

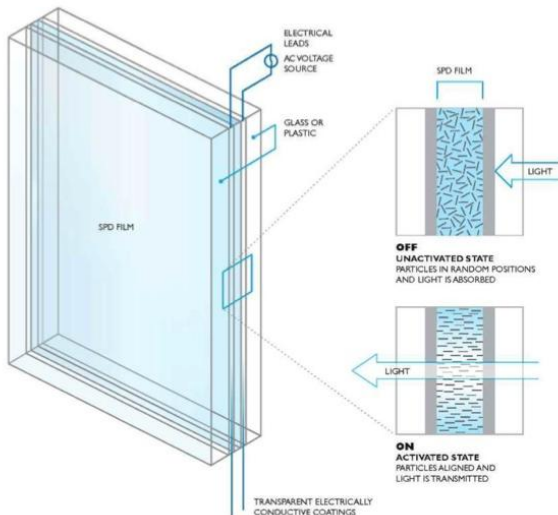
SPD-SMARTGLASS™

AUTOMOTIVE APPLICATIONS

Energy efficient SPD-SMARTGLASS is the world's highest-performing "dynamic" glazing. It regulates the amount of light, glare and heat transmitted through windows and other products. Developed by Research Frontiers Inc., SPD-SMARTGLASS uses light-control film produced by Hitachi Chemical Co., Ltd. and Isoclima S.p.A – Finind Group.

SPD-SMARTGLASS is now offered globally through licensed suppliers and their partners for automotive, marine, aerospace, commercial and residential projects. SPD-SMART™ automotive windows are available in standard and custom configurations for OEM and after-market vehicles.

HOW IT WORKS



SPD-SMART film contains microscopic particles. Regulating the voltage to the film adjusts the particles' orientation, instantly and precisely controlling the passage of light, glare and heat through the film. SPD-SMART film is laminated between panes of glass or plastic substrates. Fabricated SPD-SMART insulated automobile windows are exceptionally energy efficient and may be combined with bullet-resistant glass.



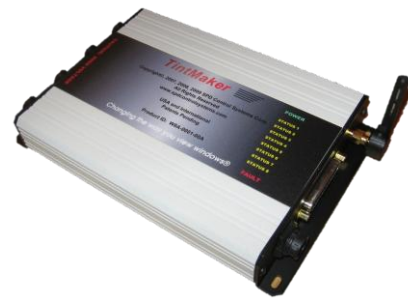
- Front window visors, sidelites, backlites and sunroofs
- Glass and polycarbonate
- Flat or simple curved surfaces
- Shading, privacy, glare- and heat-control within a single, low-maintenance window
- Eliminated the need for mechanical shades
- Automated and manual controls help optimize energy performance and passenger comfort
- Over 99% of harmful UV radiation blocked
- Laminated IGUs with multi-layer film fabrication significantly reduced adjacent freeway noise
- "The change in light level is very dramatic. We have never seen anything like it." – Glazing Contractor



Photos above: SPD-SMARTGLASS in dark and clear states at Research Frontiers' Design Center in Woodbury, NY.

TECHNICAL DATA

Visible Light Transmittance	<ul style="list-style-type: none"> Unpowered: <1% (Dark) Powered: >50% (Clear)
Contrast Ratio	<ul style="list-style-type: none"> As high as 170:1
Number of Light-Control Levels	<ul style="list-style-type: none"> Unlimited
Switching Speed	<ul style="list-style-type: none"> Seconds
Control Over Incoming Solar Energy	<ul style="list-style-type: none"> Solar heat gain coefficient (SHGC) as low as 0.06 (blocks 94% of solar energy) Wide range of control over incoming heat; adaptable to regions and weather conditions
UV Protection	<ul style="list-style-type: none"> Over 99%
Power Consumption	<ul style="list-style-type: none"> Nominal; As low as 0.06 watts/ft²
Width	<ul style="list-style-type: none"> 3+ feet (>3+ feet when SPD film is "seamed" within a laminated panel)
Length	<ul style="list-style-type: none"> No limit; panels up to 9 feet long have been installed
Substrates	<ul style="list-style-type: none"> Glass or plastic
Simple Curves	<ul style="list-style-type: none"> Yes
Insulated Glass Units, Custom Shapes and Fabrications	<ul style="list-style-type: none"> Yes
Voltage	<ul style="list-style-type: none"> AC
Controllers	<ul style="list-style-type: none"> Battery DC to AC OEM and After-Market Manual & Automatic control Variety of window controls Sensors (light, heat, occupancy) Interface with on-board automotive systems
Durability	<ul style="list-style-type: none"> Tested at millions of on/off switching cycles



**TintMaker
SPD Control Systems
Corporation 8-Window
Auto After-Market**

FEATURES:

- Intermediate and fully clear states preserve views and support occupant well-being
- Unpowered dark state reduces interior heat build-up, thus lowering cooling costs
- Exceptional solar energy control manages heat gain and energy used for heating and cooling
- Unpowered dark state efficiently reduces nighttime light pollution
- UV-blocking minimizes degradation of interiors and harmful effects to occupants

SPD Control Systems Corporation

Center for Wireless & Info. Tech.
Stony Brook Univ. R&D Park
1500 Stony Brook Road
Stony Brook, NY 11794-6040
(631) 776-8500 (office)
(631) 776-8501 (fax)

WWW.SPDCONTROLSYSTEMS.COM

Attention: John Petraglia

JOHN@SPDCONTROLSYSTEMS.COM