



# 7100SZ Series SafeZone<sup>®</sup> Installation and Instruction Manual

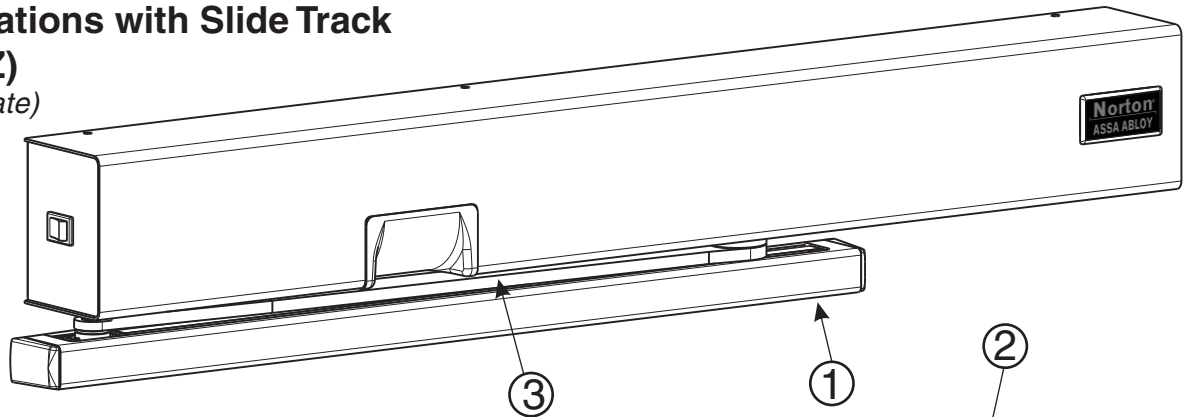
Patent Pending

## ASSA ABLOY

### Pull Side Applications with Slide Track

(7110SZ, 7150SZ)

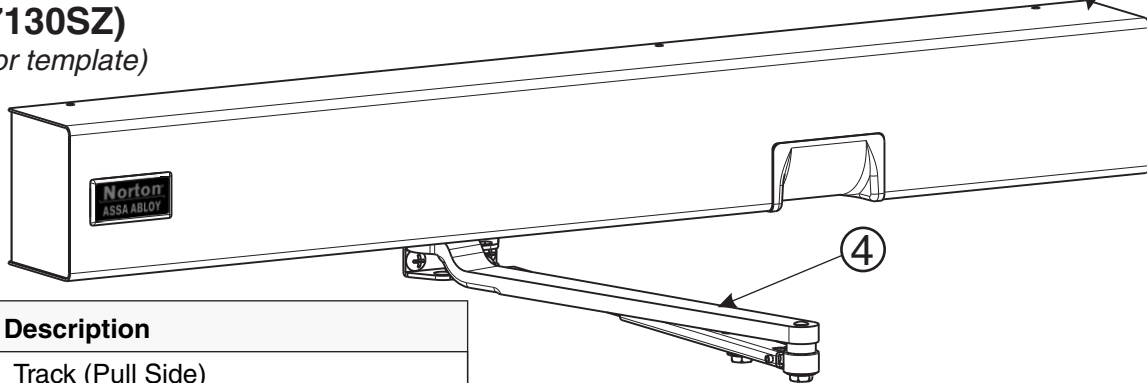
(see page 7 for template)



### Push Side Applications with Double Lever Arms

(7120SZ, 7130SZ)

(see page 3 for template)



Item No.	Description
1	Track (Pull Side)
2	Cover
3	Track Arm (Pull Side)
4	Double Lever Arm (Push Side)

#### Tools required:

- Allen wrench set (inch)
- Flat blade screwdriver (potentiometer & terminal size)
- Screwdriver (Phillips size 2)
- Tape rule
- Power drill
- Center punch
- Wire stripper

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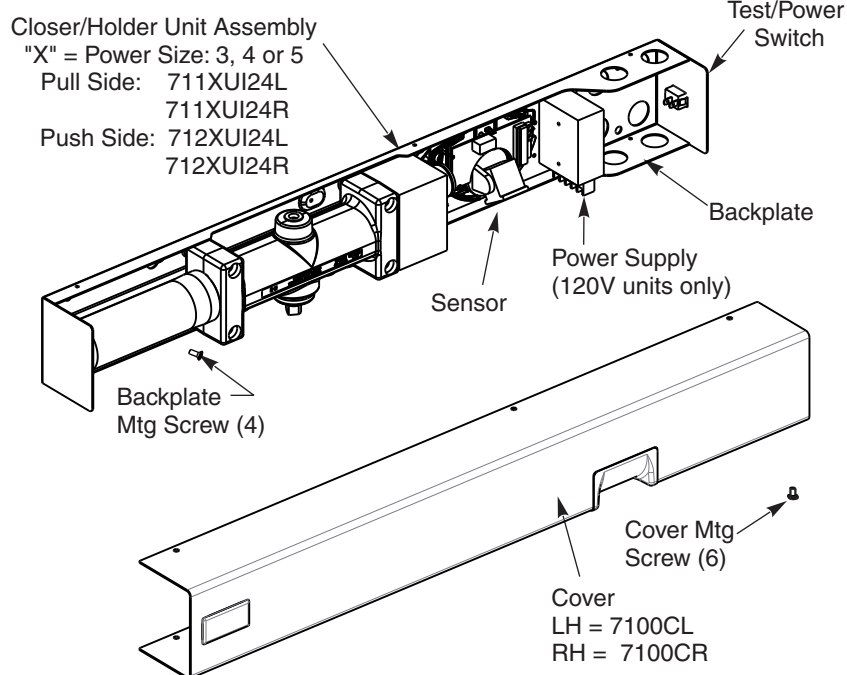
Use screw pack and hardware provided to mount operator.

#### Requirements:

- ✍ Units are handed. Hand of unit and hand of door must be the same.
- ✍ All dimensions shown in inches (mm).
- ✍ Door must be hung on ball bearing butt hinges or 3/4" (19) offset pivots.
- ✍ Door thickness must be 1-3/4" (44) to 2-1/4" (64).
- ✍ Door must swing freely through the entire opening and closing cycle before beginning the installation procedure.
- ✍ Frame face must be a minimum of 2" (51).
- ✍ Ceiling clearance must be a minimum of 3 - 1/2" (89) for push side application or 4" (102) for pull side application. See pages 3 and 7 for templates.
- ✍ Power input to unit must be of the same voltage as that stated on the unit.
- ✍ Unit to be mounted on interior of building in dry environment, maximum humidity of 95%.
- ✍ See NFPA70 for wiring requirements and NFPA72 for alarm system requirements.

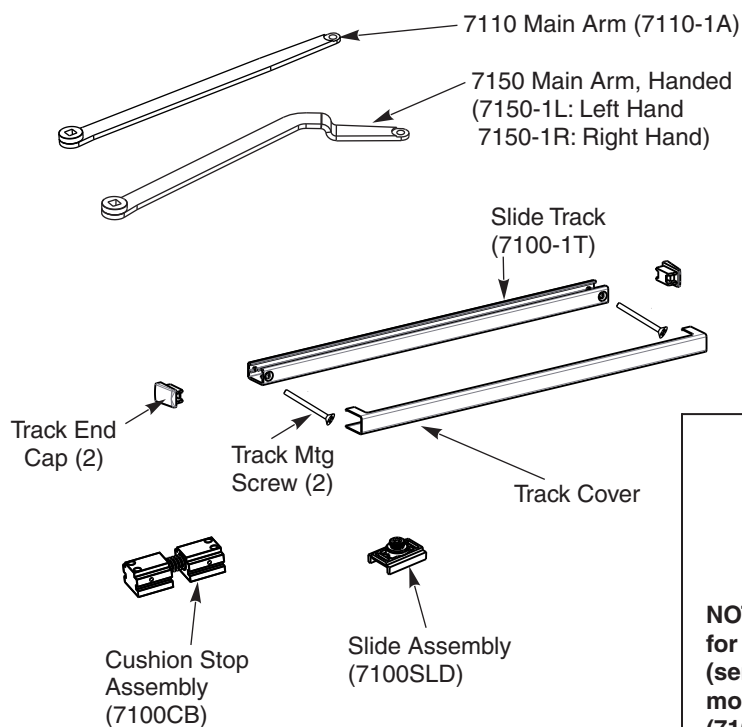
## General Information

### Component Layout

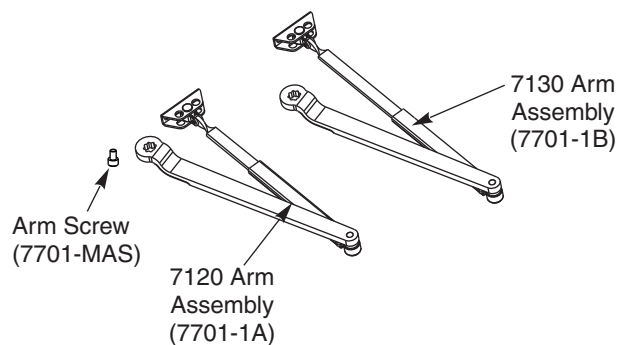


Preparation for Fasteners			
	Fasteners	Door or Frame	Drill-Sizes
<b>Standard</b>	1/4" - 20 machine screw	Metal	Drill: #7 (0.201" dia.) Tap: 1/4" - 20
	Self drilling screw (Track screws only)	Metal	Pre-Drill: 9/64 hole
	Self drilling screw (Closer mounting screws only)	Metal	Pre-Drill: 3/16 hole
	Sleeve nuts and bolts (Shoe screws only)	Hollow Metal	9/32" (7 mm) through; 3/8" (9.5 mm) door face opposite to closer
Aluminum or Wood		3/8" (9.5 mm) through	
<b>Optional</b>	Through-bolts and grommet-nuts	All	9/32" (7 mm) thru; 3/8" (9.5 mm) dia. x 3/8" (9.5 mm) deep on door opposite to closer

### Included with 7110SZ and 7150SZ



### Included with 7120SZ and 7130SZ

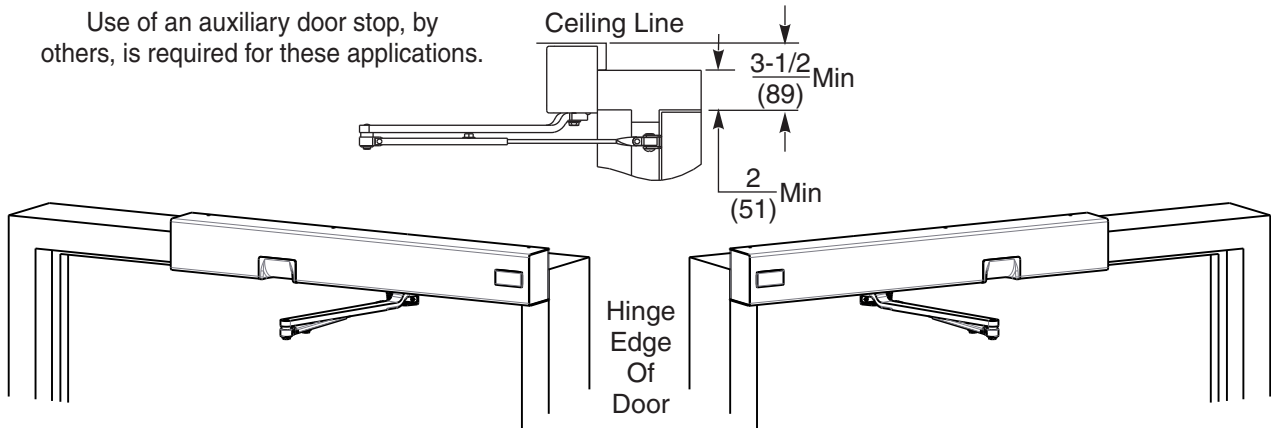


## Certifications

UL228, UL10B

## 7120SZ, 7130SZ: Double Lever Arm (Push Side)

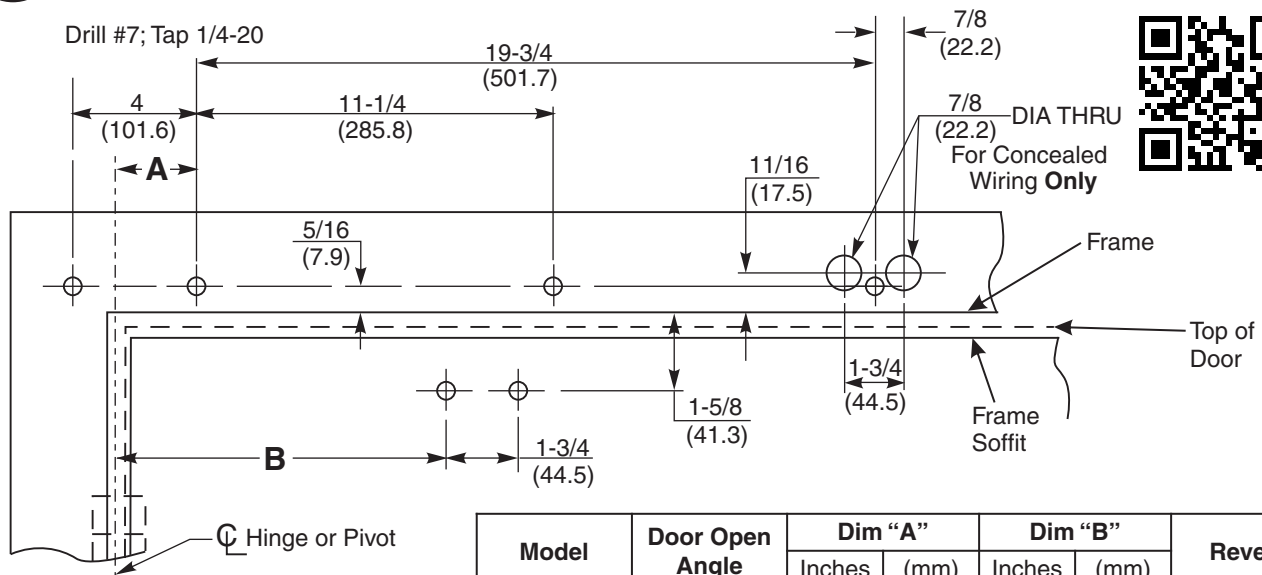
Use of an auxiliary door stop, by others, is required for these applications.



RH - Right Hand Door  
LHR - Left Hand Reverse

Left Hand Door - LH  
Right Hand Reverse - RHR

### 1 Prepare Frame



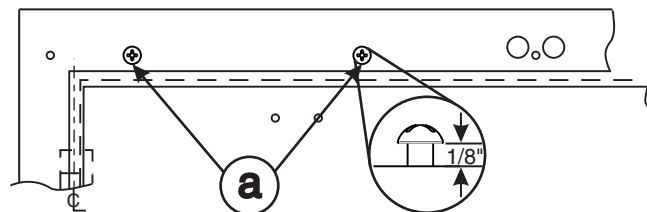
✍ Left hand door shown, right hand opposite.

✍ All dimensions shown in inches (mm).

Model	Door Open Angle	Dim "A"		Dim "B"		Reveal
		Inches	(mm)	Inches	(mm)	
712X SZ	100° Max.	5-7/8	149.2	13-3/8	339.7	2-3/4" - 7"
	180° Max.					2-3/4" - 4"
	165° Max.	3-1/8	79.4	10-5/8	269.9	4" - 7"
713X SZ	180° Max.					4" - 7"

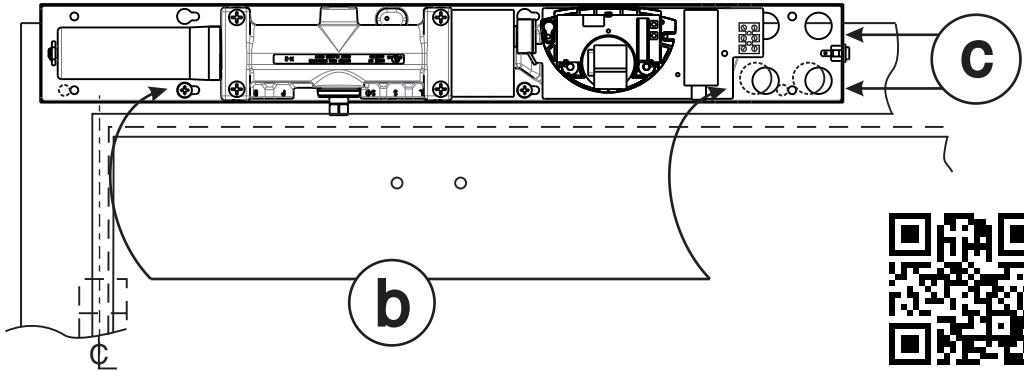
### 2 Operator Mounting

Install two screws in the key slot locations leaving 1/8" gap between screw head and frame as shown (a).



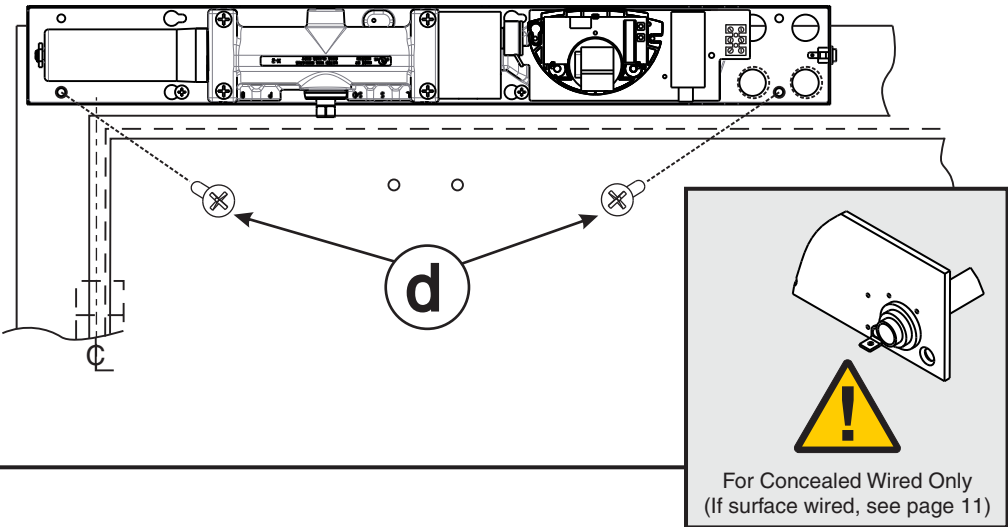
### 3 Operator Mounting

Hang closer body by key hole slots (b) and slide closer toward hinge to capture screw heads (c).



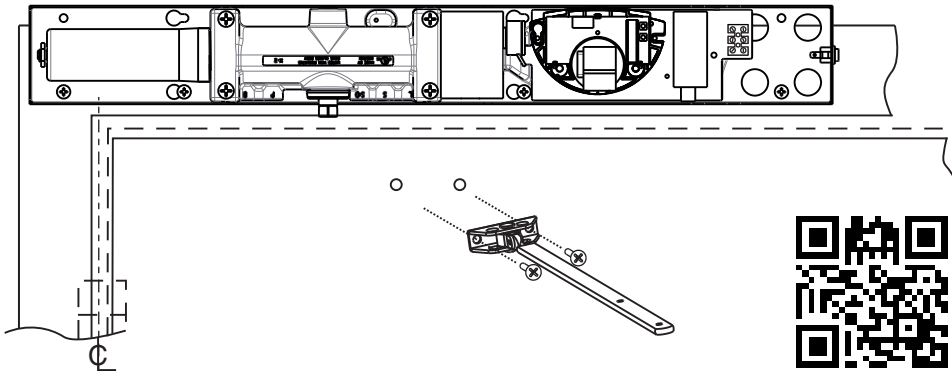
### 4 Operator Mounting

Install remaining mounting screws through back plate and tighten all four screws (d). Pull wiring through holes (if concealed wired).



### 5 Arm Shoe Mounting

Mount closer arm shoe to door face as shown.



**6 Attach Arm**

Main Arm

Arm Screw (7/16" Drive)

Align the pinion flat with the letter "S".

**7 Preload Closer Spring**

With the door closed and latched, rotate main arm until secondary arm is perpendicular to the door frame, then tighten adjustment screw as shown with 7/16" wrench.

90°

**8 Closer Spring Adjustment**

**Closing Force**

1 1/16" Wrench

Stronger (+) Weaker (-)

Slowly increase closer power until door closes consistently.

**NOTE: A closer set to the ADA required 5 lbs opening force may not be strong enough to close the door due to latching hardware, air pressure, or frame issues.**

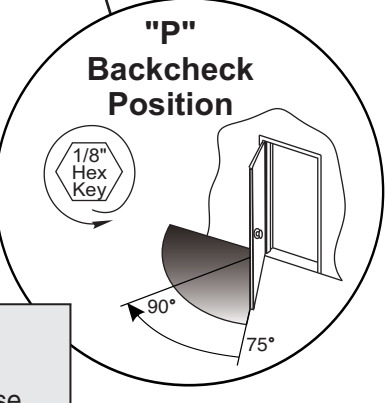
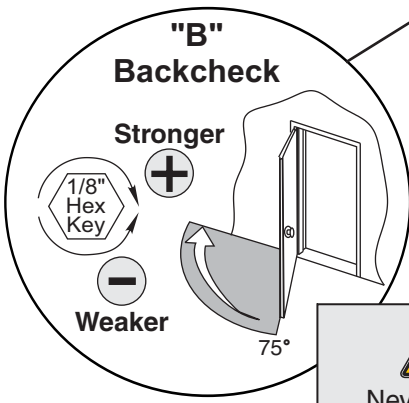
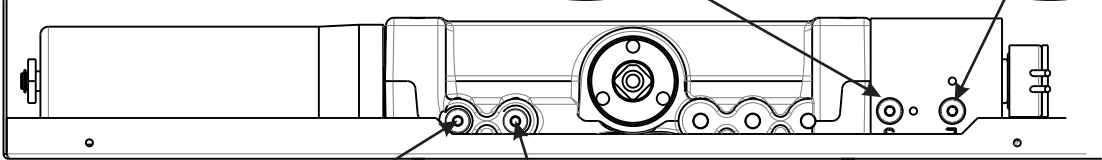
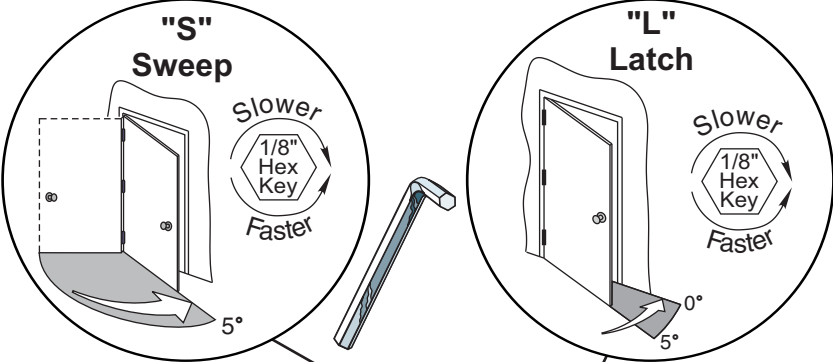
# 9 Closer Adjustments

**Closing Speed Controls**

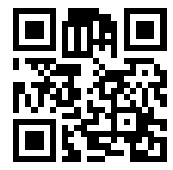
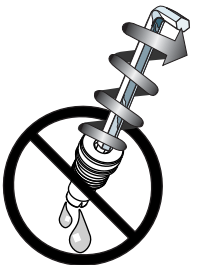
- Valve "S" Controls Sweep Range from full open to 5°.
- Valve "L" Controls Latch Range from 5° to closed.

**Opening Cycle**

- Valve "B" controls the strength of cushioning in Backcheck Range. NEVER close this valve completely – it is not to provide a positive stop.
- Valve "P" adjusts the angle that backcheck is felt in the open cycle.



**!**  
Do not remove valves from closer. Hydraulic oil will escape.



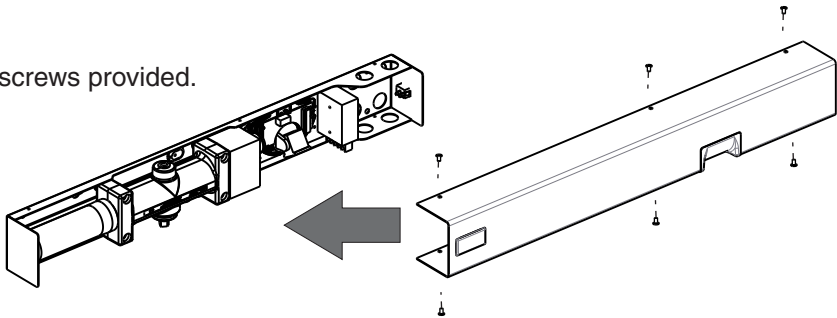
**!**  
Never Close backcheck valve completely

# 10 Electrical Connections

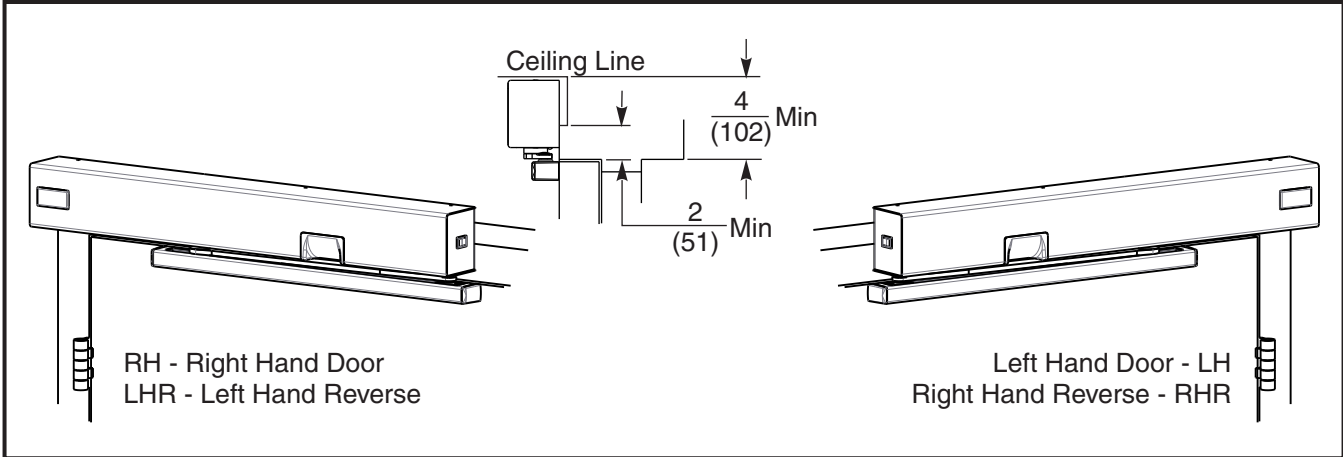
See Page 11

# 11 Attach Cover

Attach cover using screws provided.

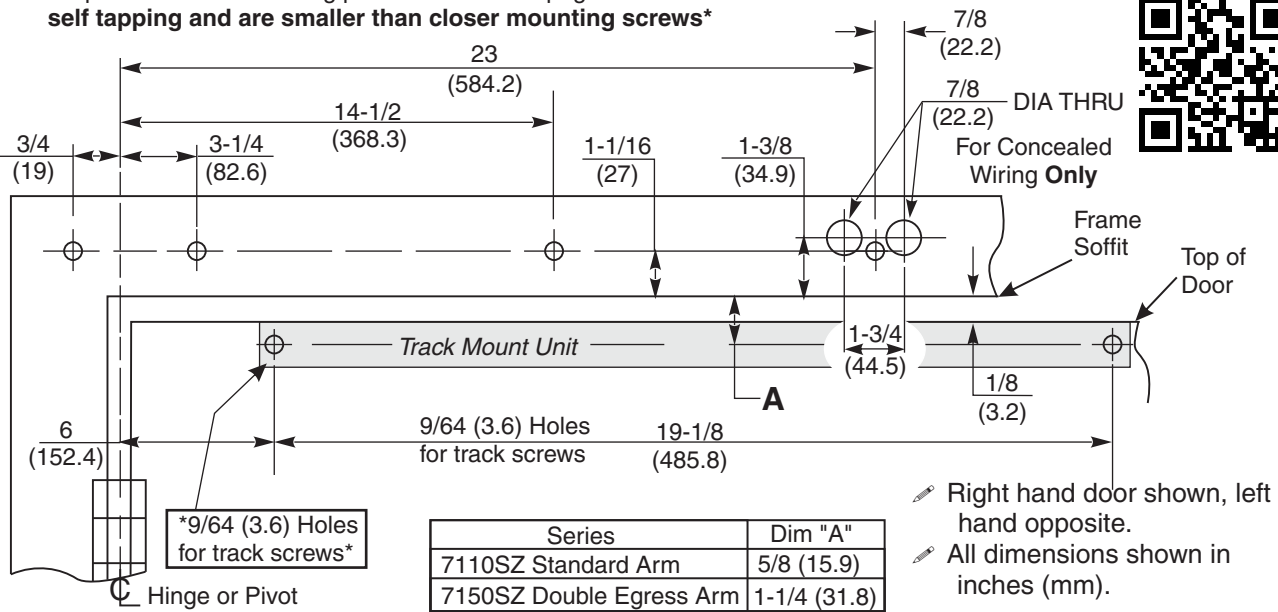


**7110SZ, 7150SZ: Track Mount (Pull Side)**



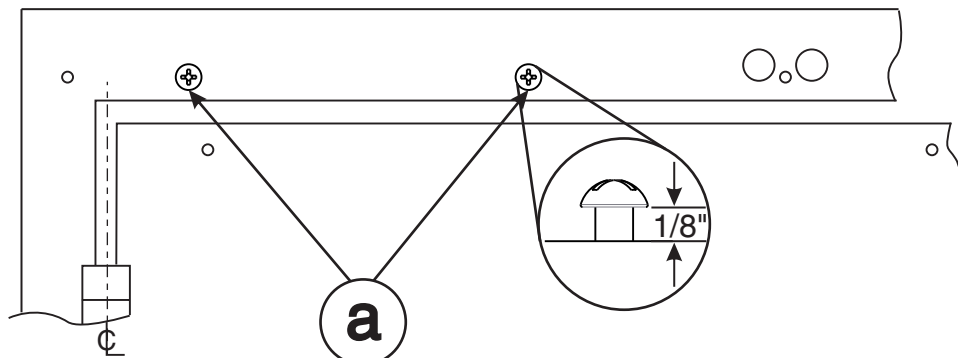
**1 Prepare Frame**

Prepare holes for mounting per instructions on page 2. **\*Track screws are self tapping and are smaller than closer mounting screws\***



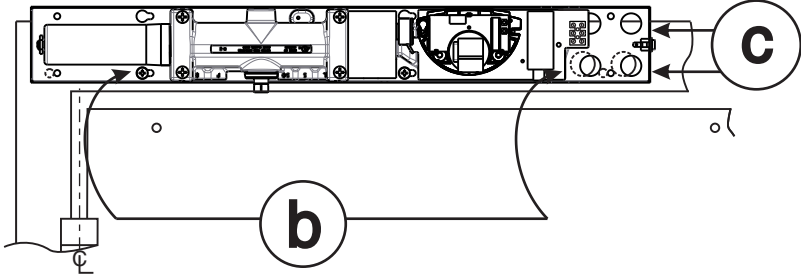
**2 Operator Mounting**

Install two screws in the key slot locations leaving 1/8" gap between screw head and frame as shown (a).



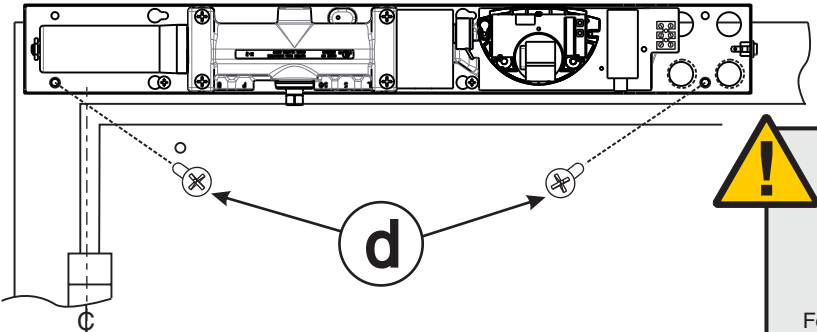
### 3 Operator Mounting

Hang closer body by key hole slots (b) and slide closer toward hinge to capture screw heads (c).



### 4 Operator Mounting

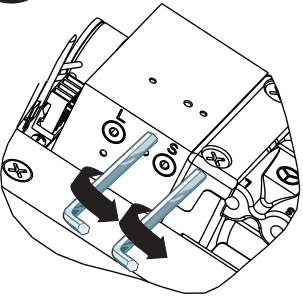
Install remaining mounting screws through back plate and tighten all four screws (d). Pull wiring through holes (if concealed wired).



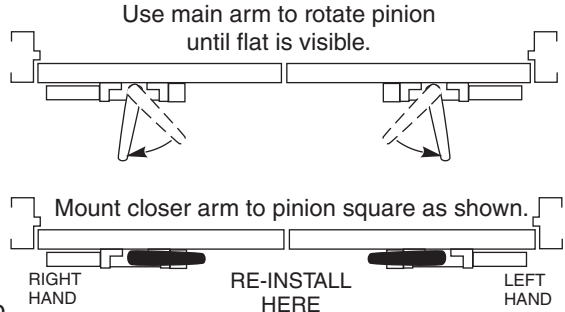
**!**

For Concealed Wired Only  
(If surface wired, see page 11)

### 5 Arm Mounting



Fully close Latch & Sweep Valves with 1/8" wrench provided.



\*All views from floor looking upward\*

**!**

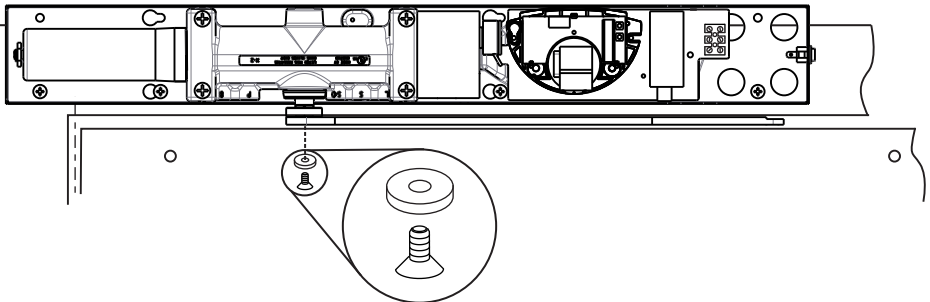
Align the pinion flat as shown.

RIGHT HAND      LEFT HAND

PINION FLAT

### 6 Attach Arm

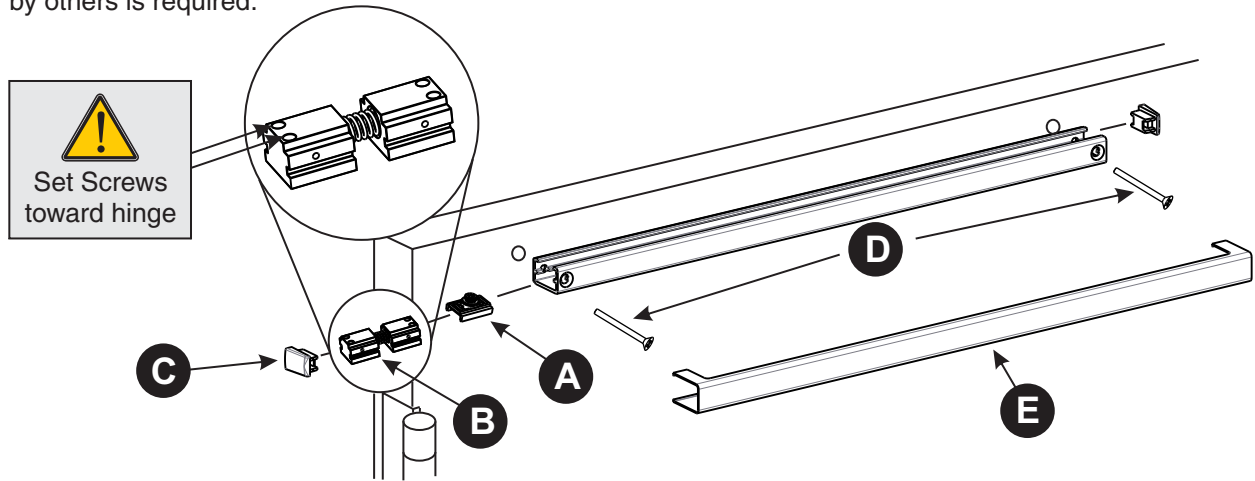
Attach arm with provided screw and washer. Tighten arm screw with 5/32" Allen wrench.



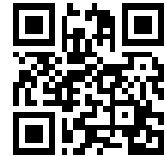


# 7 Mount Track

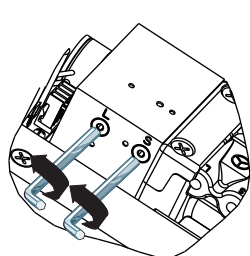
If opening angle greater than 125°, spring cushion stop cannot be used and an auxiliary stop by others is required.



- 1) Insert slider into track.
- 2) Insert spring cushion stop on hinge side of track for 125° or less opening angle.  
**!Do not use for openings greater than 125°!**
- 3) Insert end caps (both ends).
- 4) Secure track to door using provided screws.
- 5) Snap on cover.

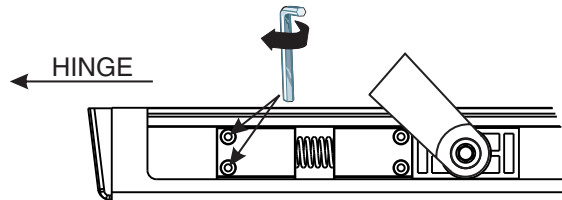
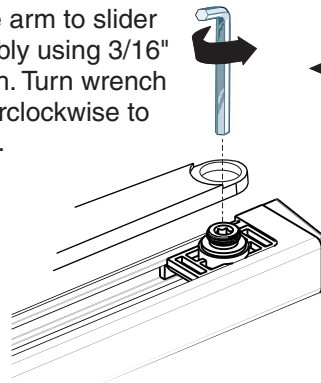


# 8 Connect Arm to Track



Open Latch & Sweep Valves with 1/8" wrench provided.

Secure arm to slider assembly using 3/16" Wrench. Turn wrench counterclockwise to tighten.

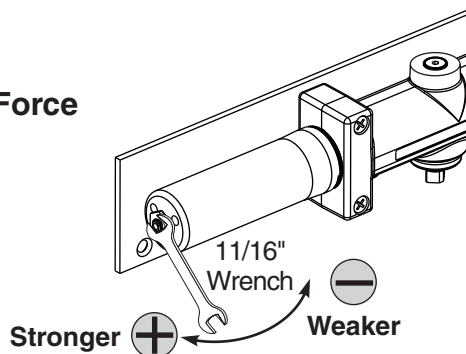


Open door to maximum desired swing minus 5° and hold. Slide spring cushion stop assembly against slider assembly and secure to track using 5/64" or 2mm wrench.



# 9 Closer Spring Adjustment

**Closing Force**



Slowly increase closer power until door closes consistently.

**NOTE: A closer set to the ADA required 5 lbs opening force may not be strong enough to close the door due to latching hardware, air pressure, or frame issues.**

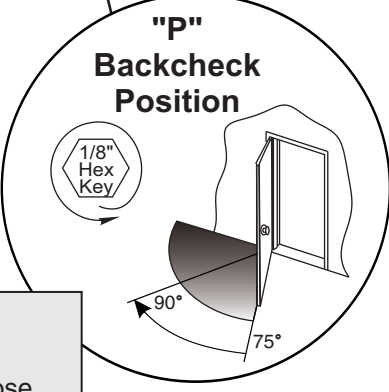
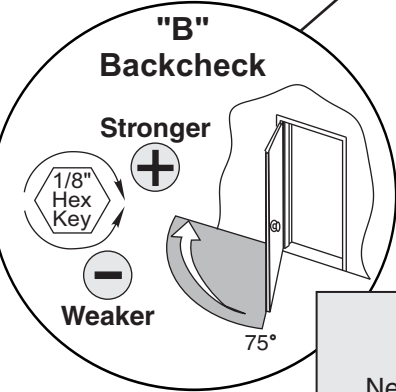
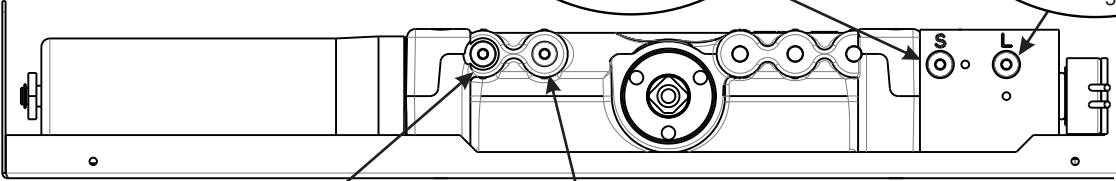
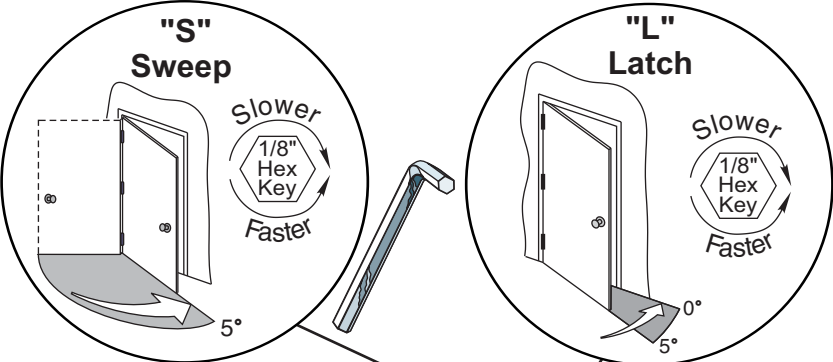
# 10 Closer Adjustments

### Closing Speed Controls

- Valve "S" Controls Sweep Range from full open to 5°.
- Valve "L" Controls Latch Range from 5° to closed.

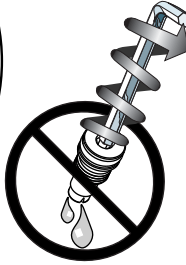
### Opening Cycle

- Valve "B" controls the strength of cushioning in Backcheck Range. NEVER close this valve completely – it is not to provide a positive stop.
- Valve "P" adjusts the angle that backcheck is felt in the open cycle.



**!**  
Do not remove valves from closer. Hydraulic oil will escape.

**!**  
Never Close backcheck valve completely

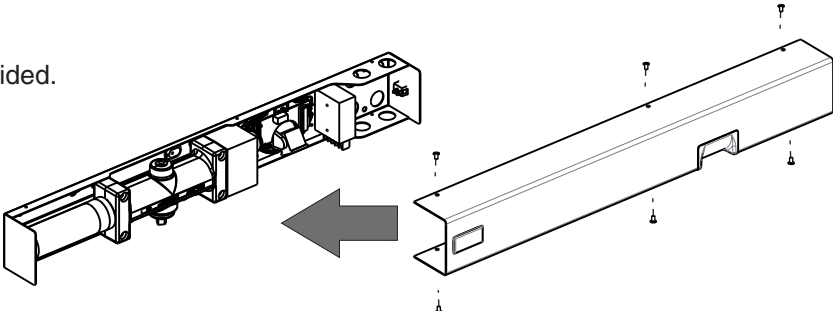


# 11 Electrical Connections

See Page 11

# 12 Attach Cover

Attach cover using screws provided.



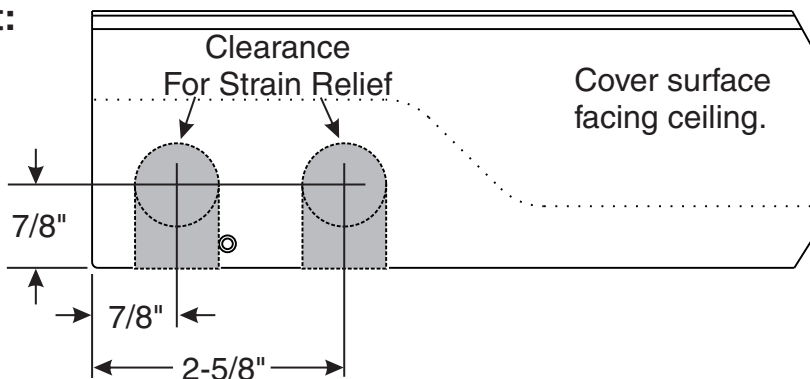
# ELECTRICAL CONNECTIONS

- Power input to unit must be of the same voltage as that listed on the label.
- All wiring connections use standard wiring practice conforming to local wiring codes.
- Maximum wire size is 18AWG.
- Make input power connections to the terminal block or power supply using illustrations.



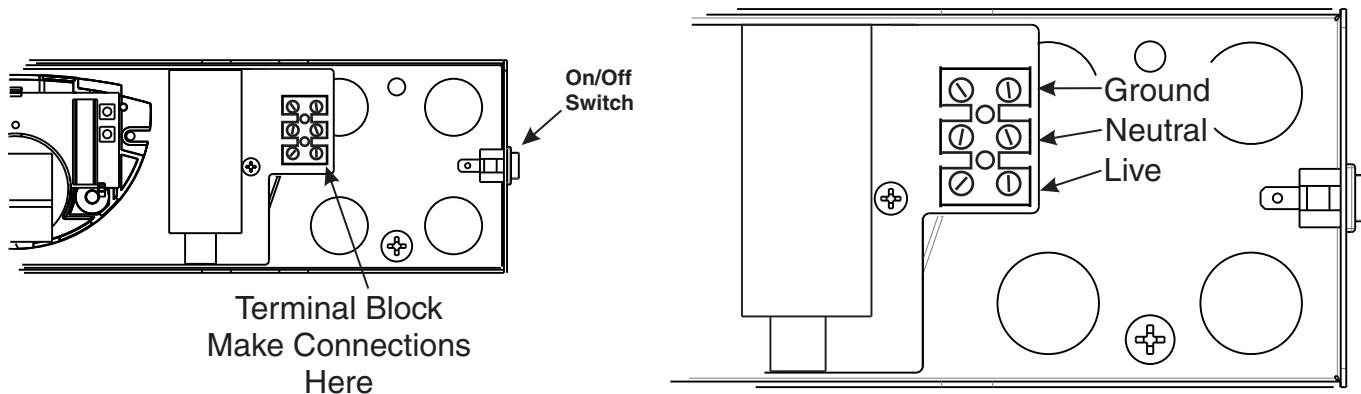
## Surface mount power input:

Remove appropriate shaded area from cover for surface wired installations only. Repaint cut edges as necessary to prevent corrosion.



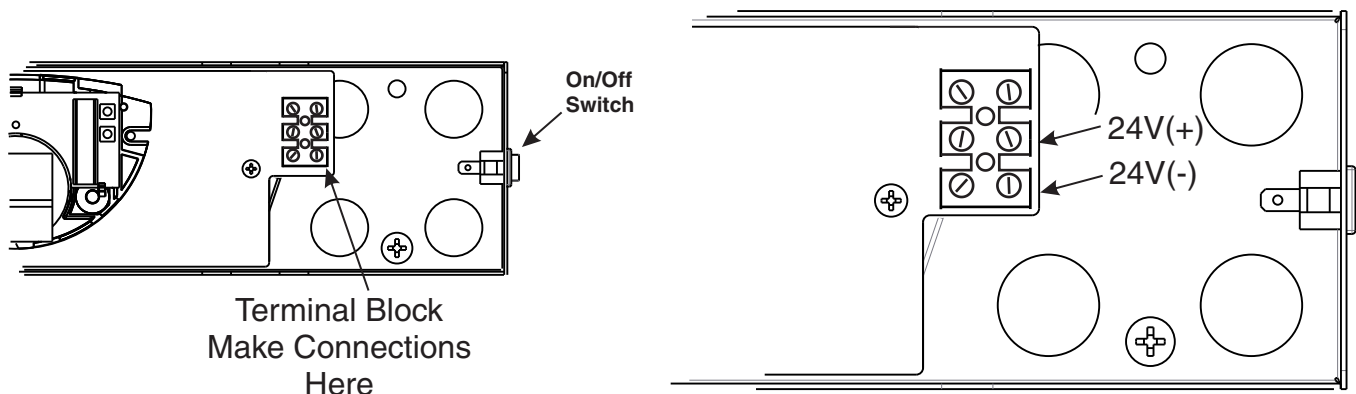
## 120V AC INPUT

Make power connections as shown below.



## 24V DC INPUT

Make power connections as shown below.



## Sensor Technical Specifications

DESCRIPTION	SPECIFICATION
Frequency:	24.125 GHz
Supply voltage:	12 t 24 V DC: -10% / +30%:
Mounting height:	Normal: 7'; Maximum: 10'-0"
Tilt angle:	0° to 90° vertical -15° to +15° lateral
Detection area:	
Wide	13ft (W) x 6.5ft (D)
Narrow	6.5ft (W) x 8.2ft (D) (supplied as optional)
Minimum detection speed:	2 in/sec. (measured in axis)
Power consumption:	< 2 W
Standard output relay:	
Max contact voltage	60 VDC / 125 VAC
Max contact current	1 A (resistive)
Max switching power	30W (DC) / 60VA (AC)
Hold time:	0.5 sec. to 9 sec. (adjustable)
Temperature range:	-4°F to 131°F
Dimensions:	4.75in (W) x 3.15in (H) x 2.0in (D)
Weight:	0.5lbs
Material:	ABS

## Safety Precautions

- Shut off all power going to the header before attempting any wiring procedures.
- Maintain a clean & safe environment when working in public areas.
- Constantly be aware of pedestrian traffic around the door area.
- Always stop pedestrian traffic through the doorway when performing tests that may result in unexpected reactions by the door.
- Always check placement of all wiring and components before powering up to ensure that moving door parts will not catch any wires and cause damage to equipment.
- Ensure compliance with all applicable safety standards upon completion of installation.

### ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS



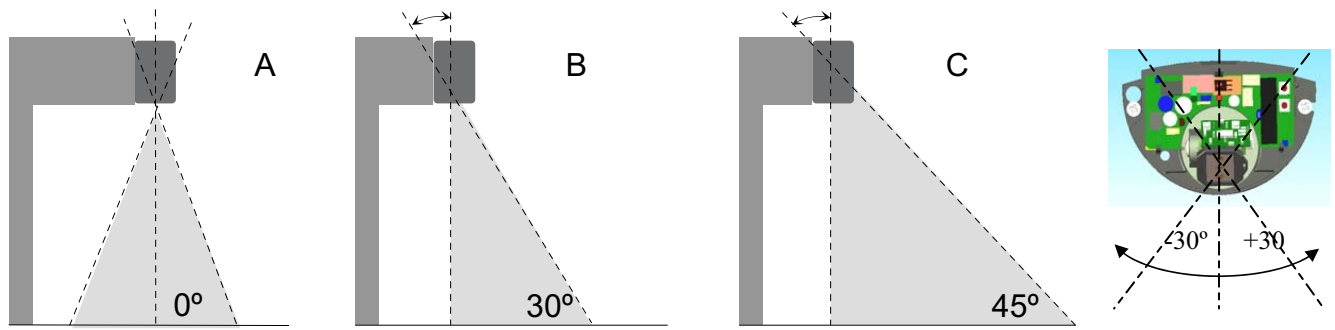
Circuit board components are vulnerable to damage by electrostatic discharge (ESD). ESD can cause immediate or subtle damage to sensitive electronic parts. An electrostatic charge can build up on the human body and then discharge when you touch a board. A discharge can be produced when walking across a carpet and touching a board, for example. Before handling any board, make sure you dissipate your body's charge.

### CAUTION: In the event a unit needs to be opened, observe the following precautions.

- Ground yourself by touching a conductive surface of the door or other element connected to common earth ground to discharge the static electricity present in your body.
- Avoid walking around while replacing items inside the case, especially if you are on carpet or during conditions of low temperature and low humidity.
- Handle the board by the edges only to avoid touching electronic components.
- Store a loose board in an anti-static bag.

# Sensing Field Adjustments

THE POSITION OF THE SENSING FIELD IS DETERMINED BY THE VERTICAL AND LATERAL ANGLE OF THE ANTENNA



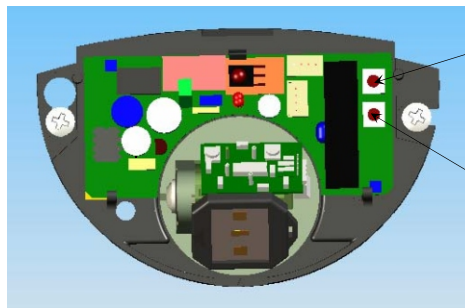
Sensing field as close to the door as possible:  
-antenna set at the position of 0°

Sensing field close to the door:  
-antenna set at the position of 30°

Sensing field far from the door:  
-antenna set at the position of 45°

## Hold Time Settings

Hold open time refers to the time the door will remain open AFTER movement is no longer detected. Hold open time can be adjusted manually by means of the push buttons + (more) and - (less).



- + Press and release button to increase hold open setting (do not hold button continuously). (see table below)
- Press and release button to decrease hold open setting (do not hold button continuously).

Pressing the two push buttons, located on the circuit board, simultaneously for three seconds, will restore all default settings.

Example: If the current setting is 5 and the required setting is 8, press and release the button 3 times.

Setting	Time (Seconds)
0	0.5
1	5
2	6
3	7
4	8
5 (Default)	10
6	14
7	16
8	18
9	20

Recommended Settings:



Setting 1-3




Setting 4-6



Setting 7-9

## Troubleshooting

SYMPTOMS	PROBABLE CAUSE	CORRECTIVE ACTION
Red LED does not light up. (No power to sensor)	Power switch is off. Loose wire connection.	Turn power switch to "ON" position. Inspect wiring for loose connections.
Door Stops several times in the same cycle without sensing presence in the door way.	Sensitivity is set too high	Change sensitivity setting using optional remote.
Door not closing when cover installed.	Eye is sensing the closer cover.	Adjust the sensing field away from cover edge. (See "Sensing Field Adjustments" above.



**ASSA ABLOY**

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