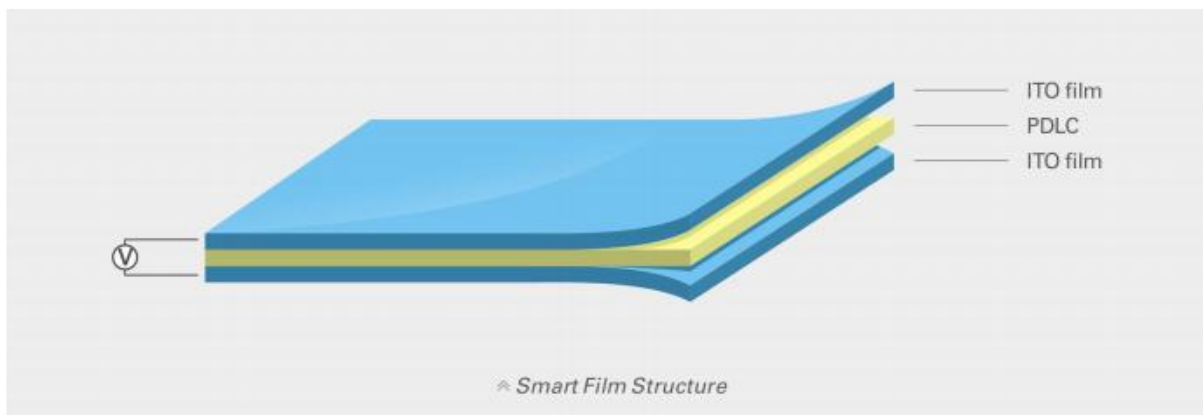


Products

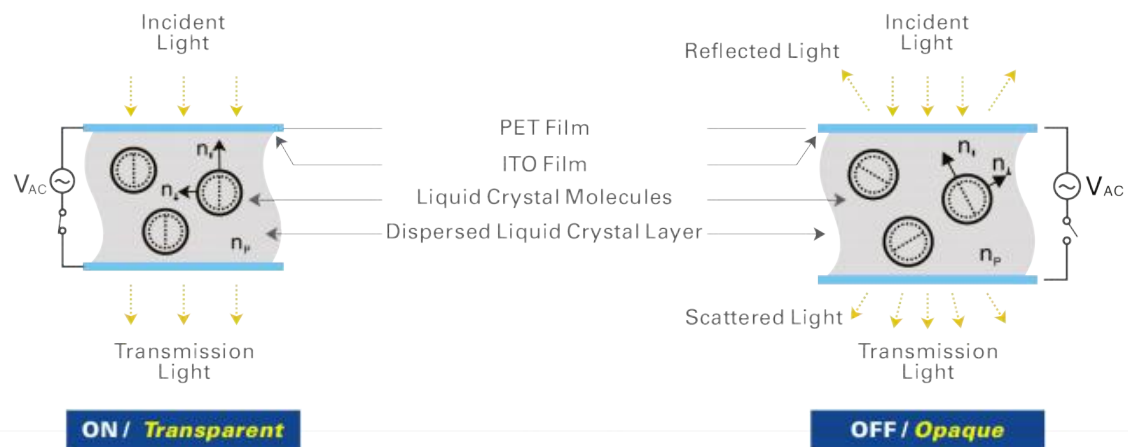
SMART FILM PART A

SMART FILM

Smart film, also called PDLC film or switchable film, is composed of two layers of ITO films and one layer of PDLC.



The smart film, controlled by applied electric field, is able to have instantaneous transformation between transparent and opaque (frosted) state.



Opto-electrical Properties

When no voltage is applied, the smart film is opaque (frosted state) ; When voltage is applied, the film is transparent. Detailed specifications as below:

Item	Unit	Criteria	Testing Method and Standard
Rated Voltage	ON v	36 / 48 / 60 (AC 50HZ)	Multimeter
Power Consumption	ON w/sq.m	1.5 / 2.5 / 4.0	Multi - parameter Electrical Measuring Instruments
Total Light Transmittance	ON %	> 82	GB/T 2410-2008 Spectrophotometer
	OFF %	> 65	
Directional Light Transmittance	ON %	> 76	GB51372-2002
	OFF %	< 3	
Haze	ON %	< 3	GB/T 2410-2008 Spectrophotometer
	OFF %	> 95	
ResponseTime	ON ms	< 45	Liquid Crystal Multi - parameter Measuring Instrument
	OFF ms	< 200	
OperatingTemperature	/	°C -20~70	ConstantTemperature and HumidityTesting Machine
Lifespan	ON h	> 80000	GB18910.5-2008
Viewing Angle	OFF °	> 160	Visual Inspection

Weather Resistance

PDLC smart film, applying our exclusive formula of liquid crystal composite material as well as optical grade flexible conductive films, has excellent optical, thermal, mechanical properties, and also good weather resistance.

Testing Items	Conditions	Criteria
High Temperature Test	70°C , 240h	<ul style="list-style-type: none"> No visual defect No abnormal for opto-electrical performances
Low Temperature Test	-20°C , 240h	
High Temperature and Humidity Test	70°C , Humidity 90% , 240h	<ul style="list-style-type: none"> Firm composite structure
High and Low Temperature Shock Test	-20°C , 30min , 70°C , 30min ; repeat 50 times	<ul style="list-style-type: none"> Peel strength reduced by no more than 5%

Self-adhesive Smart Film

Self-adhesive smart film is a new type of functional film that adds an optical grade doubled-sided cling layer on one side of the normal smart film. Due to its excellent bending ability, it can be affixed on the existing flat glass or curved glass, providing a simple and cost effective alternative for users.

It not only maintains all the original good characteristics of the smart film, but also has "dry paste, self-exhaust" features that make the installation easy and fast.



Features of Self-adhesive Smart Film

Easy to Transport and Install

Self-adhesive smart film, compared with smart glass, is much lighter due to getting rid of the heavy weight of the glass. Moreover, it can be installed on the existing glass, which is easy and fast, also enabling the instantaneous transformation between transparent and opaque as good as the smart glass do.

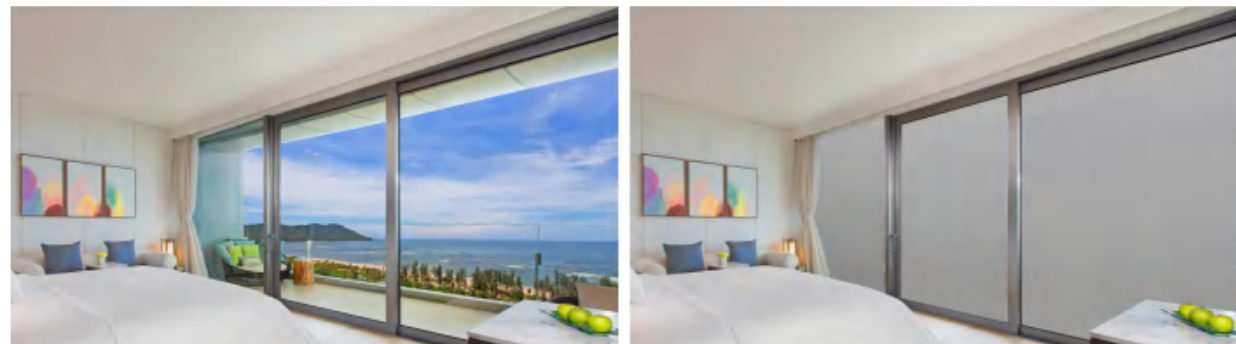
Wide Range of Applications & Use Instantly after Installation

The installation of the self-adhesive smart film should be done in dry condition. When the film doesn't work or need to renew, just remove the old film and paste a new film after cleaning the glass surface, no need to disassemble the whole glass.



Heat Resistant Smart Film

Heat resistant film maintains the high transparency features of the normal smart film when power on, and presents a mysterious, noble gray-black color when power off. Besides the excellent characteristics of the normal smart film, it also has a very good heat insulation effect that makes it an ideal material for building energy-saving reconstruction or design.



Features



Reflecting, conducting and absorbing, while blocking the infrared, visible light and ultra violet, in order to achieve the heat insulation effect and sight clarity balance.

Solar energy heat resistance rate (Total heat resistance rate) =

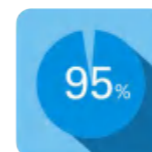
3% * UV blocking rate + 44% * visible light blocking rate + 53% * infrared blocking rate.

The Comparison between Normal Smart Film and Heat Resistant Smart Film

State	Wave Band (nm)	Normal Smart Film		Heat Resistant Smart Film	
		Transmittance (%)	Total Blocking Rate (%)	Transmittance (%)	Total Blocking Rate (%)
OFF	Ultra Violet (280-380)	12.11	38	3.94	74
	Visible Light (380-780)	58.75		30.11	
	Infrared (780-1400)	66.80		23.49	
ON	Ultra Violet (280-380)	17.17	20	6.23	64
	Visible Light (380-780)	79.41		44.17	
	Infrared (780-1400)	83.87		31.13	

Advantages of Smart Film

- Our unique liquid crystal formula makes the materials attached closely. High transparency when power on while high haze when power off to protect your privacy.
- Complete specifications: besides 1.2m, 1.5m, 1.8m regular widths, the maximum width 2.2m smart film is also customizable. Moreover, we provide milky white, gray, tint color film for your selection.
- Full coverage of the producing process from ITO film to smart film, thus effectively guarantee the quality of the products as well as shorten the delivery cycle.
- It is a flexible material that can be bent, which allows it to have a wide range of applications.
- Large working temperature scope: -20°C to 70°C.
- Low rated voltage and energy consumption.
- Strong adhesion for PDLC and long lifespan.
- Superior production technology, strict production and quality control, to ensure the stability of product quality and reliability.



Excellent Optical Performance

The haze of Singyes smart film is as high as 95% when power off, while the total light transmittance is as high as 83% when power on.



Wide Film Produce Capability

The maximum width for Singyes smart film is 2.2m, and the length is unlimited. Customizable according to your need.



Wide Range of Applications

Singyes smart film is a flexible material that has good bending ability, able to be affixed directly to ordinary glass or curved glass surface. Or it can be laminated and made into smart glass.

Package and Marks



Packing Protection

Singyes smart film has protective films on both sides. Please tear off them before using.



Packing Methods

Flat-packing or roll-packing is optional according to the needs of our customers. Flat-packing is to place the films flatly in a wooden box, separating the films by white papers and surrounding with foams for buffering. Roll-packing uses cartons as the outer package and rolls the films on 6 inches outer diameter paper tube.



Marks

Products labels will be affixed on the outer package, showing products name, model, batch no, quantity, date etc...

Storage Conditions

The smart films should be stored in ventilated, dry condition. The temperature should between -15 °C ~ 50 °C and relative humidity below 85%. Please keep them away from heat, acid gases and liquids, organic gases and liquids. Do not get wet or soaked in water.