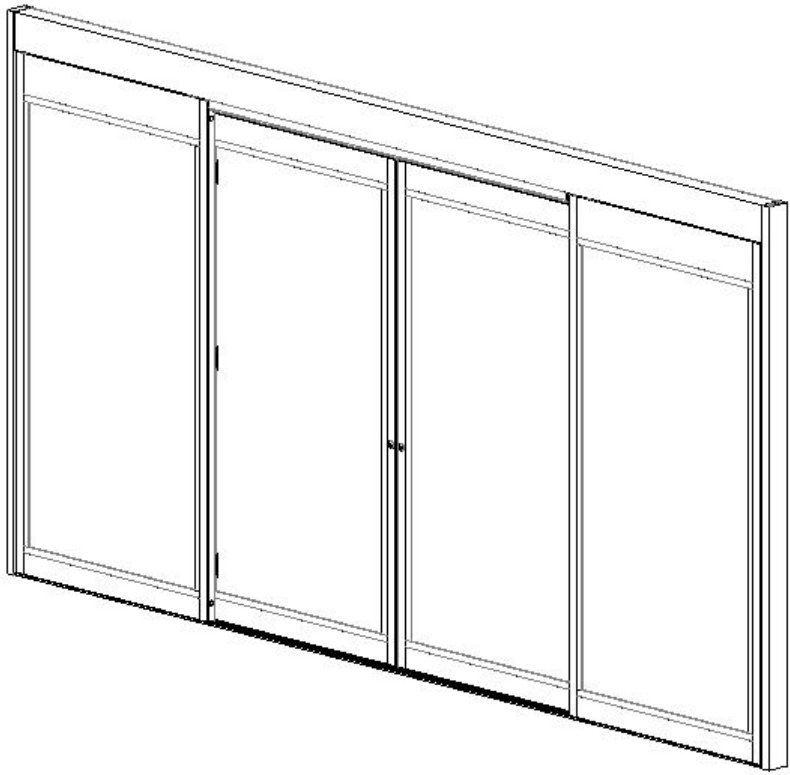
ASSA ABLOY

Sliding Door Operator
ASSA ABLOY SL500
Forced Entry Resistant

Owner's Manual



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Congratulations on your new automatic door

ASSA ABLOY has developed automatic doors for more than 50 years. State-of-the-art technology and carefully tested materials and components provide you with a superior product.

As with all other technical products, your automatic door requires periodic maintenance and service. It is essential that you know your automatic door (system) and that you recognize the importance of maintaining it in compliance with applicable standards for safety.

Your local ASSA ABLOY-authorized representative is familiar with these standards, as well as all applicable local codes and ASSA ABLOY recommendations for power-operated pedestrian doors. Service and adjustments performed by your ASSA ABLOY-authorized representative, will ensure safe and proper operation of your automatic door unit.

WARNING!

Failure to observe the information in this manual may result in personal injury or damage to equipment.

To reduce the risk of injury of persons - use this operator only with pedestrian doors.

Save these instructions for future reference.

Electronic equipment reception interference

The equipment complies with the European EMC directive (US market FCC Part 15), provided installed according to Installation and Service manual.

The equipment may generate and use radio frequency energy and if not installed and used properly, it may cause interference to radio, television reception or other radio frequency type systems.

If other equipment does not fully comply with immunity requirements interference may occur. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna.
- Relocate the receiver with respect to the equipment.
- Move the receiver away from the equipment.
- Plug the receiver into a different outlet so that equipment and receiver are on different branch circuits.
- Check that protective earth (PE) is connected.

If necessary, the user should consult the dealer or an experienced electronic technician for additional suggestions.

ASSA ABLOY products are equipped with electronics and may also be equipped with batteries containing materials which are hazardous to the environment. Disconnect power before removing electronics and battery and make sure it is disposed of properly according to local regulations (how and where) as was done with the packaging material.

Product liability

According to regulations, the following are the responsibility of the owner or caretaker of the equipment

- that the equipment operates correctly, so that it gives sufficient protection in regard to safety and health
- that the equipment is operated and regularly maintained, inspected and serviced by someone with documented competence in the equipment and in applicable regulations
- that a journal is kept of inspection, maintenance and service records including the provider
- that inspection covers the emergency opening function (when applicable)
- that the closing force is appropriate for the door size on fire-approved door systems (when applicable)

Warranty

ASSA ABLOY warrants its products to be free from defects in material and workmanship under intended use and service for a warranty time of 12 months, beginning at time of delivery. This warranty extends only to the original buyer of the equipment.

ASSA ABLOY warrants that the software will operate substantially in accordance with its functional descriptions and that it has been recorded on non-defective media.

The ASSA ABLOY warranty does not apply to

- That the software will be error-free or operate without interruption
- General wear and tear on the system
- Fuse, disposable batteries and glass damage
- System deviations caused by installer other than ASSA ABLOY
- System that has been altered or damaged by vandalism or misuse
- System that has been additionally equipped with non-ASSA ABLOY original branded parts and/or spare parts
- Unrequired visits due to poor client communication (door working when our technician arrives, reset, power discontinuation)
- Adjustments (closing and opening speed and also detection field radars) due to customer requests (excludes operational adjustments thought to create a hazard)
- Water damage
- Adverse weather conditions
- Any damage caused, directly or indirectly, by a circumstance beyond the control of the applicable company within ASSA ABLOY Entrance Systems Inc., such as industrial dispute, fire, natural disaster, war, extensive military mobilization, insurrection, requisition, seizure, embargo, restrictions in the use of power and defects or delays in deliveries by sub-contractors caused by any such circumstances

Please note:

- Non-compliance with manufacturers care and maintenance recommendations may void the warranty.

- ASSA ABLOY -authorized resellers shall extend this warranty to end-users only but have no authority to extend a greater or different warranty on behalf of ASSA ABLOY.
- A service agreement with ASSA ABLOY will help secure the availability of a fully operational system and will give priority at call-out, thus minimizing the time that the equipment is unusable.

Service

Regular inspections by a trained and qualified person, and the frequency of service occasions, should at minimum be made according to national regulations or industry standard, in the absence of a national regulation. Environmental aspects shall also be considered. This is especially important when the installation concerns a fire-approved door or a door with an emergency-opening function. To extend the life of your investment and ensure safe and reliable operation of the door, we recommend a minimum of 2 visits per year or more, depending on usage and operating conditions. Talk to your ASSA ABLOY representative for the best solution for your installation and to learn more about ASSA ABLOY Pro-Active Care! For contact information, see last page of this manual.

Intended use

The ASSA ABLOY SL500 Forced Entry Resistant is designed for an overhead-concealed installation between two vertical jambs. The header holds the drive and control units and supports the sliding doors and Sidelites.

An ASSA ABLOY SL500 Forced Entry Resistant operator ensures all-around safety. It can be combined with the full range of ASSA ABLOY safety units, such as presence and motion sensors.

It is easy to install for both new construction and retrofit application and can be adapted to a wide range of overhead concealed or surface applied installations.

The operator itself is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the operator by a person responsible for their safety.

This does not however prevent those persons to use the door where the operator is installed.

The door is designed to offer continuous use, a high degree of safety and maximum lifetime.

The system is self-adjusting to the effects caused by normal variations in the weather conditions and to minor friction changes caused by e.g. dust and dirt.

For installation and maintenance see Installation and Service manual 1021285.

How the ASSA ABLOY SL500 Forced Entry Resistant works

The ASSA ABLOY sliding door operator ASSA ABLOY SL500 Forced Entry Resistant works electromechanically. The motor, control unit, transmission – and optional emergency unit and electromechanical locking device – are all assembled in a support beam with an integrated cover. The motor and gear box transmit movement to the door leaves by means of a tooth belt. The door leaf is fitted to a door adapter/carriage wheel fitting and hangs on a sliding track. The guiding at the bottom is carried out by means of floor guides.

When an OPENING IMPULSE is received by the control unit the motor starts and transmits movement to the door leaves, which move to the open position.

The closing starts when no OPENING IMPULSE is received and the HOLD OPEN TIME has expired, and no PRESENCE IMPULSE is activated.

The ASSA ABLOY SL500 Forced Entry Resistant user can select five different modes of operation if an operator mode selector is installed. See Operation mode selectors on page 8.

Technical specification

Manufacturer:	ASSA ABLOY Entrance Systems Inc.
Address:	1900 Airport Road, Monroe, NC 28110, US
Type:	ASSA ABLOY SL500 Forced Entry Resistant
Mains power supply:	100 V AC -10% to 240 V AC +10%, 50/60 Hz fuse 10 AT
Power consumption:	Max. 250 W
Standards:	The ASSA ABLOY SL500 Forced Entry Resistant complies with ANSI/BHMA.

Locking

Doors used for emergency escape in buildings such as hospitals and homes for elderly people may not be locked or put in operate mode selection OFF mode. In other buildings emergency escape doors may be locked or put in operate mode selection OFF mode after it has been secured and all people have left the building.

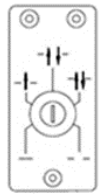
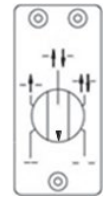
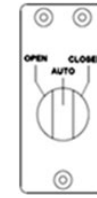
Unlocking

Unlock *all* the mechanical locks before activating the operator.

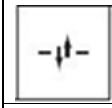
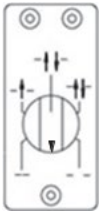
Program selectors and functions

The functions of the door are selected with mechanical or key Program Selectors:

- 5 Position with Key uses 1/2" spacer or can be surface mounted
- 5 Position Mechanical Switch, flush or surface mounted.
- 3 Position Mechanical Switch, flush or surface mounted.

5 Pos Switch (Key)	5 Pos Knob Switch	3 Pos Knob Switch
		

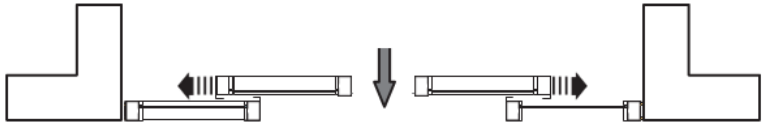
Program selector functions

Symbol	Text	Function
	OFF (CLOSED)	The inner and outer activation units are disconnected. The door is locked if an electro-mechanical locking device has been installed. The door can be opened with an emergency push-button/key switch (if installed).
	EXIT (ONE WAY TRAFFIC)	Two-way traffic, AUTO PARTIAL is obtained. The door can be opened partially with the inner and outer activation units and with a key switch (if fitted). With an emergency push-button the door opens fully Passage through doorway from one side only. The door is locked if an electro-mechanical locking device has been attached. The door can be opened with an activation to INNER IMPULSE 2 or KEY IMPULSE 6.
	AUTO	Two-way traffic, normal operation of the door. The door can be opened with the inner and outer activation units and with an emergency push- button/key switch (if installed).
	AUTO (PARTIAL)	Two-way traffic. The door can be opened partially with the inner and outer activation units and with an emergency push-button/key switch (if installed).
	OPEN	The door is permanently held open.
	RESET	Momentarily (5 seconds), set the Program Selector as shown and then place at "AUTO" or "OFF" position. Keep the area clear while the door completes a system test and resets. After closing, the operator is reset and ready for normal operation again

*3 pos switch is selectable between AUTO and EXIT functionality at the AUTO position by removing the jumper on the back side of the switch.

Integrated safety

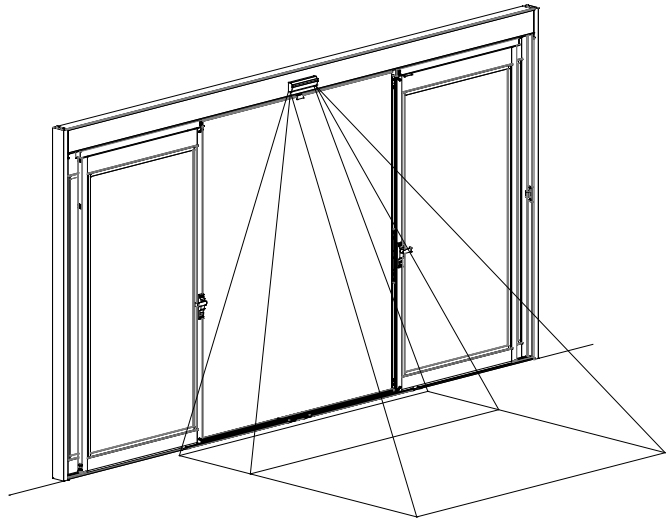
To permit a safe passage between closing doors, the doors reverse immediately if an obstruction is detected. They then resume their interrupted movement at low speed to check whether the obstruction has disappeared or not.



If an obstruction is detected between opening doors and surrounding walls or interior fittings, the doors stop immediately, and then close after a time delay.

Safety system with presence sensors

Usually the safety system incorporates presence sensors installed above the door opening. A presence sensor detects an object in the doorway, while the doors are closing, the doors reverse immediately. They then resume their interrupted movement as soon as the object is removed.



Technologically advanced sensors

The ASSA ABLOY sensors have been tested and approved by the ASSA ABLOY test laboratory for use on ASSA ABLOY's automatic sliding doors. These presence sensors further improve the already high obstruction detection obtained with the built in self-monitored reverse upon obstruction force limitation.

Monitored sensors have built-in monitoring for error detection. However, all sensors, inner and outer as well as side presence (if fitted), shall be checked at least once a week by the owner of the building, see below. These tests shall be documented, signed and traceable (e.g. in the service book).

Note: If you have a problem you cannot correct, turn off the automatic door immediately and call your ASSA ABLOY service representative for assistance.

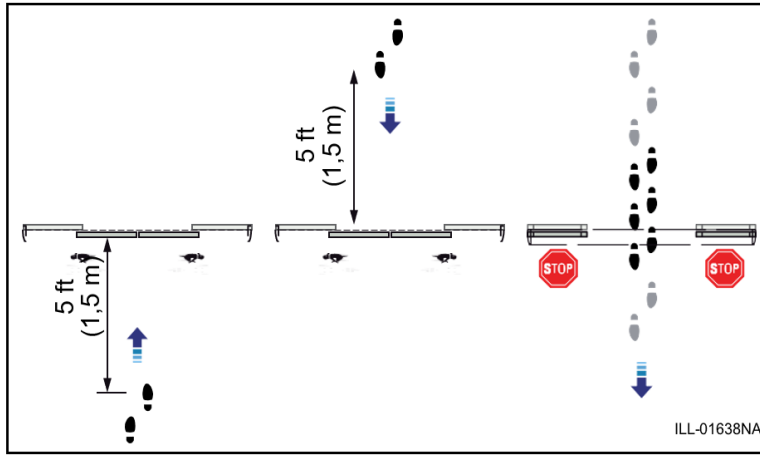
How to check your inner and outer combined motion and presence detection sensors

Combined sensors are used when you want both a motion sensor and a presence sensor integrated into the same unit.

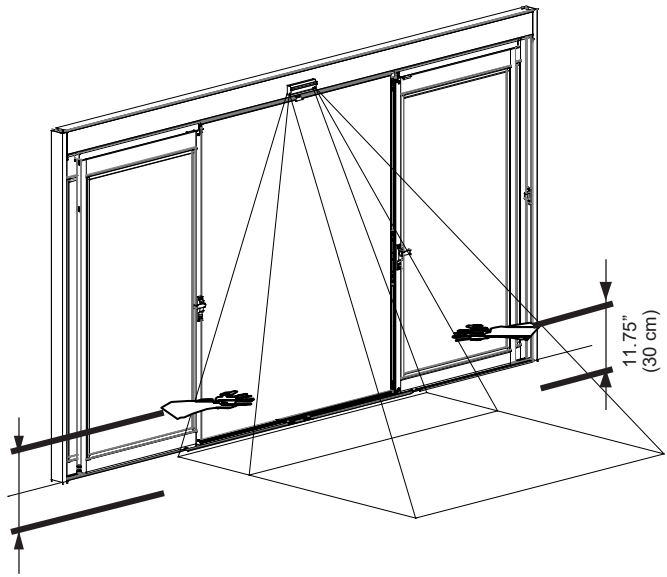
When walking towards the door opening at moderate speed, the door should start opening when you are about 5 ft (1.5 meter) from the door. It shall slide open smoothly and stop in the fully open position. Repeat the same procedure from the other side of the door opening. Move slowly through the door (about 6"/s (15cm/s)). The door shall remain open.

If your door is set up for one-way traffic, the sensor on the side not intended for use shall reopen the closing door if an object is detected at a minimum of 8" (20 cm) from the door at floor level.

Step out of the detection field. After a short time delay the door shall slide closed smoothly. Walk parallel to the inner door face (about 31.5" (80 cm) from the door face) to check that your motion is detected during at least the complete door opening width. Repeat the same procedure on the outer door face.

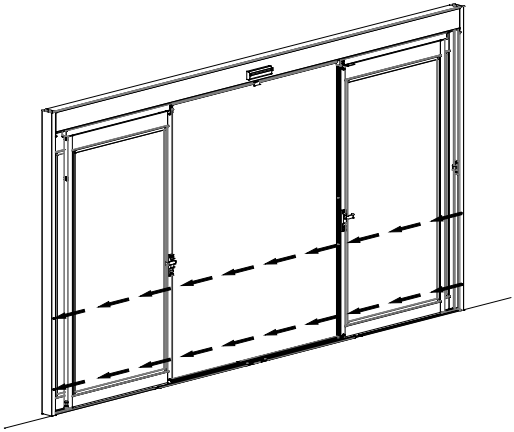


Open the door and move your hand from one side (right/left) into the inner door face presence field. Keep it motionless for several seconds at about 11.75" (30 cm) over the floor level. The door should remain open as long as you are within the detection area. Repeat the same procedure on the outer door face.



Safety system with photocells

Alternatively, the safety system can incorporate presence photocells in the door opening. If an object is breaking the infrared (invisible) beam between the photocell units, while the doors are closing, the doors reverse immediately. They then resume their interrupted movement as soon as the object is removed.

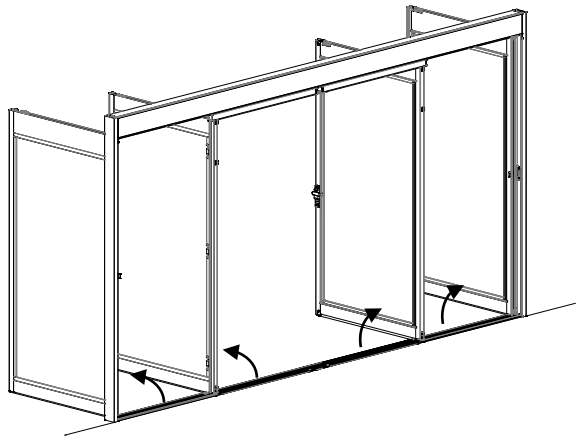


Emergency escape

The operator can be fitted with emergency escape units to ensure a safe evacuation of the building.

Break-out unit PSA

The door leaves and the sidelites are swung outwards when a defined pressure is applied. The break-out function can also be used to create a wider opening. From the fully swung out position, the door leaves can be manually slid sideways, offering the possibility to transport wide objects through the opening, or to make a shop entrance more inviting during good weather.



Regular safety checks

To help you fulfil the national/international requirements and to avoid malfunction and risk for injuries, we have provided the following checklist.

Do not use if repair or adjustment is necessary.

Disconnect supply when cleaning or other maintenance is to be carried out.

Daily Action	If problem occurs
Activate your operator and *visually* check, fastening of • program selector(s) • door and glass (stability)	
Also inspect your operator and check *visually* for • condition of door seals and weather stripping • condition of glazing vinyl • finger protection • proper operation; opens smoothly, closes slowly and smoothly • any ventilation being obstructed	
Set the program selector to OFF and check that the operator and electromechanical lock (if fitted) work together. Also confirm the door locks.	
Activate the knowing act devices, if any, and walk towards the door. Check that the door has opened appropriately while you pass the entrance/exit. Then proceed with the automatic activation units in the same way, see page 9.	
Check the safety sensors if any, see page 10. If you are unsure of which type of sensor you have, please contact your ASSA ABLOY representative.	
Escape doors If the operator is equipped with break-out system, set the program selector to AUTO mode. Push the door manually in the escape direction to ensure that nothing prevents the door from being opened. Also ensure that the escape route is free for use. After the test, restore the door(s) to their normal mode of operation.	

= Take appropriate measures.

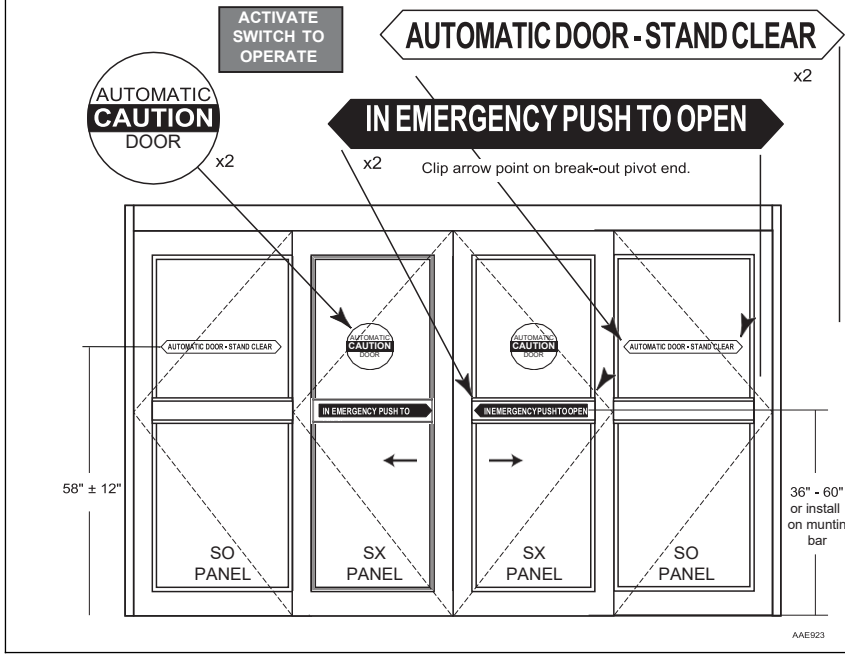
= Contact your ASSA ABLOY representative. For contact information, see last page.

CLEANING

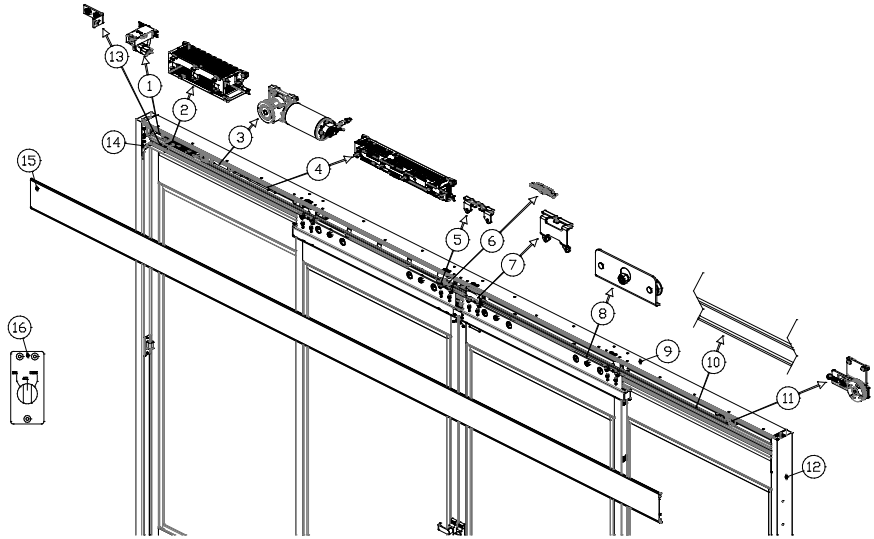
The best way to remove dust and dirt from the ASSA ABLOY SL500 Forced Entry Resistant is to use water and a soft cloth or a sponge. A gentle detergent may be used. To maintain the quality of the enamel layer, the surfaces should be cleaned once/four months period. The cleaning should be documented. To avoid damages to the profiles the brushes/weather stripping must be vacuumed weekly.

- Do not expose windows, doors or profiles to alkalis. Both aluminum and glass are sensitive to alkalis.
- Do not clean with high pressure water. Operator, program selector and sensor may be damaged and water may enter the profiles.
- Do not use polishing detergent.
- Do not scrub with materials like Scotch-Brite, as this will cause mechanical damage.

ANSI/BHMA A156.10 and ASSA ABLOY Required Signage



Check that all required signage is applied and intact.



No.	Description	P/N	No.	Description	P/N
1	Mains connection	1008184	9	SL500 Beam	1017783
2	Power supply unit (PSU 150)	1008147	10	Tooth belt	1701406
3	Drive unit	1007035	11	Tension wheel	1007118
4	Main control unit (MCU)	1007773	12	Jamb, Forced Entry Resistant	US01-0931
5	Transmission bracket (low)	1007364	13	Forced Entry Resistant Door Stop Assembly	1016967
6	Belt clamp	1006906	14	Forced Entry Resistant Beam End Cap	1016613 (right) 1016614 (left)
7	Transmission bracket (high)	1007365	15	Cover, Forced Entry Resistant	1016073
8	Tandem Carriage Assembly	1016641	16	Standard operation 3-pos mode selector	1009341

Safety accessories

Even though the ASSA ABLOY SL500 Forced Entry Resistant is installed to comply with all applicable safety regulations, it is possible to enhance safety/comfort with the following add-ons (please contact your local ASSA ABLOY company for detailed description).

- Combined motion and presence sensors
- Separate presence sensors

General accessories

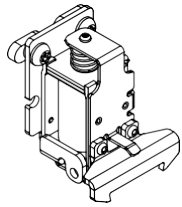
Your ASSA ABLOY SL500 Forced Entry Resistant can be further improved with the following add-ons (please contact your local ASSA ABLOY company for detailed description).

- Motion and presence sensors, see separate manuals or installation drawings.
- Operation mode selectors

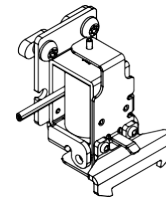
Flush or surface mounted. Master and slave operation mode selectors, see page 8.

- Electrical locks

Locked with power LDP (Fail Safe) or locked without power LD (Fail Secure).



LDP (Fail Safe)
P/N: 1008354



LD (Fail Secure)
P/N: 1008167

- I/O functions:

- Fire alarm connection

Used to emergency open or fire close the door with mains power on.

- External error indication

Obtained if a lamp or a buzzer is connected.

- Open / Close function

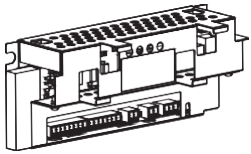
A one button impulse, will alternate between Open and Close. The door will stand open until next impulse or can after an adjustable time delay automatically start to close even if a new impulse is not received.

- Nurse function

A pedestrian partial opening in operation mode selections Exit, Auto and Auto partial. The Nurse impulse hold open time is adjustable.

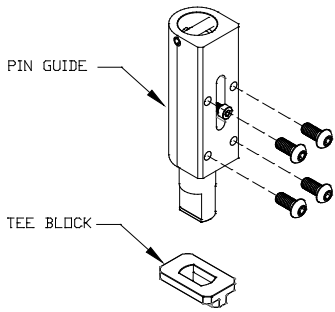
- Night mode

Remotely put door into exit only via an automated system. Requires a NO contact.

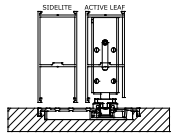


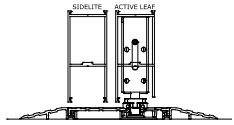
I/0 unit (IOU) P/N: 1007779

- Bottom Guide Systems



Forced Entry Resistant Pin Guide Assembly
P/N: 1016658
Forced Entry Resistant Tee Block
P/N: 1016649



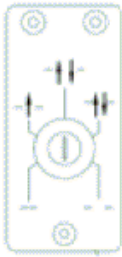


The Full Break Out (FBO) pin guide has two options for guide tracks, including:

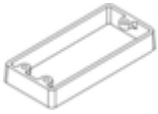
- Recessed threshold
- Surface threshold

See Installation Requirements section for guide installation.

- Optional operation mode selectors

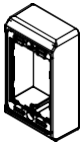


5 Operation Modes Switch (Key)
P/N: US15-1500-06

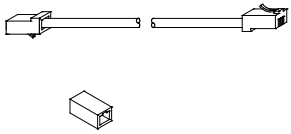


Spacer Switch Kit
P/N: US15-1500-03

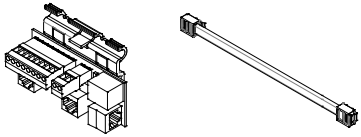
Vinyl Decal (5 operation modes switch)
P/N: US24-1500-51



Remote Switch Kit
P/N: 1009342



Operation Mode Selector Extension Kit
P/N: US15-1500-02



SL500 MSCB with Plastic Bracket
P/N: 1013971

Troubleshooting

What's wrong	Remedies
The door does not open	
The motor does not start	Change the setting of the operator mode selector.
	If break-out unit PSA is installed, check that the door leaves are completely closed.
	Check the mains switch.
The motor starts but stops during opening	Unlock the mechanical locks.
	Clean the floor guide.
	Check for objects jammed under the door.
The door does not close	
The motor does not start	Change the setting of the operation mode selector.
	If a presence sensor is installed, check for and remove objects placed in the presence zone.
The motor starts but stops during closing	Clean the floor guide.
	Check for objects jammed under the door.
The door moves slowly	
	Prevent traffic using the door and allow it to do a complete opening and closing cycle with low speed.
	Reset the operator by using the Program Selector. See page 7.
	Allow the operator to control the closed position without interruption.
If the problem continues, please contact your ASSA ABLOY representative.	

Maintenance/Service

Regular inspections should be made according to local and/or national regulations and product documentation by an ASSA ABLOY-trained and qualified technician. This is especially important when the installation concerns a fire-approved door or a door with an emergency opening function. Refer to ASSA ABLOY Pro-Active Care option services to learn more about service possibilities!

Daily Safety Check

Perform the following safety checks *daily* on each automatic sliding door to ensure your customers' safety and your own protection. Perform these tests while traffic is restricted from all detection and sensing zones. (All figures and diagrams are for purposes of illustration only)

- Sensor Activation/Threshold Safety

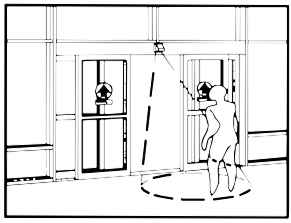


Figure 1

1. Check electronic sensor by walking toward the center of the door opening from several different angles at a moderate speed. The door should start opening when you are about four feet from the door, should slide open smoothly, and stop without impact. Repeat on other side of opening. Move slowly through the door opening (6 inches per second). The door should remain open. (See Figures 1 and 2)

   NOTE: If your door is set up for one -way traffic, the sensor on the side not intended for approach should be active until the door is within 6 inches of fully closed. The sensor should re-open the closing door if a person is detected a minimum of 24 inches from the door.

Figure 2

2. Step out of the sensor zone. After a brief time delay (at least 1 1/2 seconds) the door should slide closed smoothly and should close fully without impact. Doors should be adjusted so they do not close faster than 1 foot per second.
3. Observe traffic routing to the door. Plan traffic routing so persons will approach the door straight on and not from an angle.
4. Walk parallel to the door face and towards the center of the door opening to check that the detection pattern is at least as wide as the door opening. This test should be performed within approximately 12 inches from the door face. Repeat this test in both directions.
5. Check the threshold area safety zone. Activate the door to the full open position. Stand motionless and crouch in several locations in and around the door travel area for at least 10 seconds. The door should not close. (See Figure 2)

- Floor Mat Activation

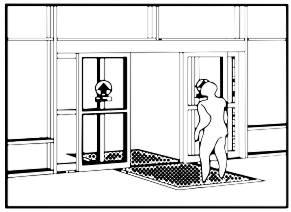


Figure 3

1. Step on the "opening" (activating) mat in several places. Door should slide open smoothly and stop without impact. (See Figure 3)
2. Step through the doorway onto the mat on the other side. Door should remain fully open without interruption.

   Note: If there is more than one mat on each side, each mat should be tested.
3. Step off the mat. After a brief time delay (at least 1 1/2 seconds), the door should close slowly and smoothly without impact. Doors should be adjusted so they do not close faster than 1 foot per second.
4. Check the mat molding and threshold. It should be complete and secured with all screws required.

- General Safety

  Pay attention to the following general safety items and conduct checks periodically where noted.

AUTOMATIC DOOR

Figure 4

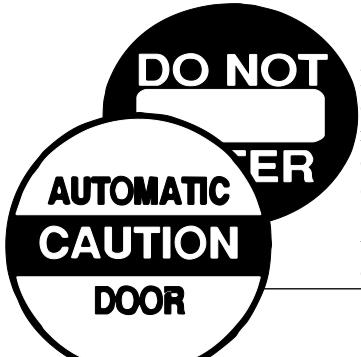
IN EMERGENCY
PUSH TO OPEN

Figure 5

STAND CLEAR

Figure 6

1. Signage. Door should have decals properly displayed. There should be decals that include the statements: "AUTOMATIC DOOR" (in letters 1/2 in. high, minimum) and "IN EMERGENCY - PUSH TO OPEN". An adjacent sidelite or wall should have a “STAND CLEAR” or similar decal in the slide path of the door (See Figures 4, 5, 6, 7, and 8 for examples of some decals that may be used.). An AAADM safety information label should be affixed to the door frame in a visible, protected location.
2. Closing Speed. The closing time of the door must not be less than the minimum time as shown in the following table. This closing time is taken from full open to a point six inches from fully closed. Example: If a single slide door with a nominal opening of 36 inches closes in 2.3 seconds it is too fast and must be slowed down. If it closes in 3.0 seconds it is in compliance.



Maximum Closing Speed - 1 Foot Per Second		
Nominal Door Opening		Minimum Closing Time to Within 6” of Closed
Single Slide	Bi-Part	
	48"	2 Sec
	60"	2½ Sec
36"	72"	3 Sec
42"	84"	3½ Sec
48"	96"	4 Sec

prevent the door from closing should not exceed 30 pounds. This can be measured with a force gauge.

4. If an electromechanical lock is installed check the function by setting the operation mode selector to OFF. Make sure the door cannot be opened by pulling the door leaf in the opening direction.

5. Activating Switch. (Knowing Act) Doors equipped with a manual operate switch shall, when activated, hold the door open for five seconds minimum after release of activating switch.

Figure 8

Doors equipped with manual activating switch shall have a decal as follows: "AUTOMATIC DOOR. ACTIVATE SWITCH TO OPERATE". The sign should be visible from both sides of the door or the side with the knowing act switch if there is only one. (See Figure 9)

Figure 9

6. Emergency Breakout. Test by manually pushing door at lock area in direction of emergency exit. Release door. The door should either stop operation or spring to closed position. Make sure door panel or panels are properly re-latched.

If the door is equipped with breakaway sidelites, door operation should stop when sidelites are broken out. (See Figure 10).

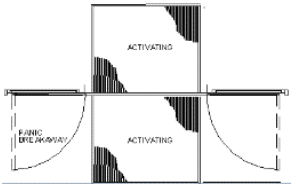


Figure 10

7. Housekeeping. Be sure floor guides are kept clean and free of any debris which could prevent proper door slide.

Check the door area for tripping or slipping hazards.

Check all door panels for damage. Make sure that all hardware and overhead covers are properly secured. There should be no bulletin boards, literature racks, merchandise displays, or other attractions that would interfere with the use of the door or invite people to stop or stand in the door area.

Remove dust and dirt from the operator. Dirt on the sliding track should be removed with methylated spirits. If replacement is necessary, please contact your local ASSA ABLOY representative.

Check if any of the parts need lubrication.

8. Traffic Patterns. Observe traffic patterns. Plan routing so people enter and exit in a straight approach, directly towards the center of the door opening.

IF YOU HAVE A PROBLEM, TURN OFF THE DOOR OPERATING EQUIPMENT AND CALL AN AUTOMATIC DOOR SUPPLIER TO MAKE PROMPT REPAIRS.

Planned Maintenance Checklist

- Check Functioning – Mats, Sensors, Operator/Control, and Push Plates per device checklist.
- Check Signage – Are all signs in place, readable, and in good condition?
- Check Door Hinging / Mechanical Soundness – all attachments, covers, arms, crash bars, etc.
- Check Finger Guards, Glass and Glass Stops, Trip Hazards, Rails, Sharp Edges.
- Check Emergency Egress (if so equipped).
- Visually check door for operation.
- Check for tripping hazards.
- Check door function switch.
- Check for proper operation of lock assembly.
- Check for loose glass stops or damaged glass.
- Check all panels for damaged or loose weather stripping.
- Clean door, glass and header thoroughly.

Note, on the Planned Maintenance Review, any recommendations to improve door performance and reliability and review with customer.

Other products from ASSA ABLOY

- Door Systems
- Balance doors
- Air curtains
- Rollershutters
- Revolving doors
- Sliding doors
- Swing doors
- Automatic and manual activation units
- Service such as planned maintenance and upgrade programs, emergency repairs, service advice and door management

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