

Falcon Controller Series

Falcon

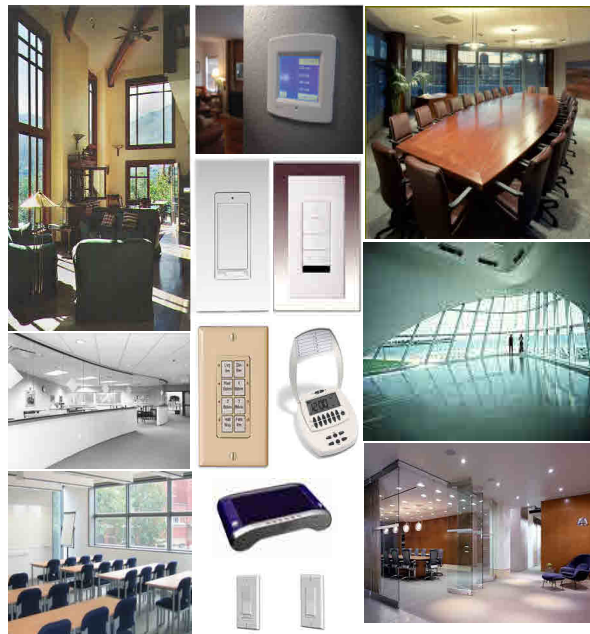
Standard electronic controllers for
Architectural SPD Windows



Architectural Controllers

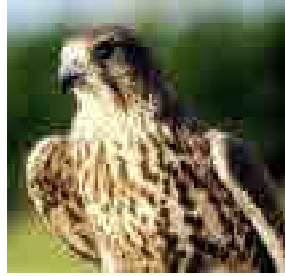
SCSC Intelligent Controllers can be installed in any commercial or residential environment for the control of SPD-Smart™ window glass or plastic. This flexible, highly configurable, customizable, feature rich series of electronic controllers and remote operating devices brings SPD windows to life and integrates them with other home and office systems. Use in homes, board rooms, atriums, conference rooms, glasswalls, building façades, classrooms, etc. Allows for the control of single or multiple smart windows by several different methods:

- Wireless handheld remote operations
- Wall switch operations using buttons, dimmers, presets or touch screens
- Home and Office Automation Systems
- Portable wireless touch screens
- Hardwired or networked Personal Computers



**Falcon
Series**

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Falcon Architectural Controllers

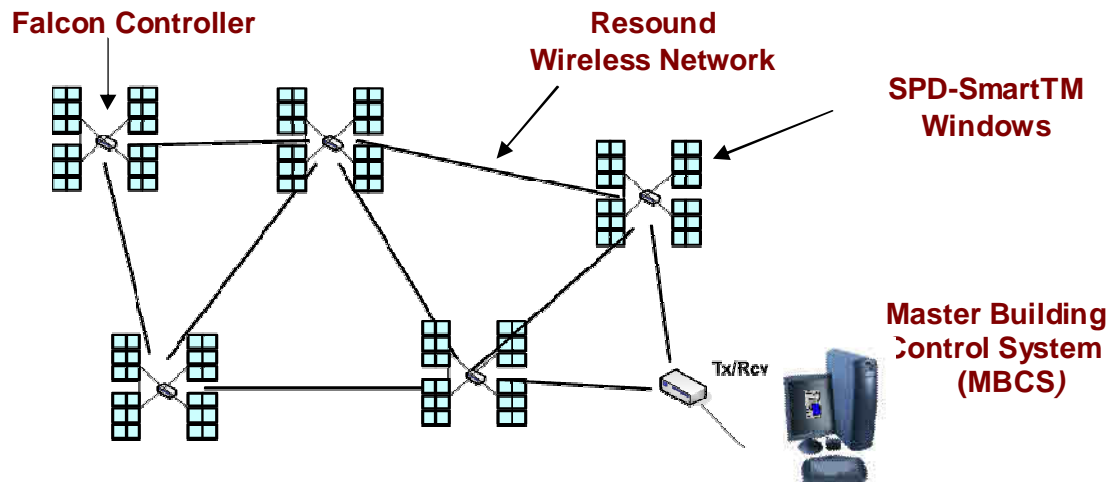
Revolution by SPD Control Systems Corporation (SCSC) is a series of electronic controllers designed to control SPD Smart Glass windows. The **Falcon** series of electronic controllers is designed to control SPD windows in residential, commercial buildings and other projects where there are a large number of SPD windows (e.g. atrium). The **Falcon** controller can be used as a standalone controller for up to 32 windows or in a wireless network of controllers supporting hundreds or thousands of SPD windows operating autonomously in a coordinated fashion from a central control system.

The **Falcon** controller is a small footprint controller with integrated RF wireless networking that can be built into window frames, or mounted in an in-wall enclosure. The wireless network and the controllers can be automatically controlled by a Master Building Control System (MBCS). The MBCS provides the means to control the window façade of an entire building for *maximum energy efficiency* without additional wiring.

Note: The Falcon controller, wireless network, and MBCS can be easily customized to satisfy special projects.

The SCSC subsystems comprising a building automation system for SPD windows are,

- **Falcon Controller** SPD Windows Controller
- **Resound Wireless Network** Wireless Mesh Network
- **Resolution MBCS** Master Building Control System for SPD Windows



Falcon Controller Series

Versions

- 8-window
- 16-windows
- 32-windows

Features

- Three enclosures: in-Window, in-wall or standalone enclosure
- Models for specific projects: residential, commercial, atrium, etc.
- Multilingual operation
- Two RF-based Wireless handhelds:
 - “Einstein” model for configurability and remote operations
 - “Tesla” model for remote operations only
- Autonomous intelligent window tinting control based upon solar conditions
- Timed parameters – synchronized changes
- Full range of power options including battery-only operation
- Customizable for a wide-range of special projects
- Integrates with SCSC’s Master Building Control System (MBCS) via our wireless mesh network for centrally controlled automatic operation
- Interfaces to remote dimmers, touch panels, preset light switches and other accessories
- Interfaces to home and office automation systems
- Automatic mode for seasonal time of day settings
- Sensors and alarms for glass breakage
- Optional temperature and photo sensors
- Battery backup for power failure operations
- PC compatible interface available
- Ethernet network support with TCP/IP
- RS-232 support

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Capacity

<i>Maximum number of film segments</i>	8, 16, 32	A single piece of glass may consist of multiple film segments
<i>Maximum types of SPD film</i>	1	Single manufacturers Electro-optical profile supported
<i>Maximum size film</i>	Depends on Model Selected	Multiple segments of film per window supported
<i>Maximum distance to windows</i>	TBA	To Be Announced
<i>Wire Grade from controller to window</i>	TBA	Recommended gauge of wire carrying control signals to windows
<i>Maximum wattage output</i>	Depends on Model Selected	Estimated that Gen 2 film will require less than 6 Watts/hour per 100 sq. ft.

Power

<i>AC</i>	120 VAC 60 Hz, 100 VAC 50 HZ, 220VAC 50 Hz	
<i>DC</i>	12, 24, and 48 vDC	
<i>Battery</i>	TBA	Solar cells used to recharge battery
<i>Consumption</i>	TBA	Depends on electrical Characteristics of Gen 2 film
<i>Backup Battery Operation</i>	Min. of 24 hours	Rechargeable Battery

Controller Parameters

	Requires SCSC LCD RF-based Remote Control Unit or a Master Building Control System (MBCS) to configure controllers
<i>Controller ID</i>	<i>Select Controller ID</i> - multiple controllers are supported from handheld units
<i>Film Windows Parameters</i>	<i>Configure:</i> SMIN – SPD Film Master Identification Number (Film Manufacturer code) Film segments/window relationship - Segments operate together within window Zone – a set of windows that are operated as if they are a single window Name of Windows – Optional Zone name (Conference Room A, Board Room)
<i>Date/Time/Day of the Week</i>	Set the current date, time and day of the week

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<i>Backup Battery</i>	Auto mode or fixed tint level during power failure
<i>RF Frequency</i>	908.42MHz, 868.42MHz, country dependent
<i>Language</i>	The LCD Remote Operations Unit initially supports English. Later versions will support Italian, Japanese, Russian, French, Korean and Spanish.
<i>IP Address/Mask/Gateway</i>	DHCP or fixed TCP/IP address supported (alternate wired network support)

Handheld RF Remote Unit Operations

<i>Adjust Tint</i>	Overrides automatic setting for a single time period.
<i>Hold</i>	Overrides automatic settings with the current setting indefinitely.
<i>Select Zone</i>	Select set of windows to control
<i>Select Controller</i>	Handheld talks to selected controller
<i>Display Controller Status</i>	Component status is displayed
<i>Set Controller Parameters</i>	Only available on the LCD based handheld unit

Other Remote Devices

<i>Remote switches, touch pads, Dimmers, preset button pads, (wall mounted and standalone)</i>	<i>See Remote Devices Accessory Brochure</i>
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Remote Systems Connectivity

<i>Wireless Mesh Network</i>	RF-based, spread spectrum frequency hopping for reliability and reduced data transmission interference
<i>Wired LAN</i>	RJ45 (to download updated firmware, update electro-optical tables, set system configuration, and/or operate windows and zones – alternate to RF mesh network)
<i>RS 232</i>	DB9 connector (PC and Crestron compatible interface for windows/zone control)
<i>Handheld/Controller Communications</i>	RF-based
<i>RF Range to Controller</i>	Virtually unlimited as signals hop from controller to controller to reach destination

Physical Characteristics

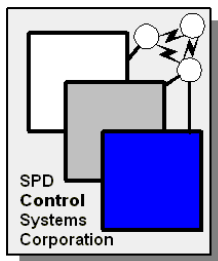
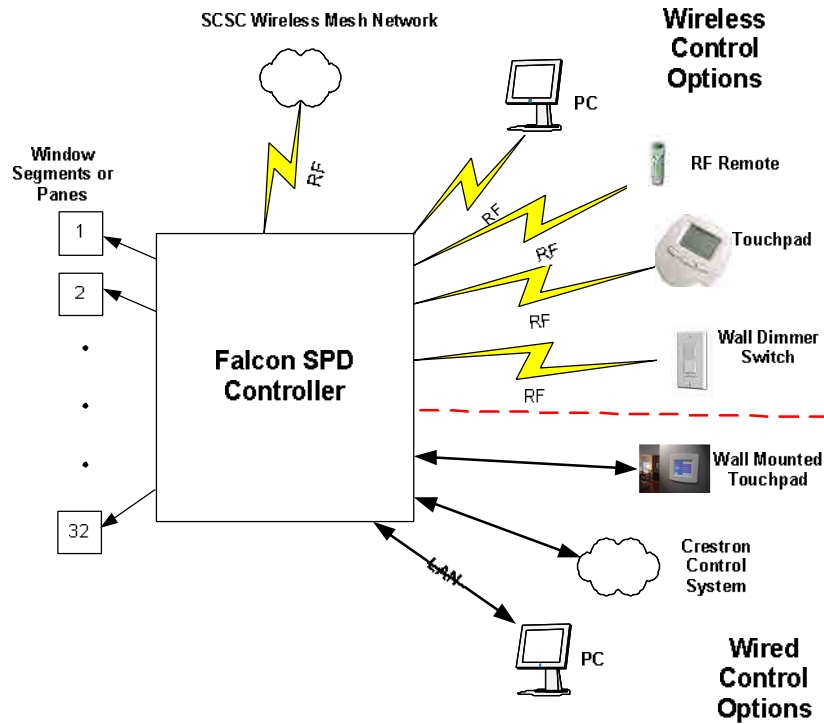
<i>a) In-Window enclosure</i>	1" (W) x 1" (D) x 0.5" (H) 2.54cm (W) x 2.54cm (D) x 1.27cm (H)
<i>b) Dual Gang Box with cover plate</i>	3.75" (W) x 2.75" (D) x 2.75" (H) 9.52cm (W) x 6.98cm (D) x 6.98cm (H)

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<i>c) Stand-alone Enclosure</i>	4" (W) x 2" (D) x 2" (H) 10.16cm (W) x 2.08cm (D) x 2.08cm (H)
<i>Weight (Gang Box & Enclosure)</i>	.5 lb 0.227 kg
<i>Temperature Range Gang Box & Enclosure In-Window Enclosure</i>	Standard range for indoor electronics TBA
<i>Shock Prevention And Window breakage Detection</i>	Window breakage or short circuits are detected causing the power to the window to be shut down. An alarm LED is set and an alarm condition is latched. Message is sent to the MBCS.
<i>Front (Gang Box & Enclosure)</i>	Green LED On Power On Off Power Off Flashing Backup battery mode Yellow LED Flashing Communication Active Red LED On Major error state Slow Flashing Self-diagnostic error Fast Flashing Short to ground detected
<i>Gang Box Front</i>	RJ45 Connector Ethernet DB-9 Connector RS-232
<i>Enclosure Back</i>	RJ45 Connector Ethernet DB-9 Connector RS-232 32 pairs SPD Film connectors Power Connector Fuse On/Off Button
<i>In-Window Enclosure</i>	Only interface is RF Wireless Mesh Network Wiring to windows is TBA
<i>Approvals</i>	UL, CE, FCC part 15, R&TTE 1999/5/EC, plus others

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Falcon Controller Connectivity



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