48348385

2800 Overhead Concealed Series
9500 Surface Applied Series

Senior Swing IQ Control Box

LCN®

Installation Instructions

⚠ IMPORTANT ⚠

These instructions are presented in step-by-step sequence. It is very important that installation begins with “1. Pre-Installation Site and Product Check” (page 2) and continues as directed after each section.

⚠ WARNING ⚠

Always disconnect main power to the operator prior to installing or replacing. Turning off 3-position switch does not disconnect power to the unit. Control box contains no serviceable parts inside.

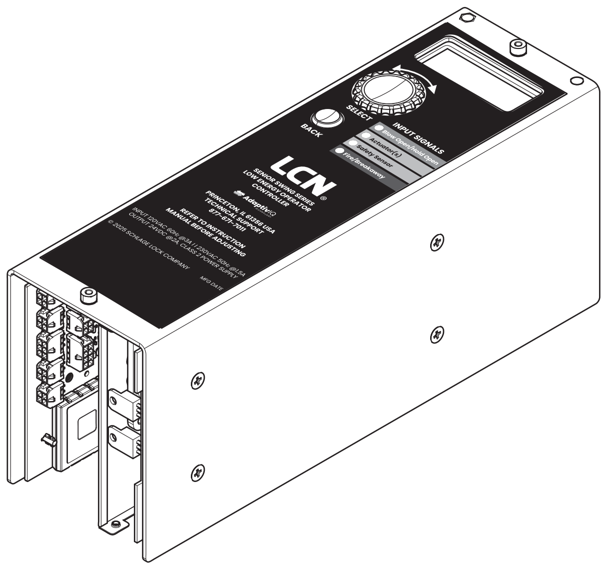


Table of Contents

General Information

The Senior Swing IQ Control Box is for use with the Senior Swing IQ Power Operator System. The system can operate a single door (2810, 9530, and 9540 Series), a simultaneous pair of doors (2850 and 9550 Series), or an independent pair of doors (2860 and 9560 Series).

ANSI/BHMA A156.19 Compliance

The Senior Swing IQ Power Operator System is a low energy product and must conform to the latest version of ANSI/BHMA A156.19 (American National Standard for Power Assist and Low Energy Power Operated Doors).

Installation Instructions

All installation instructions are valuable references and should be given to the building owner or maintenance supervisor after installation is complete.

The Senior Swing IQ Control Box installation instructions and the manufacturer’s instruction manual accompanying any sensor must be referenced to ensure proper installation, setup, and operation.

AdaptivIQ™

Introducing AdaptivIQ™ from LCN. This groundbreaking technology automatically and intuitively self-adjusts LCN low-energy electromechanical operators to changing environmental conditions—providing smooth, consistent performance year-round. It’s like adaptive cruise control, but for your doors.

Electrical Specifications

AC input voltage .... 120 VAC or 240 VAC (configurable)
DC Output Voltage .... 48 VDC
DC fuse .... 48 VDC, 10 A Fast Blow Fuse
Motor protection .... PTC Slow Blow Resettable Fuse
Activate inputs .... dry NO contacts (close contacts to open door)
Safety inputs .... dry NO contacts (closed contacts indicate an obstruction)
Breakaway input .... dry NC contacts (open contacts indicate breakaway)
3-position switch input .... dry 3-position switch
Power Boost disable input .... dry NO contacts (close contacts to disable Power Boost)
Lock output .... Form C dry relay contacts rated 8 A, 48 VDC maximum
Accessory power output .... 24 VDC, 2 A (protected by regulatory IC [Class 2])
Logic power output .... 3.3 V, 1 A (limited by on-board regulator)

1 Pre-Installation Site and Product Check

⚠ IMPORTANT ⚠

Factory Authorized Door Leaf Size and Weight

Type	Width per Leaf	Maximum Weight per Leaf
Single Door	33” to 48”	600 lb.
Simultaneous Pair	up to 48”	600 lb.

1a All required installation steps listed before “6. Control Box Installation” in the Senior Swing IQ installation instructions should be completed before installing the Senior Swing IQ Control Box.

1b Check that this is an LCN Adaptive IQ control box (indicated on control box label; Figure 1-1).

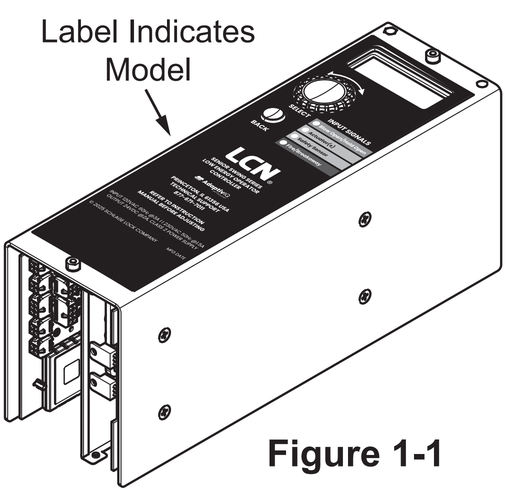


Figure 1-1

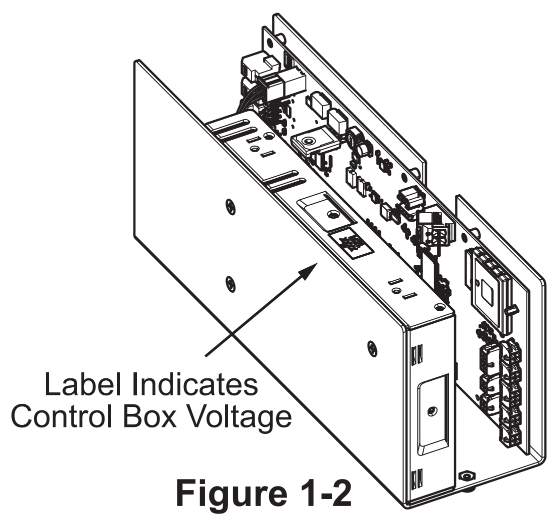


Figure 1-2

1c Check that the available AC voltage matches the control box voltage requirement (120 VAC or 240 VAC). (indicated on Power Supply label; Figure 1-2)

1d Check that all accessories required for the application are on hand. Model number is shown on label.

2 Control Box Installation/Wiring

First go to the Senior Swing IQ main instructions for control box installation and preliminary wiring. Then use these control box instructions for wiring peripherals, calibration, programming, testing, and troubleshooting the system.

⚠ CAUTION ⚠

Improper installation or set up may result in personal injury or property damage. Follow instructions carefully. For answers to questions, call 1-877-671-7011

3 Wiring References

- Review the separate wiring diagrams in the accessory instructions so that all wiring can be completed.
- See Figure 3-1 for system configuration terminology.
- See Figure 3-2, Figure 3-3, and Figure 3-4 for names and locations of Control Box connectors.
- See Figure 3-5 for control box connector and header descriptions, wiring, and mating cables.
- See Figure 3-6 for electric strike locking device sample wiring.
- See Figure 3-7 for QEL (electric latch retraction) locking device sample wiring.

⚠ CAUTION ⚠

When joining or separating a plug and receptacle, do not push or pull on wires. This may cause a wire to be pulled loose from a terminal, which may result in a malfunction.

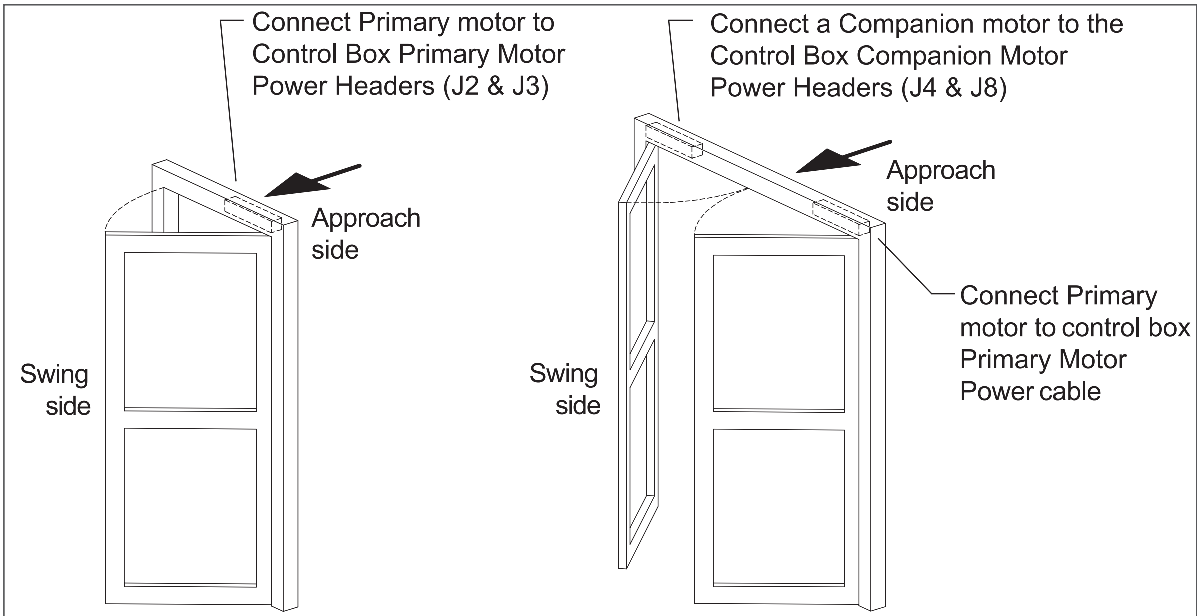


Figure 3-1 System Configuration Terminology

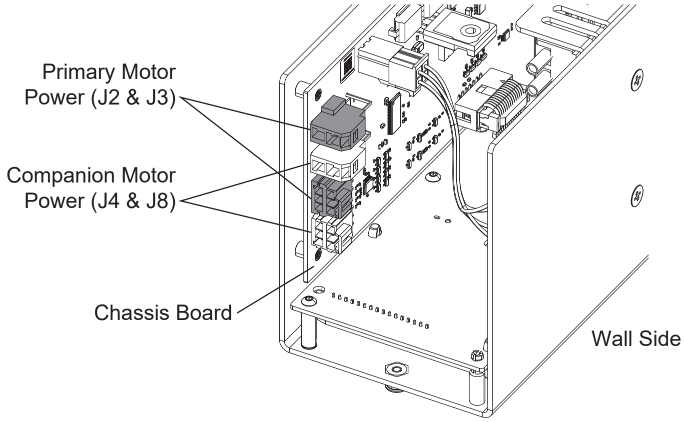


Figure 3-2 Control Box Gearmotor Headers

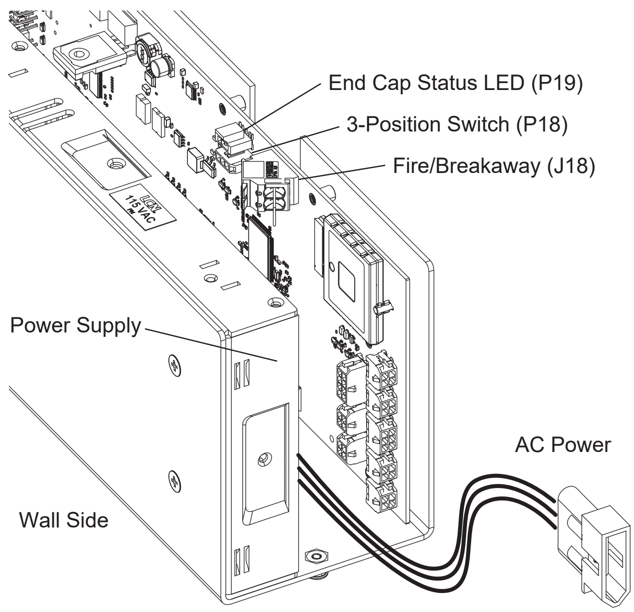


Figure 3-3 Control Box Peripheral Headers

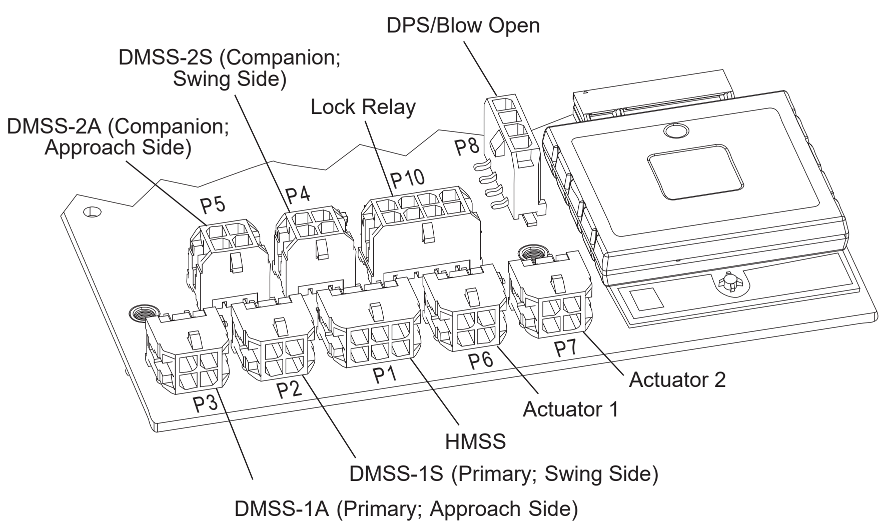


Figure 3-4 Closeup of Control Box Peripheral Headers

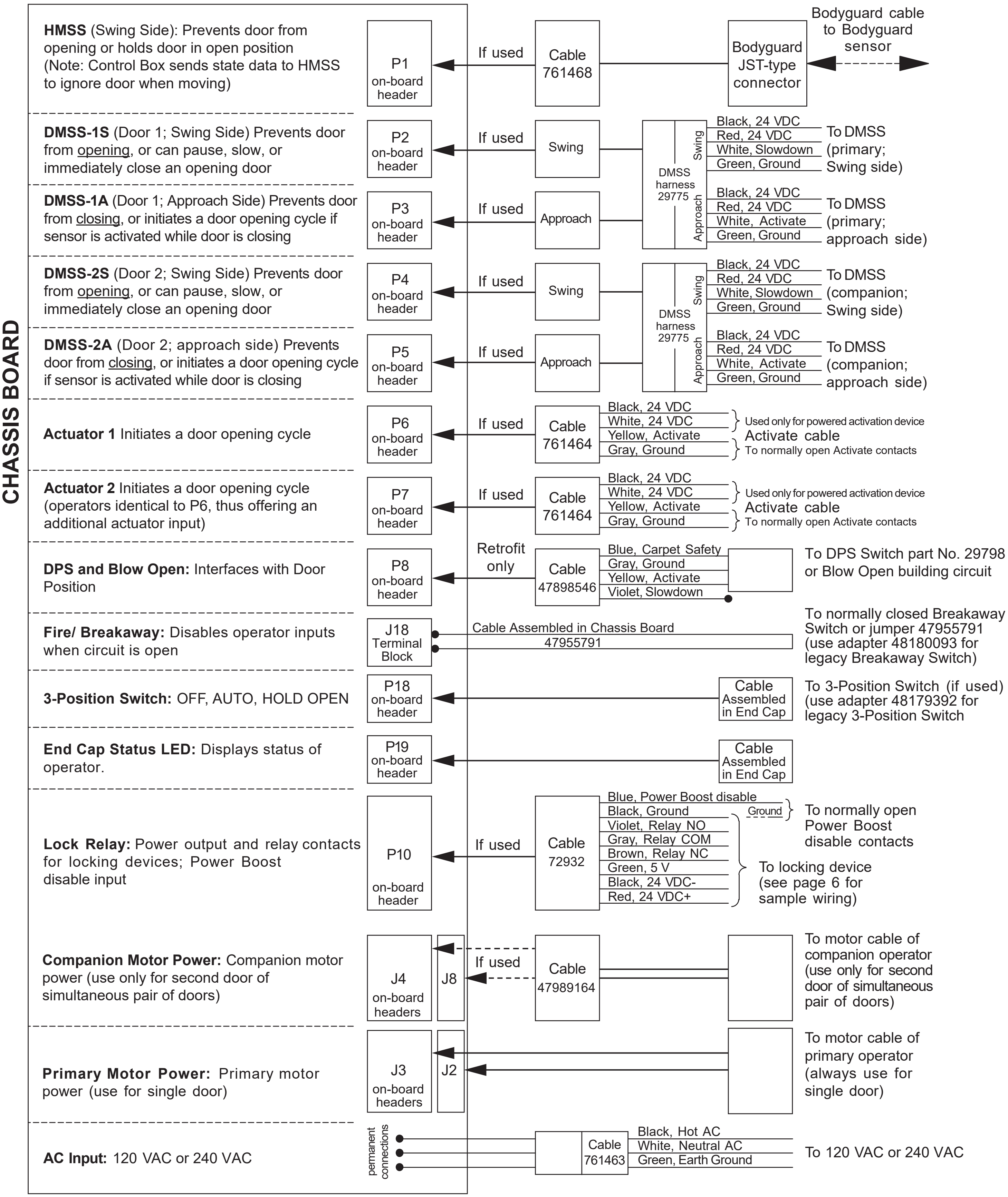
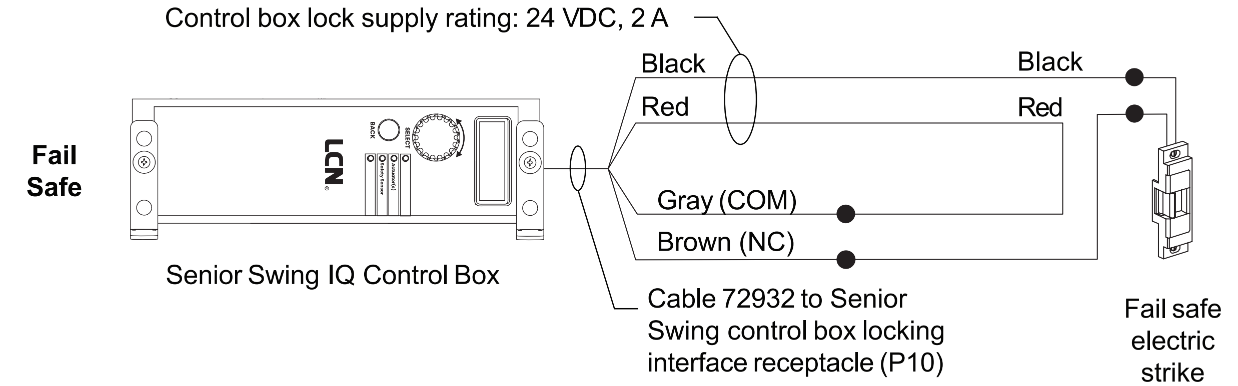
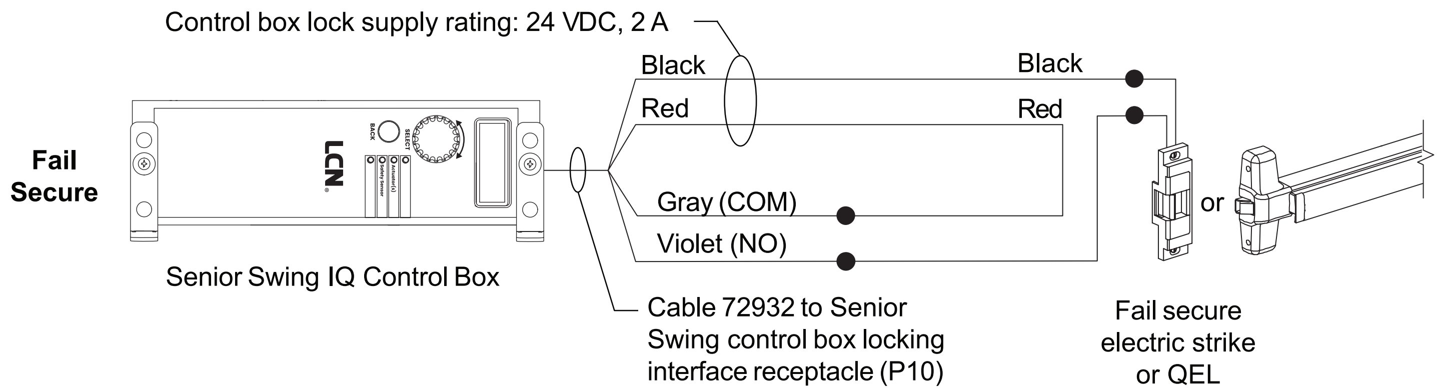


Figure 3-5 Connector, Header, and Wire Harness Descriptions

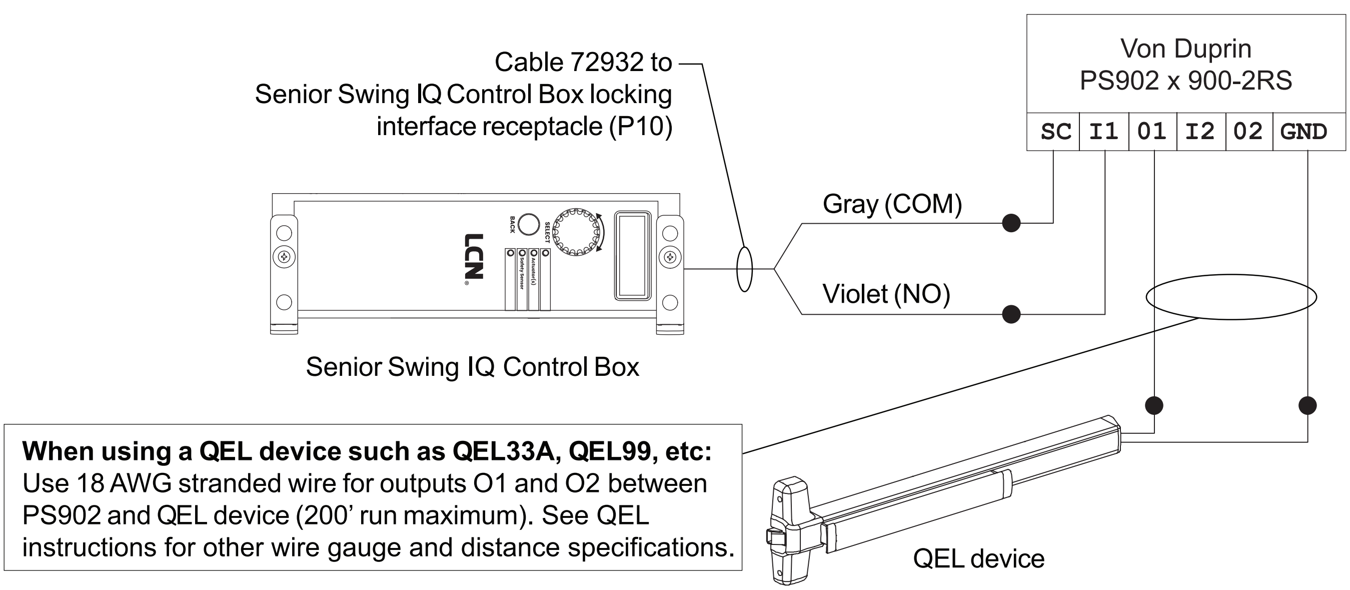


When the operator is powered, the strike is locked when the door is closed and unlocked when the door is opening.



When the operator is powered, the device is locked when the door is closed and unlocked when the door is opening.

Figure 3-6. Sample Wiring for Locking Device Powered by Auto Operator



The control box locking relay signals the PS902 x 900-2RS. When the operator is powered, the QEL device is latched when the door is closed and unlatched when the door is opening.

Figure 3-7. Sample Wiring for Fail Secure Locking Device Powered by External Supply

4 Start-up and Calibration

4a Make sure the operator arm is installed correctly per the Arm Installation Instructions. Installation processes will be different for push arms, pull arms and telescoping arms.

4b Make sure door is clear of any obstructions.

4c Start calibration process. During initial setup or after a factory reset, device screen will indicate Device Setup Needed (see Figure 5-1). Turn rotary dial to Device Setup menu option. Push dial in to select, then follow prompts on screen to conduct calibration. The door will open slowly to full open position and pause. During closing, the door may pause, stop, and accelerate closed. During the calibration process the device will estimate the weight and size of the door. Default settings will be adjusted based upon the calibration results.

4d After calibration, device screen will show "Calibration Complete". The display menu will then change (see Table 5-1)

4e Once calibration is complete, device settings can be manually adjusted as desired. Navigate to the Settings sub-menu. Choose settings and desired values using step 6 charts and instructions.

5 General On-Device Navigation

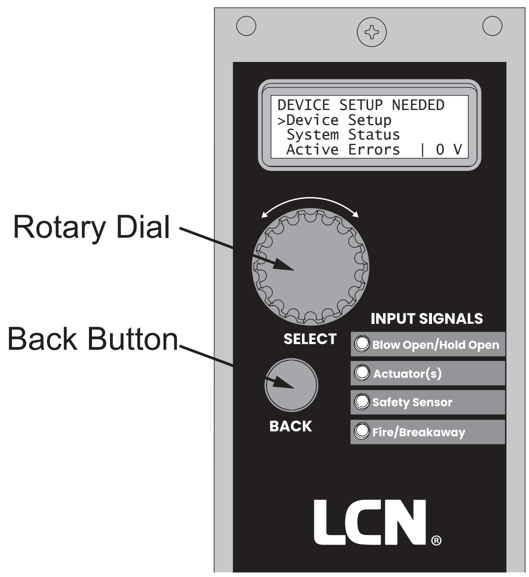


Figure 5-1 Closeup of Senior Swing IQ User Interface

Rotary Dial - can be rotated to navigate through on-device menus. Push in to select.

Back Button - Push in to return to previous menu.

5a Main Menu

```
Menu
>Settings
 System Status
 Active Errors  | 0
 Calibrate
 Factory Reset
```

Display	Description
Settings	23 available adjustable settings to control door and peripheral behavior.
System Status	Current status of available inputs and outputs.
Active Errors	Description and guidance to resolve active errors.
Calibrate	After initial operator setup, a re-calibration can be performed to establish new calibrated default settings. Should be done anytime max door position has changed - such as when making an arm adjustment.
Factory Reset	Will perform a full reset of the operator and the set up will need to be performed again.

Table 5-1 Available Sub-Menus from the Main Menu

6 Control Box Settings and Selectable Values

Setting	Value [ ] default	Description
Opening Speed	1-10	Opening speed from closed to backcheck angle. 1 is slowest speed, 10 is fastest. Range 1 to 10 unitless. Actual door speed may vary based on many factors. If Opening Force setting is too low, it can limit the Opening Speed.
Opening Force	1-10	Adjusts max opening force allowed by operator. 1 is the least force and 10 is strongest. Range 1 to 10 unitless. Higher settings may be needed for external doors which may need to drive open against strong winds.
Hold Open Delay	1-10, 15, 20…60 [5]	Time door is held at full open position following an actuation signal. Range 1 to 60 seconds. Time starts when door reaches hold open or actuation signal disables. Time is restarted if actuation received while in hold open. Hold open time is unlimited if 3-way switch set to Hold Open.
Backcheck Speed	Hi, Low [Low]	Opening speed from backcheck angle to full open position. Set to lower speeds for heavier doors
Backcheck Angle	45, 50, 55…80 [70]	Angle at which door begins to deaccelerate to backcheck speed. Set to lower angles for heavier doors.
Closing Speed of Door 1	1-10	Closing speed for Door 1. 1 is slowest speed, 10 is fastest. Range from 1 to 10 unitless. Set to lower speeds for heavier doors.
Closing Speed of Door 2	1-10	Closing speed for Door 2. 1 is slowest speed, 10 is fastest. Range from 1 to 10 unitless. Set to lower speeds for heavier doors.
Latch Angle	1, 2, 3…23 [13]	Angle at which door begins to deaccelerate near the full closed position. Set to higher angles for heavier or faster doors.
Power Boost	On, Off, Continuous	When on, will increase closing force when needed as door is closing. Can be used if latching or drag issues prevent door from fully closing. Set to “Cnt” Continous mode to drive door into frame continually in the case of door with no latch. Note: “Cnt” mode should utilize a Power Boost Disable sensor to briefly turn off power boost as a user approaches door.
Power Boost Angle	1, 2, 3...25, 30, 35, 40…90	Angle at which Power Boost is eligible to engage if door has trouble closing.
Power Boost Force	1-10	Adjusts max power boosting closing force allow by operator. 1 is the least force, 10 is the most force. Range 1 to 10 unitless. Higher settings may be needed for doors which have high winds, stack pressure, or substantial latch, threshold, hinge or door warp problems.
Power Assist	On, Off [Off]	When On, will assist door opening while user manually opens door. The door will feel lighter by reducing the opening resistance.
Power Assist Force	1-10 [5]	Force applied to assist user when manual opening. 10 makes door feel lightest. Range from 1 to 10 unitless. Set to lowest level reasonable for comfortable manual opening. Lower force setting is door is drifting away or taking too much time to stop during manual opening.
Push & Go	On, Off, FT [Off]	When set to On, manually pushing door open a short distance will trigger an actuation causing door to open to full open position and then hold. Hold open time will follow Hold Open setting. When set to FT (Foot Traffic), only the single door manually pushed will open, and Hold Open time limited to 1 second. Push and Go set to ON or FT may be useful for applications where the actuator is far away from the door.
Alternate Action	Off, 10m, 20m, 30m [Off]	When on, an actuation will work like a garage door opening. First actuate signal will open door and hold until next actuate signal is received or timeout. Timeout ranges from 10 minutes to 30 minutes.
Auto Reverse on Closing	On, Off [Off]	When On, door will re-open upon hitting an obstruction while closing. This applies for both manual and actuated openings. This feature only works for door angles greater than the Power Boost Elig Angle Setting.
Lock Delay	Off, 0.5, 1.0, 1.5, 2.0	When on, system will trigger Electric Lock Relay and delay for specified time before then opening door. Delay time is 0.5 to 2.0 seconds. If you are experiencing pause or interference with your latch, consider turning on or increasing the latch delay time.
Preload Release	On, Off	When on, door will first drive close prior to engaging Electric Lock to relieve pressure on the latch. This feature only available when Electric Lock Delay is enabled.
DMSS Safety Action	Slow, Pause, Close [Pause]	Action to occur while opening when DMSS (Door Mounted Safety Sensor) on Swing side of door triggers. If set to Slow, opening speed will slow. If set to Pause, door will pause for 5 seconds and then open slowly. If set to close, door will close immediately.
DMSS Safety Side Ignore Angle	Off, 30, 35, 40…85 [Off]	When on, the system will ignore the DMSS (Door Mounted Safety Sensor) on the Swing Side when the door is greater than angle selected. Eliminates nuisance detection when sensor detects wall or guard rail. Range is 30 to 85 degrees.
Actuator 2 Enable	On, Off [On]	Allows Actuator 2 input to be disabled. Note: Actuators 1 and 2 are not door dependent. When either is triggered, then all connected doors will be opened.
Audible Beep	On, Off [On]	Used to enable or disable the audible beeper on device. Beeps are used to provide audible feedback during setup or service.
Bluetooth	On, Off [Off]	When available, enables Mobile App to connect to device. Toggle from Off to On to initiate claiming device. If device is not claimed after 30 minutes, system will automatically disable bluetooth. To re-enable, change setting from Off to On again. Once claimed, only mobile apps associated with the site can connect to the device.

ⓘ **NOTE: Where available, default setting is indicated in the above chart with [default]. If default is not indicated above, the default setting is set during the calibration process using the information learned during the calibration process.**

⚠ CAUTION ⚠

Adjust the operator for the slowest operation practical in accordance with the latest revisions of Americans with Disabilities Act, ANSI/BHMA A156.19 (American National Standard for Power Assist and Low Energy Power Operated Doors), and local codes.

⚠ WARNING ⚠

KEEP HANDS, CLOTHING, WIRES, TOOLS, LADDERS, ETC. AWAY FROM THE DOOR WHEN THE OPERATOR IS INITIALLY TURNED ON.

6a Definitions of the positions of the door throughout the opening and closing cycle.

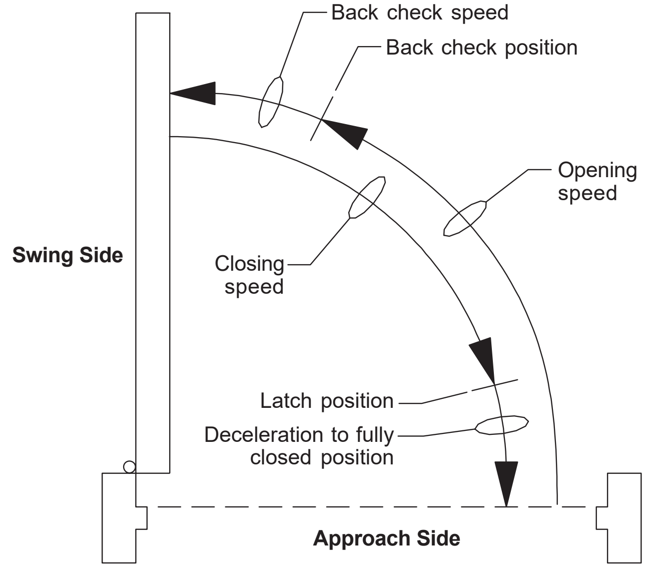


Figure 6-1. Door Position Definitions

6b Configuring DMSS "Swing Side Ignore Angle Setting":

ⓘ **NOTE: Only applicable to installations utilizing a DMSS Swing Side sensor**

Deactivate the Door Mounted Safety Sensor (DMSS) on Swing side of door to eliminate nuisance detection of a wall or guard rail.

1. Install Control Box, all door hardware and safety devices per their instructions. Ensure initial door calibration process has been completed.
2. Setup DMSS sensors in accordance with ANSI standard 156.10.
3. Navigate to the "Settings" sub-menu and set "DMSS Swing Action" to "Pause".
4. Use the Back Button to return to the Main Menu and navigate to the "Settings" sub-menu and set "DMSS Swing Side Ignore Angle" to "85" degrees.
5. Activate door opening cycle. If the door pauses before opening fully, reduce the "DMSS Swing Side Ignore Angle" from "85" in 5 degree increments.
6. Repeat Step 5 until door opens fully without pausing.
7. Perform a complete system test as described in Section 7.

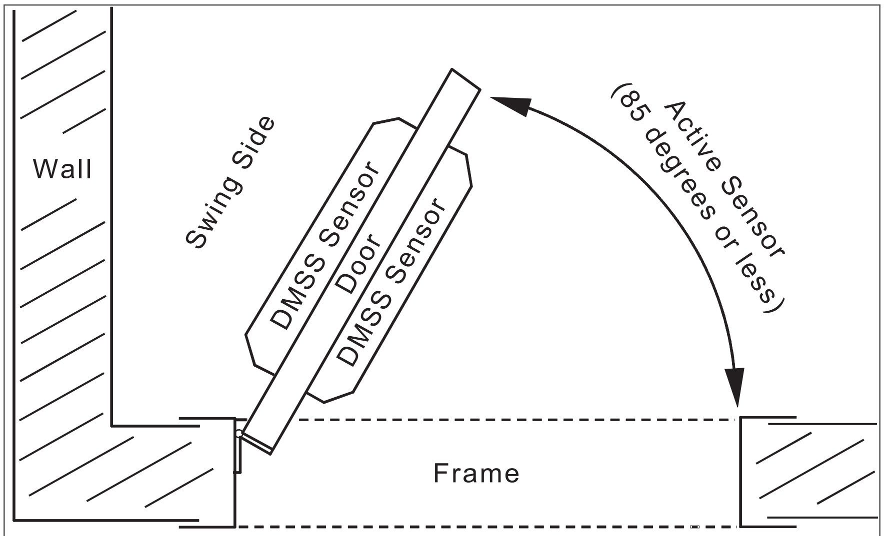


Figure 6-2 Proper Swing Side DMSS Setup

7 System Test

⚠ WARNING ⚠

KEEP HANDS, CLOTHING, WIRES, TOOLS, LADDERS, ETC. AWAY FROM THE DOOR WHEN THE OPERATOR IS INITIALLY TURNED ON.

If control box does not operate as expected during system test, see Section 9 for troubleshooting tips.

7a With the operator installation complete and AC power turned on, set the 3-Position Switch, if used, to AUTO. Verify that an activate signal initiates a door opening cycle. For applications using a Companion Door, actuate to open both doors simultaneously. Reference the appropriate Arm Installation Instructions to adjust both arm assemblies to synchronize the final door opening positions when hard stops of each door are reached (either internal gearmotor stop or an external building/wall stop).

7b To check the function of the door safety device:

1. Activate the door and then activate the approach side safety device while the door is open. The door should not close while the safety device is activated. Next, deactivate the safety device. The door should close after the hold open time delay expires.
2. With the door closed, activate the swing side safety device, then activate the door. The door should not open while the safety device is activated. Next, deactivate the safety device. The door should open when activated.

7c Set the 3-position switch, if used, to HO (Hold Open). Verify that the door opens and stays open.

7d Set the 3-position switch, if used, to OFF. Verify that the door closes. (Note, door may close at a different speed during this test.) Verify that an activate signal does not open the door. Restore 3-position switch back to AUTO.

7e If a Breakaway switch is connected, set the 3-position switch, if used, to AUTO, then break open the door. Verify that an activate signal does not cause the door to move. Re-latch the door and Breakaway switch after testing.

7f Measure the opening and closing times and forces to ensure they conform to ANSI / BHMA A156.19 requirements.

7g Do not release the system for service until it is operating properly.

8 System Status

This menu indicates the status (active or inactive) for all inputs and outputs.

1. Navigate to the “System Status” sub-menu from the main menu

Use Rotary Dial to select "System Status" →

```
Menu
 Settings
>System Status
 Active Errors  | 0
 Calibrate
 Factory Reset
 Device Info
```

2. The “System Status” sub-menu will show the status of all switch and sensor inputs and outputs. The sub-menu shows only four options at a time - the Rotary Dial can be used to cycle through all statuses. Inputs and outputs that are active will show an “On” condition. The 3-position switch has three available states (HO, AUTO, OFF).

```
System Status
>Fire/Brkaway   | Off
 3 Pos Switch   | Auto
 Actuator 1     | On
 Actuator 2     | Off
```

9 Troubleshooting

9a **If the door does not open at all** during device setup:

- Check that the 3-position switch, if used, is not set to OFF.
- Check door for binds and proper mechanical installation.
- Verify that all safety sensors are inactive.
- If an electromechanical lock is used, check that the lock disengages before the operator opens the door.
- Verify that the Breakaway switch, if used, is connected to NC contacts. If a Breakaway switch is not used, check that the Fire/Breakaway Jumper is inserted into the terminal block (J18) on the Chassis Board (jumper part number: 47955791).
- Check wiring, and connections.

9b If the Control Box does not function and the “Active Errors” sub-menu shows 0 active errors, turn AC power off and on to reset the Control Box (this will not affect chosen/default Control Box settings).

9c Check for any active errors on the LCD screen. If issues are observed and there are “Active Errors” visible on the main menu, navigate to the “Active Errors” sub-menu to view the current Error Codes. See the below chart for Error Code description and suggested solution:

Error Name	Error Description	Possible Error Code
Internal Error	**Internal Error**. Contact customer service	E10, E13
Safety Brake Stuck Off	Motor Safety Brake is stuck **off**. Power off for 30sec and power on. If problem persists contact customer service.	E11
Safety Brake Stuck On	Motor Safety Brake is stuck **on**. Power off for 30sec and power on. If problem persists contact customer service.	E12
Motor Drive Error	Unable to **drive motor**. Troubleshoot possible reasons. Motor phase wires may have been disconnected from controller or wire severed. If so reconnect the motor. Motor may have overheated, if so wait for motor to cool down. Or if internal error, power off for 30sec and power on. If problem persists, contact customer service.	E14, E15
Internal Error	**Internal Error**. Power off for 30sec and power on. If problem persists, contact customer service.	E16, E17, E18, E19, E22, E23, E24, E27, E45, E47, E48
Motor Encoder Error	Motor encoder signals are not correct. Confirm motor connectors are properly connected to controller. Power off for 30sec and power on. If problem persists, contact customer service.	E20 E21
Temp High	**Internal temp** too high. High use with high forces in high ambient temp may trip error. Manually open door to confirm it can freely open. Allow system to cool. If error continues power off for 30sec and power on. If problem persists, contact customer service.	E25
Temp High Restriction	Elevated **internal temp** detected. Some features may be limited. High use with high forces in high ambient temp may trip this warning. Manually open door to confirm it can freely open. Allow system to cool. If error continues power off for 30sec and power on. If problem persists, contact customer service.	E26
24V Periph High Voltage	Device is seeing **high** voltage on 24v Periph output. Confirm this circuit is wired correctly. Power off for 30sec and power on. If problem persists, contact customer service.	E28
24V Periph Low Voltage	Device is seeing **very low** voltage on 24v Periph output. Confirm this circuit is wired correctly. Power off for 30sec and power on. If problem persists, contact customer service.	E29
24V Periph Low Voltage	Device is seeing **low** voltage on 24v Periph output. Confirm this circuit is wired correctly. Power off for 30sec and power on. If problem persists, contact customer service.	E30
Door Not Connected	A door that was previously detected, is **no longer present**. If this is not correct then power off for 30sec and power on. If problem persists contact customer service.	E31
On Device User Interface Fault	ODUI is **invalid**. Power off for 30sec and power on. If problem persists, contact customer service.	E32

On Device User Interface Fault	ODUI is **not detected**. Power off for 30sec and power on. If problem persists, contact customer service.	E33
On Device User Interface Fault	Error detected in the **ODUI Rotary Dial**. Confirm rotary dial is fully seated. This may cause problems with navigating LCD screen but will not prohibit other operations. Power off for 30sec and power on. If problem persists, contact customer service.	E34
Actuator 1 Error	**Actuator 1** input stuck high since power up. This Input will be disabled until issue corrected.	E35
Actuator 2 Error	**Actuator 2** input stuck high since power up. This Input will be disabled until issue corrected.	E36
Hold Open Error	Hold Open input signal stuck active since power up. This input will not cause door to open. If however another signal triggers an actuated open, then door will hold open.	E37
On Device User Interface Button	The ODUI **Select** Button is stuck ON for > 10 sec. This may cause problems with navigating LCD screen but will not prohibit other operations. Try to wiggle or dislodge the button. Power off for 30sec and power on. If problem persists, contact customer service.	E38
On Device User Interface Button	The ODUI **Back** Button is stuck ON for > 10 sec. This may cause problems with navigating LCD screen but will not prohibit other operations. Try to wiggle or dislodge the button. Power off for 30sec and power on. If problem persists, contact customer service.	E39
On Device User Interface Button	The ODUI **Up** Button is stuck ON for > 10 sec. This may cause problems with navigating LCD screen but will not prohibit other operations. Try to wiggle or dislodge the button. Power off for 30sec and power on. If problem persists, contact customer service.	E40
On Device User Interface Button	The ODUI **Down** Button is stuck ON for > 10 sec. This may cause problems with navigating LCD screen but will not prohibit other operations. Try to wiggle or dislodge the button. Power off for 30sec and power on. If problem persists, contact customer service.	E41
Calibration Needed	A **new door** has been detected. System must be calibrated again to properly use the new door.	E42
Learn Cycle Failed	A **learn cycle** failed. A learn cycle is needed after power up or in other situations where door position may have been lost. If learn cycle pending, the door will open at slow speed. To resolve, confirm door is fully closed. Manually cycle door to full open and confirm it is free of obstruction. Verify arm has not slipped and door opens to correct fully open position. Actuate door and confirm it opens fully. If error persists, recalibrate the door.	E43
On Device User Interface Failed Connection	Unable to **communicate** with **ODUI**. Power off for 30sec and power on. If problem persists contact customer service.	E44
Comms Module Error	Unable to detect or communicate with the **comms module**. This will impact ability to utilize your MAPP or Wi-Fi features. ODUI can be used to adjust settings or view active errors. Power off for 30sec and power on. If problem persists contact customer service.	E46

ⓘ **If problem cannot be corrected by using suggested fixes, contact 1-877-671-7011.**

10 Return to main Installation Instructions

10a Continue with next step in your Senior Swing IQ Installation Instructions.

48348385 Rev. 07/25-a