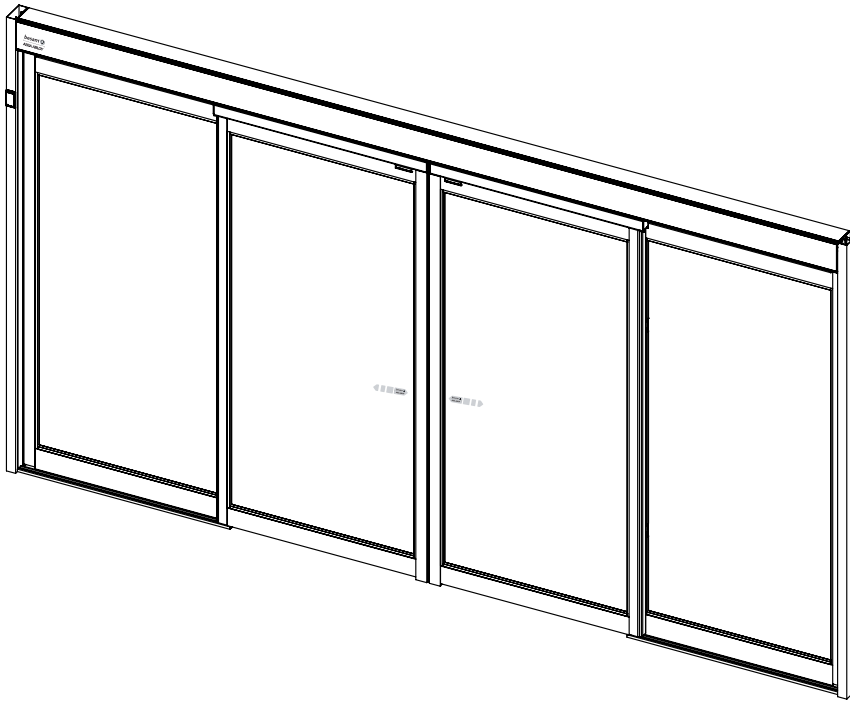
Sliding Door Operator
Besam SL500

Owners Manual



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Backtrack information: folder: Library, version: a537, date: 2012-11-13, time: 15:57:57, state: Working

Congratulations on your new automatic door

Besam 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 Besam-authorized representative is familiar with these standards, as well as all applicable local codes and Besam recommendations for power-operated pedestrian doors. Service and adjustments performed by your Besam-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.

Besam 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 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

Besam 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.

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

The Besam 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 Besam
- System that has been altered or damaged by vandalism or misuse
- System that has been additionally equipped with non-Besam 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.

- Besam -authorized resellers shall extend this warranty to end-users only, but have no authority to extend a greater or different warranty on behalf of Besam.
- A service agreement with Besam 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 Besam representative for the best solution for your installation and to learn more about Besam Pro-Active Care! For contact information, see last page of this manual.

Intended use

The Besam SL500 is designed for an overhead-concealed installation between two vertical jambs or surface applied. The header holds the drive and control units and supports the sliding doors, Sidelites and transom above the operator, if required.

A Besam SL500 operator ensures all-around safety. It can be combined with the full range of Besam 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.

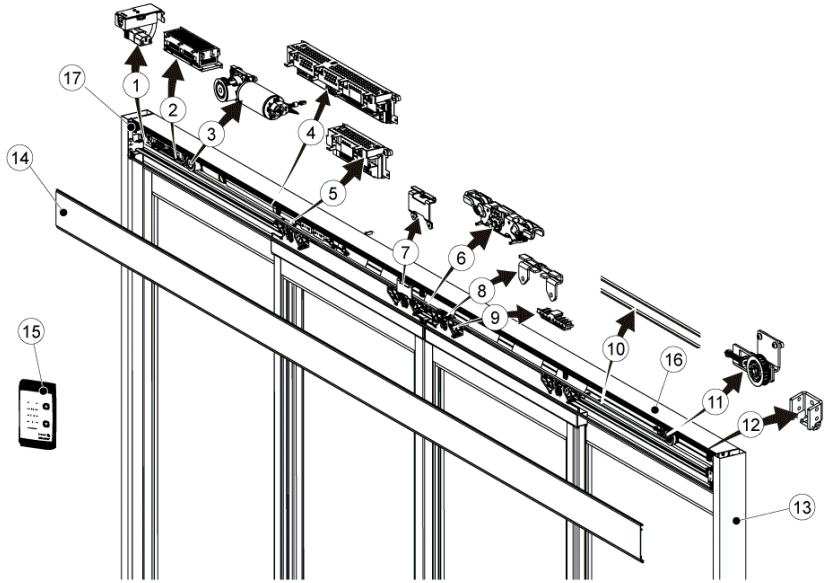
The operator itself is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the operator by a person responsible for their safety.

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 1008209.

Identification



No.	Description	P/N	No.	Description	P/N
1	Mains connection	1008184	10	Tooth belt	1701406
2	Power supply unit (PSU 150)	1008147	11	Tension wheel	1007118
3	Drive unit	1007035	12	Door stop	1008112
4	Main control unit (MCU)	1007773	13	Jamb tube	US-01-0931-LLXX
				Slick tube	US01-0438-LLXX
5	I/O Unit (IOU)	1007779	14	Cover	1007366-LLXX
6	Carriage wheel	1009163 (2 wheel holder) 1009164 (4 wheel holder)	15	Standard operation mode selector	1009340 (5-pos, flush mounted) 1009341 (3- pos, flush mounted)
7	Transmission bracket (high)	1007365	16	Support beam	1007044-LLXX
8	Transmission bracket (low)	1007364	17	Jamb plate	1007343 (A), 1007344 (B)
9	Belt clamp	1006906			

How the Besam SL500 works

The Besam sliding door operator Besam SL500 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 Besam SL500 user can select five different modes of operation if a 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:	Besam SL500
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 Besam SL500 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.

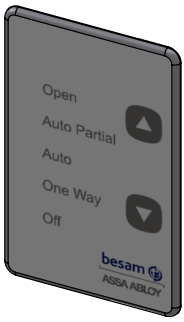
Operation mode selectors

The door functions are set with different operate mode selectors.

The operation mode selectors are available with 3 or 5 buttons (plus RESET).

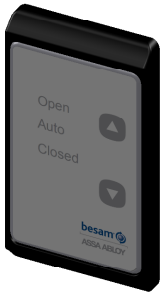
Operation mode selector functions

With 5 buttons OPEN, AUTO PARTIAL, AUTO, ONE WAY and OFF functions can be obtained.



Symbol	Text	Function
	OPEN	The door is permanently open. The door can be moved by hand e.g. for window cleaning. All activation units except for the emergency push button (if fitted) are disconnected.
	AUTO PARTIAL	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.
	AUTO	Two-way traffic, normal operation of the door. The door can be opened with the inner and outer activation units and with a key switch/emergency push-button (if fitted).
	ONE WAY	Passage from inside only. The door is normally locked if an electromechanical locking device has been fitted. The door can only be opened with the inner activation unit or with a key switch/emergency push-button (if fitted).
	OFF	This function is only used on emergency escape doors after it is certain that all people have left the building. The door cannot be opened with inner and outer activation units. The door is locked if an electromechanical locking device has been fitted. The door can be opened partially with a key switch (if fitted). With an emergency pushbutton (if fitted) the door opens fully. The door can also be opened partially from the operation mode selector if the arrow down button is held for 2 seconds. No access code is necessary for this and the key impulse is indicated by briefly showing a blue light to the left of the open symbol or text and then a flashing blue light to the left of the closed symbol or text for another 15 seconds.
besam ASSA ABLOY	RESET	By briefly pushing the globe of the logotype the door operator will make a RESET function with a system test, the door will return to the closed position (if not in operation mode selection OPEN or if an error is present) and is then ready for normal operation.

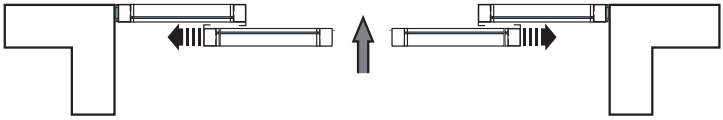
With 3 buttons OPEN, AUTO and CLOSED functions can be obtained.



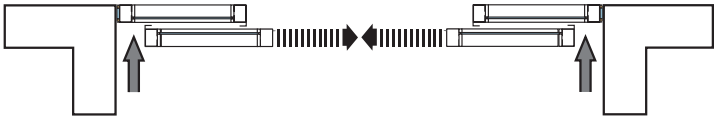
Text	Function
OPEN	The door is permanently open. The door can be moved by hand e.g. for window cleaning. All activation units except for the emergency push button (if fitted) are disconnected.
AUTO	Two-way traffic, normal operation of the door. The door can be opened with the inner and outer activation units and with a key switch/emergency push-button (if fitted).
CLOSED	This function is only used on emergency escape doors after it is certain that all people have left the building. The door cannot be opened with inner and outer activation units. The door is locked if an electromechanical locking device has been fitted. The door can be opened partially with a key switch (if fitted). With an emergency push button (if fitted) the door opens fully. The door can also be opened partially from the operation mode selector if the arrow down button is held for 2 seconds. No access code is necessary for this and the key impulse is indicated by briefly showing a blue light to the left of the open symbol or text and then a flashing blue light to the left of the closed symbol or text for another 15 seconds.
RESET besam ASSA ABLOY	By briefly pushing the globe of the logotype the door operator will make a RESET function with a system test, the door will return to the closed position (if not in operation mode selection OPEN or if an error is present) and is then ready for normal operation.

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.

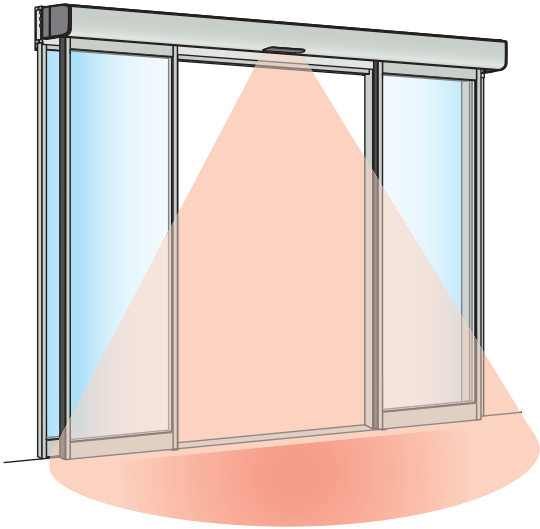


If an obstruction is detected between opening doors and surrounding walls or interior fittings, the doors stop immediately, and then close after a time delay.



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 Besam sensors have been tested and approved by the Besam test laboratory for use on Besam's automatic sliding doors. These presence sensors further improve the already high obstruction detection obtained with the built in self-monitored crush 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 Besam service representative for assistance.

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

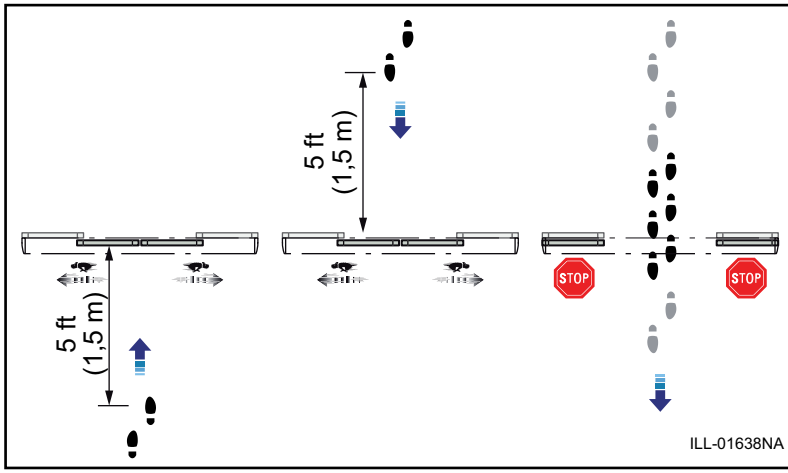
Combined sensors are used when you want both a motion sensor and a presence sensor integrated into the same unit.

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.

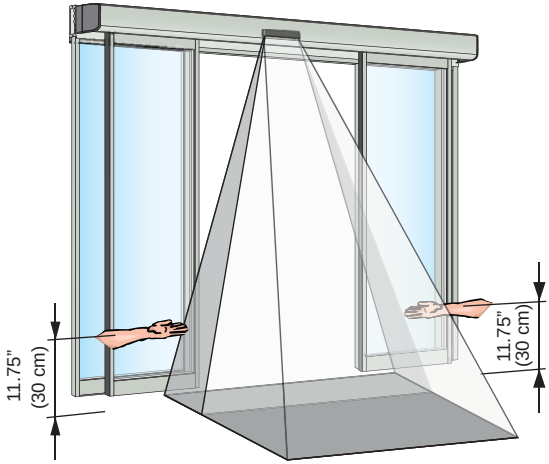
If your door is set up for one-way traffic, the sensor on the side not intended for use shall reopen the closing door if an object is detected at a minimum of 8" (20 cm) from the door at floor level.

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.

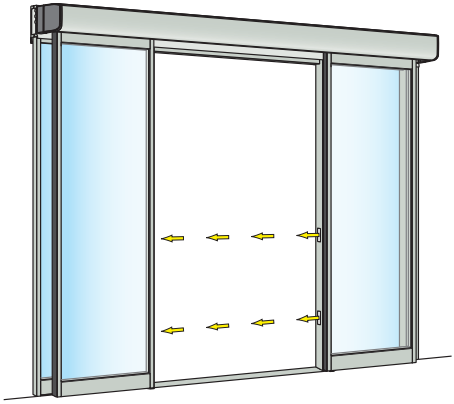


Open the door and move your hand from one side (right/left) into the inner door face presence field. Keep it motionless for several seconds at about 11.75" (30 cm) over the floor level. The door should remain open as long as you are within the detection area. Repeat the same procedure on the outer door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



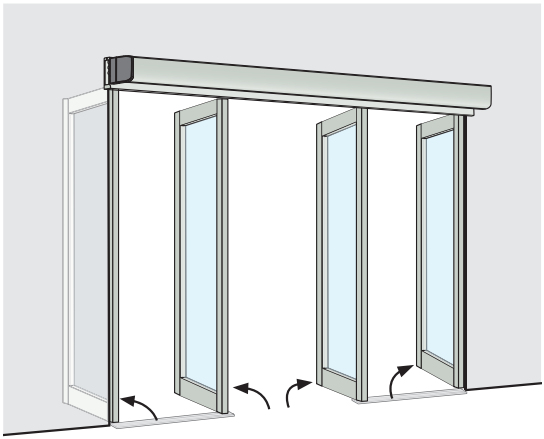
Emergency escape

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 • operator and cover • cables • programme selector(s) • door and glass (stability)			
Also inspect your operator and check *visually* for • condition of door seals and weather stripping • condition of glazing rubbers • finger protection • proper operation; closes slowly and smoothly • any ventilation being obstructed			
Set the programme selector to OFF and check that the operator and electromechanical lock (if fitted) work together. Also check that the lock really secures the door.			
Activate the manual activation units, 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 10.			
Check the safety sensors if any, see page 11. If you are unsure of which type of sensor you have, please contact your Besam representative.			
Escape doors	By law, these tests must be performed regularly by trained personnel.	If the operator is equipped with break-out system, set the programme selector to AUTO mode. Push the door manually while in the escape direction to ensure that nothing prevents the door from being open. Also ensure that the escape route is free for use. After the test, restore the door(s) to their normal mode of operation.	
Fire doors		Let the door close after an impulse ensuring nothing prevents the door from closing and locking (if regulations require it).	

= Take appropriate measures.

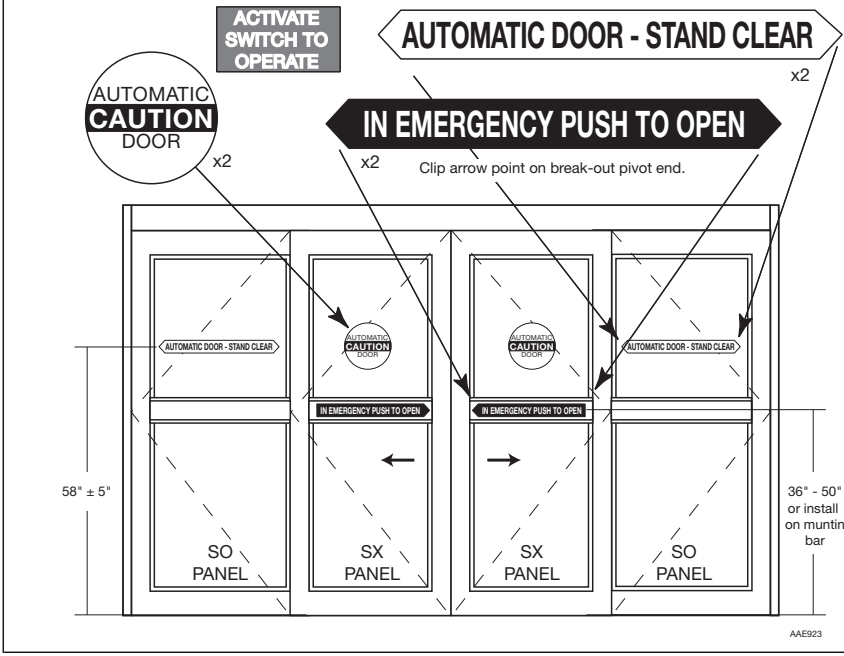
= Contact your Besam representative. For contact information, see last page.

CLEANING

The best way to remove dust and dirt from the Besam SL500 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 vacuum-cleaned weekly.

- Do not expose windows, doors or profiles to alkalis. Both aluminium and glass are sensitive to alkalis.
- Do not clean with high pressure water. Operator, programme 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.

SIGNAGE according to ANSI/BHMA A 156.10



Check that all required signage is applied and intact.

Safety accessories

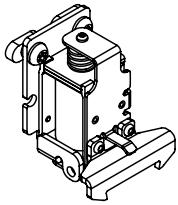
Even though the Besam SL500 is installed to comply with all applicable safety regulations, it is possible to enhance safety/comfort with the following add-ons (please contact your local Besam company for detailed description).

- Combined motion and presence sensors
- Separate presence sensors

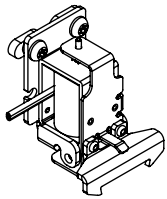
General accessories

Your Besam SL500 can be further improved with the following add-ons (please contact your local Besam 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).



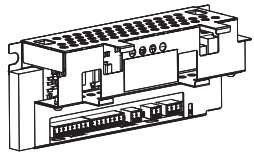
LDP (Fail Safe)
P/N: 1008354



LD (Fail Secure)
P/N: 1008167

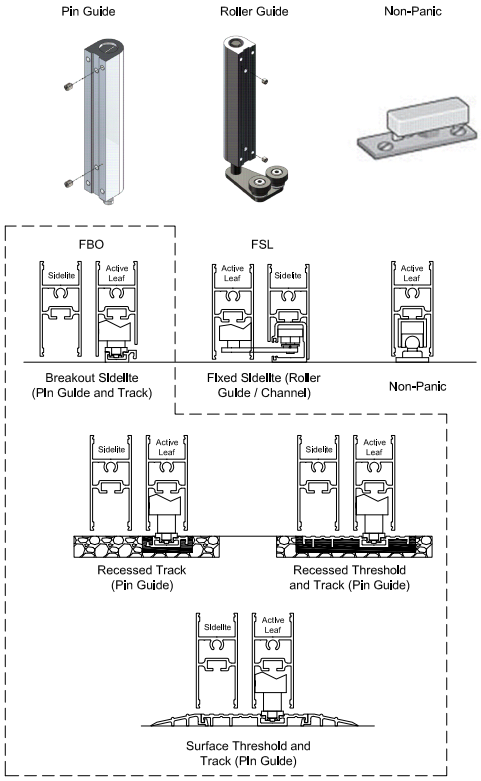
- Interlocking
  Used between two operators when the first operator must close before the other one can open (typical to reduce energy losses and not for security reasons). Interconnection cable required.
- Synchronization
  Used between the operators of two single sliding doors, working together in very large openings. Interconnection cable required.

- 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



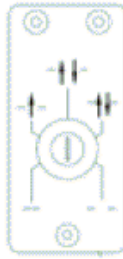
Pin Guide
P/N: US15-0435-01
T-Block
P/N: US21-1730-01
Roller Guide
P/N: US15-0644-02
Non-Panic Floor Guide
P/N: 50-15-015

Three basic guide systems are available:

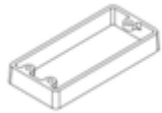
1 The standard pin guide
   - (FBO, or Full Break Out) with guide track
   - The roller guide (FSL, or Fixed Sidelite) with fixed sidelite track
2 The non-panic floor guide
3 The FBO pin guide has several options for guide tracks, including:
   - Recessed track (flush with floor level)
   - Recessed threshold and surface threshold

See Installation Requirements section for guide installation.

- Optional operation mode selectors

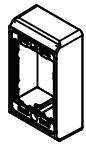


5 Operation Modes Switch (Key)
P/N: US15-1500-06



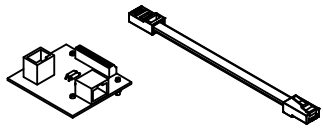
Spacer Switch Kit
P/N: US15-1500-03

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



PS Accessory Board Kit
P/N: 1009426
Must not be used in combination with standard operation mode selectors when interconnecting two operators (interlocking or synchronizing).

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 and side screens 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 pushing the globe on the operation mode selector. See Operation mode selector functions on page 8.
	Allow the operator to control the closed position without interruption.
If the problem continues, please contact your Besam representative.	

Maintenance/Service

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

1 Remove dust and dirt from the operator. Dirt on the sliding track should be removed with methylated spirits. If necessary replace the sliding track.
2 None of the parts need lubrication.
3 The tooth belt must be kept dry and clean. Check the belt tension.
4 Check that all nuts and bolts are tightened well.
5 Adjust, if necessary, the door leaf speed, the HOLD OPEN TIME and the door leaf position to comply with valid regulations and requirements.
6 Check that the function of emergency escape units always is operational.
7 If an electromechanical lock, LDP (locked with power) or LDB (bi-stable), is installed check the function as follows:

   - Set the operation mode selector to EXIT. The door should open and close without any sound from the lock.
   - Set the operation mode selector to OFF. Make sure the door can not be opened by pulling the door leaf in the opening direction.
   - When the operation mode selector is set back to EXIT, two clicking sounds (LDB) or one clicking sound (LDP) indicate that the lock is unlocked. The door should then open and close without any sound from the lock.

Planned Maintenance Checklist

- Measure / Adjust Speeds – Measure to ANSI/BHMA A156.10 and local codes; adjust if necessary (Open time - 1.5 seconds or longer).
- Measure / Adjust Forces – Measure to ANSI/BHMA A156.10 and local codes; adjust if necessary.
- Measure / Adjust Time Delays – Measure to ANSI/BHMA A156.10 and adjust if necessary.
- 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).
- Check all wiring for good connections, proper insulation and clearance from moving parts.
- Check Battery Backup if equipped.
- Go through Daily Safety Checklist with facility manager.
- Visually check door for operation.
- Check activation and threshold detection devices.

- 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.
- Check panic latches for proper release force.
- Check panic circuit operation for operator cut off or spring return.
- Check bottom guide assembly for proper adjustment and for excessive wear.
- Remove access cover, and check motor and gear box for leakage and noise.
- Inspect drive pulleys and belt for proper alignment.
- Clean hanger rollers and repair or replace if damaged. Adjust roller height if necessary.
- Inspect anti-riser for damage and/or binding.
- Ensure that all wiring in the header is properly routed and protected from any moving parts.
- Reinstall and secure access cover and recheck the complete door operation.
- 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 Besam

- Door Systems
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- Air curtains
- Rollershutters
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