

TRANSPARENCY BULLETIN

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ALTEOS™ INTERACTIVE WINDOW SYSTEMS For Passenger-Cabin Windows



Experience the ultimate in comfort, convenience and control aboard a plane equipped with *Alteos* interactive window systems by PPG Aerospace – Transparencies.

Alteos interactive window systems make ordinary cabin windows extraordinary because passengers control how clear or dark they are from the comfort of their seats. At the touch of a button, *Alteos* interactive window systems operate silently to transform from a bright clear state to a totally dark state. Or they can be set at a comfortable intermediate level to eliminate annoying glare without eliminating the expansive view, affording the feel of openness in the cabin. The choice is the passenger's.

Alteos interactive window systems replace conventional passenger-cabin window shades for an increased level of sophistication, adding luxury and enhancing the interior space for passengers while providing efficiencies for owners and operators. Unlike cumbersome and noisy mechanical and electro-mechanical window shades, *Alteos* interactive window systems are self-contained with no moving parts and lighter weight, making them easier to maintain. And passengers see only an attractive window and control button.

With *Alteos* interactive window systems, keeping the cabin comfortable is easier. Ultraviolet and infrared radiation transmission are reduced to lower the cabin heat load, enhancing operating efficiency of the aircraft's heating, ventilating and air conditioning system.

Now manufacturers can offer their customers the latest advancement in window technology to set their aircraft apart by combining efficient performance with elegant styling: *Alteos* interactive window systems.

Benefits of *Alteos* Interactive Window Systems

- Based on electrochromic technology by Gentex Corp., proven in more than 100 million devices in the field
- Time-tested chemistry and durable device construction designed to perform more than 70,000 cycles
- Widest available light transmission range through an electrochromic panel
- Color neutral throughout transmission range
- High vision clarity at all light transmittance levels
- Rapid transmission change
- Default to clear state on loss of power
- Operation across typical flight temperature ranges
- Low-voltage DC operation
- Complete ultraviolet blocking

Electrochromic Technology

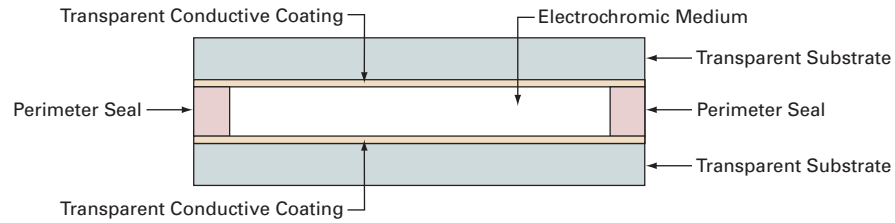
The PPG interactive window systems use electrochromic technology by Gentex Corp., recognized worldwide as the leader in electronic devices for automotive applications. An electronically dimmable panel installed between the inboard dust cover and outboard structural cabin window system contains a transparent electrochromic medium sandwiched between two thin glass plies. A window-seat control allows the passenger to activate the system and change the amount of visible light transmitted through the medium to maximize or minimize it, or select an in-between setting.

Should a power loss occur, the window systems default to a clear state to maintain maximum light transmittance, ensuring compliance with aviation standards. If desired, the interactive devices can be linked via the onboard network to allow for master control and continuous monitoring of system performance.

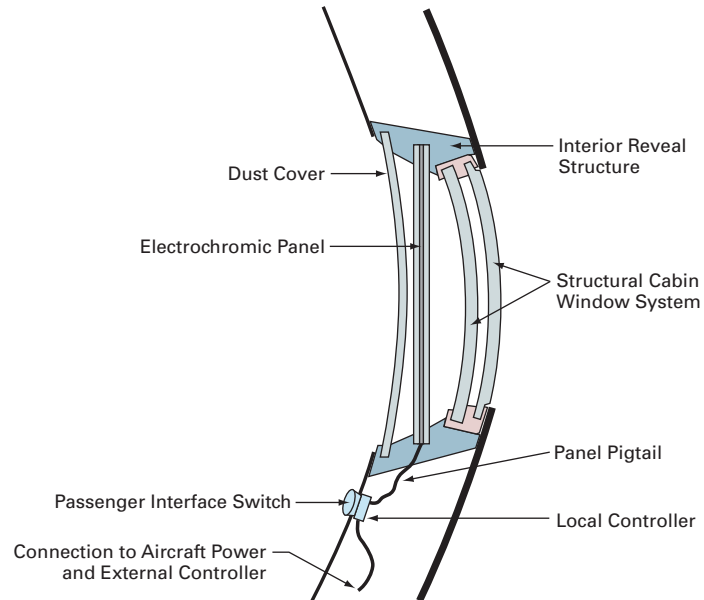
The PPG-Gentex Advantage

The unique PPG-Gentex relationship affords aircraft manufacturers and operators with the most advanced technology and product support.

Electrochromic Panel Cross Section



Interactive Window System Arrangement



PPG brings unparalleled expertise in the design and supply of aircraft transparencies — from understanding the requirements for a transparency operating in an aircraft environment, to successfully launching products that incorporate new technologies, to providing customers with unparalleled technical and field support via the PPG Aerospace worldwide Application Support Center network.

Gentex is recognized as the technological leader in electrochromics globally, and brings more than 20 years of experience in shipping its high-quality electronic products to the automotive industry.

Summary

PPG works closely with Gentex and aircraft OEM organizations to design and develop *Alteos* interactive window systems that meet objectives for styling, performance and distinctiveness. These innovative systems can be designed as a key component of complete cabin-window assemblies for installation and operational efficiencies.

Aircraft manufacturers and operators can expect to receive the same high level of service and support that PPG currently provides with its extensive line of products for the aerospace industry.



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