

# Resound Wireless Network



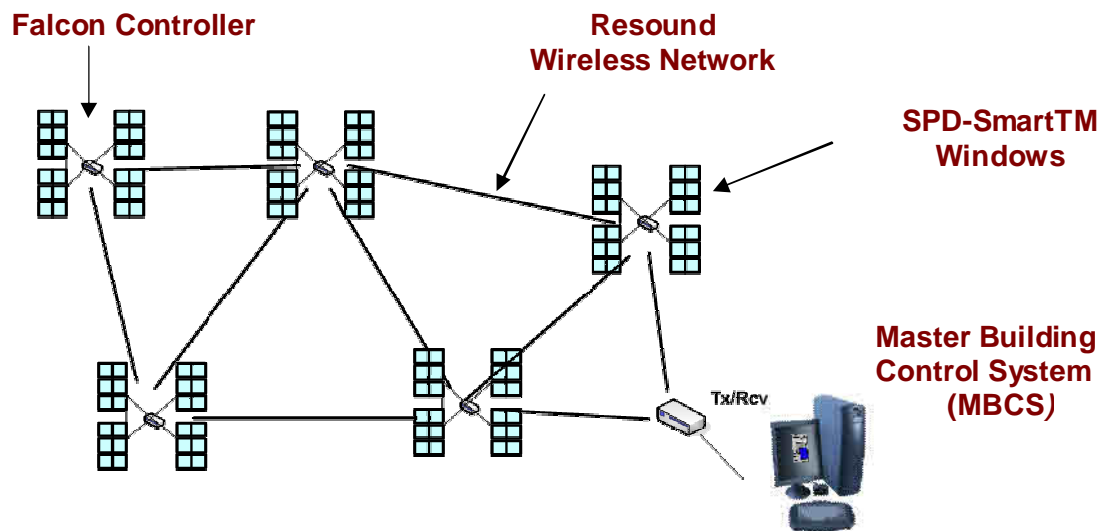
## Resound

### SPD Window Wireless Building Network

**Resound** by SPD Control Systems Corporation (SCSC) is a wireless network that allows SPD Smart Glass Window controllers to be connected to a Master Building Control System (MBCS). The **Resound** Wireless Mesh Network is state-of-the-art integrated network component of SCSC's systems for controlling large numbers of SPD Windows. The system consists of:

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

The Falcon controllers connect to the Master Building Control System (MBCS) using the Wireless Mesh Network. The MBCS provides central control of the SPD Windows.



# Resound Wireless Network

## Description

The key to SCSC's wireless controllers is the incorporation of state-of-the-art, low cost, low power, two-way digital radios. With these radios in place, windows of the building are close enough to other windows to be able to directly communicate with each other. Today, such a wireless radio network is known as a Mesh Network. This is a wireless version of the wired Internet or telephone network, which allows data to continually move through alternate paths. A Master Building Control System (MBCS) consisting of a data processing computer is connected to a special controller that communicates with the other controllers in this mesh network.

The MBCS is an intelligent processor that is capable of determining optimal settings of tinting of sections of a building continually during the day, 7 days a week, 24 hours a day. The MBCS communicates with each and every individual controller in the mesh network, via direct radio communications where possible, and by sending control messages through other controllers where direct radio communication is not possible.

Using a mesh network, the MBCS may send digital commands to every individual window or window group to modify their current level of opacity. Where controllers are not in direct communication with each other, the controller network is capable of relaying commands through controller nodes that are within radio communication and the commands will hop from node to node until reaching their destination point.

In a similar manner, each individual controller, or mesh network node, may send a packet of digital data to a relaying controller, that will send it to another relaying node, and another, until the packet of information reaches the MBCS. This packet might contain the ID of the window, photocell information, glass breakage detection data for security purposes, interior or exterior temperature at the window, battery levels if a remote battery is installed in a controller, or any other parameter monitored by the remote controller.

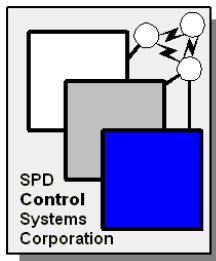
## Features

- The **Falcon** controller is a node on the wireless mesh network
- Interfaces to SCSC's **Resolution** Master Building Control System (MBCS)
- Reliable: redundant, self-healing routing
- Messages are re-routed in the event of a failure
- Resistant to interference using spread spectrum frequency hopping communication
- New controllers can be added automatically – self configuring
- Automatic detection of controller failure
- Ease of Installation

# Resound Wireless Network

## General Characteristics

<i>Maximum nodes (controllers)</i>	65,000+	64K
<i>Network coexistence</i>	Yes	Multiple independent networks allowed adjacent to each other
<i>Maximum distance between nodes</i>	30 meters	
<i>Radio frequency</i>	TBA	Frequency hopping
<i>Modulation technique</i>	TBA	within bandwidth allocated



### **SPD Control Systems Corp.**

25 Health Sciences Drive – Suite 212B

Stony Brook, New York 11790

(631) 776-8500 (ofc)

(631) 776-8501 (fax)

[www.spdControlSystems.com](http://www.spdControlSystems.com)

[sales@spdControlSystems.com](mailto:sales@spdControlSystems.com)

SPD-Smart is a trademark of Research Frontiers Inc.