Smart Films INTERNATIONAL

SMART GLASS (IGU)

Insulated Glass Unit

Polymer Dispersed Liquid Crystal (PDLC) smart glass switches between opaque and clear states instantly. When power is OFF, liquid crystals (LC) scatter light, making the glass opaque. When power is ON, the crystals align, letting light pass through for full transparency.

ADVANTAGES

Fast Switching Time
Changes from opaque to clear in less than 10 ms

Low Power
Consumes less than 0.4 W/ft^2 (4 W/m^2) when ON

Ultra Clear
Transmits more than 82% of visible light

Acoustic Insulation
Acts as a sound barrier reducing noise transmission

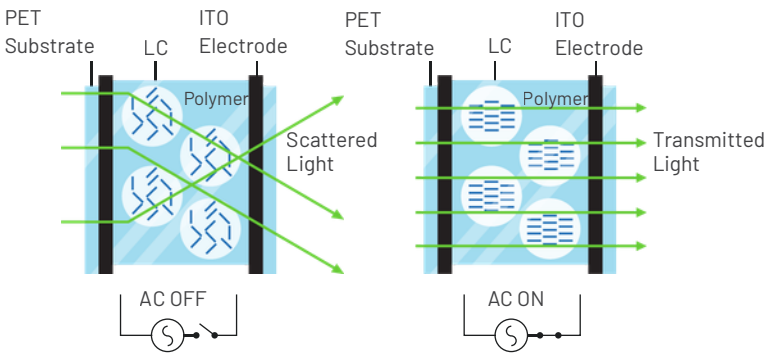
Long Lasting
Lasts over 15 years and endures 80 million switching cycles

Wellbeing
Allowing natural daylight

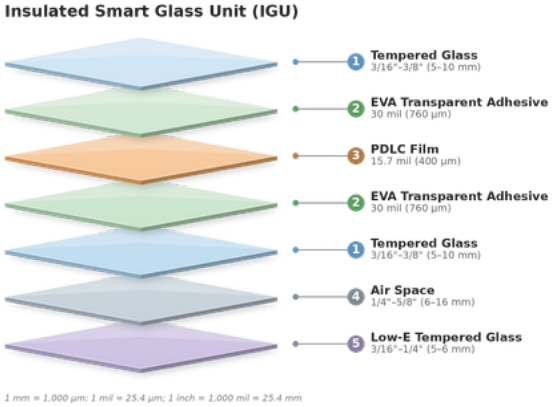
Low Haze
Maintains haze below 4%, preserving crisp views

Control
Certified controllers offer ON/OFF and dimming

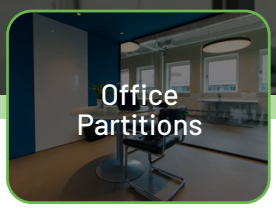
WORKING PRINCIPLE

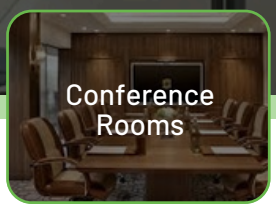


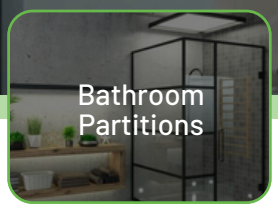
LAYERS STRUCTURE

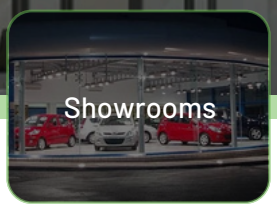


APPLICATIONS









INSULATED GLASS UNIT (IGU) SPECIFICATIONS

CATEGORY	PARAMETER	STATE	IGU
OPTICAL	Color	ON	Clear
		OFF	Opaque White
	Visible Light Transmittance	ON	> 82%
		OFF	< 10%
	Haze	ON	< 4%
	Viewing Angle	ON	> 150°
	UV Blocking Rate	ON / OFF	99%
	SHGC	ON	< 0.35
		OFF	< 0.28
ELECTRICAL	Controller Input Supply		110 VAC / 220 VAC (50/60 Hz)
	Operating Voltage	ON	48–65 VAC
	Response Time	ON → OFF	< 200 ms
	Response Time	OFF → ON	< 10 ms
	Switching Cycles		> 80 million
	Durability	ON	> 15 years
	Current	ON	< 20 mA/ft^2 (< 200 mA/m^2)
	Smart Glass Power Consumption	ON	< 0.4 W/ft^2 (< 4 W/m^2)
	Controller Power Consumption		0.2–0.4 W/ft^2 (2–4 W/m^2)
	Operating Modes		ON, OFF, Dimming, Segments
MECHANICAL	Glass Structure		PDLC: 1/2, 5/8" (12, 16 mm) Air Space: 1/4, 3/8, 1/2, 5/8" (6, 9, 12, 15 mm) Low-E: 3/16, 1/4, 5/16" (5, 6, 8 mm)
	Max Width (Length unlimited)		White: 71" (1800 mm) Grey, Black: 59" (1500 mm)
	Available Colors		White, Grey, Black, Custom
	Compliance		Company: ISO 9001, IATF 16949 Products: RoHS, CE, UL
ENVIRONMENTAL	Storage Conditions		-4 °F to 140 °F (-20 °C to 60 °C) < 50% humidity
	Working Temperature		-4 °F to 176 °F (-20 °C to 80 °C)