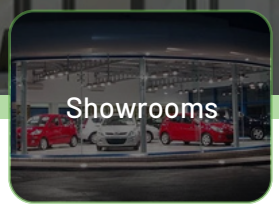


APPLICATIONS









PNLC SMART FILM ADHESIVE WHITE SPECIFICATIONS

CATEGORY	PARAMETER	STATE	PNLC
OPTICAL	Color	ON	Opaque White
		OFF	Transparent
	Visible Light Transmittance	ON	9%
		OFF	88%
	Haze	OFF	< 10%
	Viewing Angle	ON	> 160°
	UV Blocking Rate	ON	99%
ELECTRICAL	Controller Input Supply		110 VAC / 220 VAC (50/60 Hz)
	Operating Voltage	ON	48–65 VAC
	Response Time	ON → OFF	~500 ms
	Response Time	OFF → ON	~500 ms
	Switching Cycles		> 80 million
	Durability	ON	> 15 years
	Smart Film Power Consumption	ON	< 0.5 W/ft² (< 5 W/m²)
	Controller Power Consumption		0.2–0.4 W/ft² (2–4 W/m²)
	Operating Modes		ON, OFF, Dimming
MECHANICAL	Width		47.2″ (1200 mm), 57.1″ (1450 mm)
	Roll Length		98 ft (30 m), 164 ft (50 m)
	Thickness		14 mil (350 µm)
	Formats		Cut to Size, Roll
	Available Colors		White
	Compliance		Company: ISO 9001, IATF 16949 Products: RoHS, CE, UL
ENVIRONMENTAL	Storage Conditions		-4 °F to 140 °F (-20 °C to 60 °C) 20–60% humidity
	Working Temperature		14 °F to 140 °F (-10 °C to 60 °C)