



### THE PROBLEM: VISIBLE LIGHT

Conventional display panels typically block UV light and not visible light. Managing the amount of visible light that reaches an artifact is a particular challenge for conservators and curators. While adequate visible light is needed to view artifacts, excessive exposure causes irreversible damage.

### THE SOLUTION: VARI GUARD

- VariGuard display panels limit an artifact's visible light-exposure only to when the object is being viewed. When no one is present, VariGuard panels block >97% of visible light from reaching the artifact. No other display panels offer this protection.
- VariGuard panels can block 99% of UV light up to 400 nm at all times, more than any other panels. (Conventional display panels block 99% of UV only to 380 nm.)
- VariGuard Applications:
  - Display cases
  - Picture frames
  - Partitions
  - Offered for new systems and retrofits of existing systems



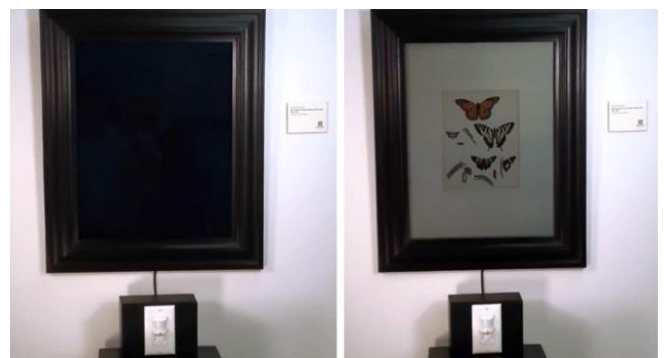
VariGuard panels will minimize an artifact's overall lux-hour exposure.

### VARI GUARD – EXAMPLE



*Display case with VariGuard, LED lighting, and motion detector with auto-darkening functionality.*

When a motion detector senses the presence of a visitor, the VariGuard panel becomes transparent and the LEDs illuminate. After a pre-set “duty cycle” (typically 30-60 seconds), the control system returns the VariGuard panel to its lock-blocking state and turns off the LEDs. Watch [videos](#) of VariGuard.



*Picture frame with VariGuard, motion detector with auto-darkening functionality, and manual control switch.*

This picture frame made with VariGuard is operated using a motion detector or a manual control switch. Lighting of the artifact is from ambient illumination in the exhibition area.

## HOW VARI GUARD WORKS

VariGuard is made by laminating SPD film between glass or plastic substrates. The film contains microscopic particles. When no standard AC voltage is applied, the particles are randomly positioned and block visible light. When voltage is present, the particles align and allow light to pass, thus making VariGuard transparent. Coatings in the laminate block UV light.

## BENEFITS OF VARI GUARD

- ✓ Protect artifacts already on display
- ✓ Emancipate artifacts from storage
- ✓ Provide exciting visitor experiences
- ✓ Improve security

## MUSEUM INSTALLATION – EXAMPLE

The Brooklyn Museum (New York)  
“Connecting Cultures” Exhibition



- Three display cases are used to protect and extend the exhibition period of a 17<sup>th</sup> century atlas, 18<sup>th</sup> century Indian map printed on cotton, and Incan wool tunic.
- Watch a [video](#) of a Brooklyn Museum display case with VariGuard technology.

## TECHNICAL DATA

Visible Light Transmittance	<ul style="list-style-type: none"><li>• Light-transmissive state: Up to 60%</li><li>• Light-blocking state: Less than 3%</li></ul>
Intermediate Light-Control Settings	<ul style="list-style-type: none"><li>• Infinite</li></ul>
Switching Speed	<ul style="list-style-type: none"><li>• Less than 3 seconds regardless of panel size</li></ul>
Uniformity of Change	<ul style="list-style-type: none"><li>• Completely uniform</li></ul>
Length (max.)	<ul style="list-style-type: none"><li>• Over 10 feet (3.1 meters)</li></ul>
Width (max.)	<ul style="list-style-type: none"><li>• Up to 39 inches (1 meter)</li></ul>
UV Rejection	<ul style="list-style-type: none"><li>• 99% up to 400 nm</li></ul>
Voltage	<ul style="list-style-type: none"><li>• Standard AC (up to 120v)</li><li>• Default: Light-blocking state</li></ul>
Power Consumption	<ul style="list-style-type: none"><li>• Approximately 1.8 mA/ft<sup>2</sup> when fully light-transmissive</li></ul>
Shapes	<ul style="list-style-type: none"><li>• No limitation</li><li>• Curves</li></ul>

## CONTACT US TO LEARN MORE

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