

LCN blow open solution instructions

Senior swing

Blow open overview

Blow Open, or smoke evacuation, is a part of a fire safety system in institutional, commercial, and multi-family buildings.

During an emergency, an active fire alarm prompts standard fire-rated doors to close to isolate the fire. Alternatively, doors integrated into a smoke evacuation (“Blow Open”) system are directed to open and remain open until a pre-determined signal to stop (i.e., re-setting the fire alarm). As these doors Hold Open, smoke evacuation fans turn on to cycle fresh air in and ventilate smoke out of the building.

The regulation of air is intended to minimize smoke-related injuries to individuals present.

LCN blow open capabilities

Smoke Evacuation code is written to regulate the amount of smoke in a building, but there is little mention of the specific door hardware required to achieve appropriate air quality. LCN has evaluated the capabilities of our existing products, the feedback of code experts, and the competitive solutions in the market to provide a door hardware solution that helps to safely evacuate smoke from an at-risk building. In brief, our capabilities are as follows:

The Senior Swing DPS is capable of wiring into a Smoke Evacuation system. For the best performance, LCN recommends integrating external hardware for continuous power. Compliance with Blow Open or Smoke Evacuation solutions is often determined by local code authorities. Please consult your local requirements, or the Authority Having Jurisdiction, before deciding if the Senior Swing capabilities meet your market needs.

LCN blow open limitations

All LCN Automatic Operators are tested and designed to meet the ANSI standard for Low Energy Operators, which requires the units to meet the ANSI 156.19 maximum force requirements.

With this compliance comes the restriction of the amount of resistance the operators are able to encounter and overcome. In typical day-to-day operation, this protects patrons from being injured by a moving door. In the case of smoke evacuation, the negative pressure created by the fans may create enough resistance to prevent the door from successfully opening. The Senior Swing will repeatedly attempt to open the door, though it may not exert enough force to overcome the fans.

To overcome this obstacle, smoke fans need to be delayed so that operators may successfully power open to 90 degrees. Delay time depends on the ANSI A156.19 code requirement for door opening time for the specific application. Opening time would start when the operator receives a Blow Open activation signal.

Please reference local jurisdictions/property insurance time requirements for initiation of smoke evacuation fans.

Senior swing blow open solution

Instruction on operation

In its normal use, the Senior Swing DPS functions as a UL-Listed Low Energy Operator. When the Blow Open mode is activated, the operator will be placed into a 'Hold Open' mode.

The Blow Open signal connects to the red and black wires in the controller's key switch harness. The connector on the key switch harness must be cut off to make this connection.

Upon receipt of the Blow Open signal, it will take the door up to 10 seconds to fully open. The air handling fans should be activated only after the door has reached full open.

The Blow Open signal must be maintained for the complete desired duration of the mode. If the signal is lost, the door will close and may not open again against wind created by smoke evacuation fans.

Upon completion of the Blow Open mode, the Blow Open signal will return to Normally Open ("N.O.") and the door will close under spring power.

An Uninterrupted Power Supply ("UPS") will provide constant power to the operator, even if the building loses power. The UPS requires hardwiring the input and output power to eliminate the chance of unplugging the UPS or the operator. The UPS is wired in between the Senior Swing and building power. The UPS should be located as close as possible to the Senior Swing operator to reduce line loss.

The building power should have a generator backup system to restore power during a blackout. The UPS will provide power during the switchover time to prevent the door from momentarily losing power and closing.

Without a UPS, power loss (even momentarily) will cause the doors to close and initiate a learn cycle. Given the ANSI limitations of Low Energy operator force, the learn cycle and subsequent attempts to open may not overcome the negative pressure in the opening.

Hardware and requirements

Functioning LCN senior swing installation

- Push Operators: 9540DPS, 9550DPS, 9560DPS

Hardwired uninterrupted power supply (UPS)

- Must provide a minimum of 500 VA min.
 - Will Provide 1 hour Hold Open time for one Senior Swing operator
- 120VAC 60Hz input to provide power to the Senior Swing when building power is lost
- Must have hardwired power input and output
- SOLA offers a power supply that meets these requirements. It is available to order through LCN as SOLA (SOLA unit), SOLAC (SOLA cabinet) and SOLAK (SOLA unit and Cabinet)

Blow Open Signal from fire panel

- Normally Open ("N.O.") contact that closes and remains closed for the duration of the Blow Open cycle

Delayed Fans

- Air handling fans must turn on >15 seconds after the doors receive signal to open
 - When considering this application, ensure this delay is in accordance with local fire code requirements. Consult your fire marshal for more detail.

An On/Off/Hold Open key switch must not be used on Blow Open installations

- Inputs will be used for Blow Open

If in the Off position, the door will not receive signal or function in Blow Open application.

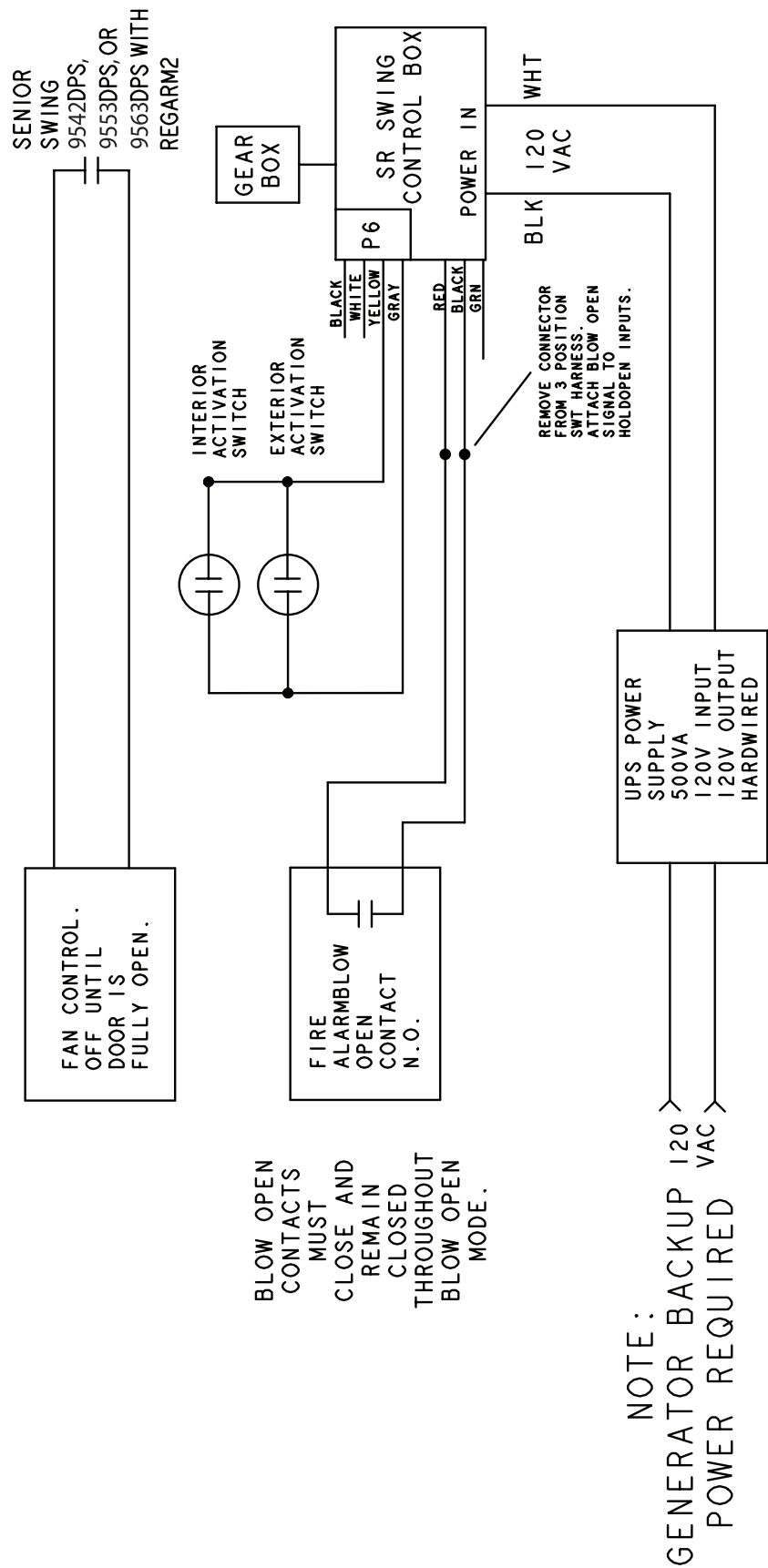
Door Position Switch

- DPS Configurations for Push Arm Senior Swings are available as 9540DPS, 9550DPS, and 9560DPS. These will ship with a custom-installed Door Position Switch
- Consult local authorities to determine if inclusion of a DPS is a preferred feature.

Additional note on safety sensors

Only the 8310-804-1 or 8310-804-2 Door Mount Safety Sensor mounted on the PUSH side of the door can be used in a Blow Open application, if approved by the Authority Having Jurisdiction. No other safety sensors are recommended with the Sr. Swing with Blow Open Applications.

Diagram: LCN senior swing blow open



*Follow UPS manufacturer's requirements for all installation, maintenance, and all other product specific requirements.

About Allegion

Allegion (NYSE: ALLE) is a global pioneer in seamless access, with leading brands like CISA®, Interflex®, LCN®, Schlage®, SimonsVoss® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion secures people and assets with a range of solutions for homes, businesses, schools and institutions. Allegion had \$2.7 billion in revenue in 2020, and its security products are sold around the world. For more, visit www.allegion.com

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