

Sliding Door Operator EM SL



User Manual
Original instructions

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Instructions for safe operation



- 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.
- Do not use the equipment if repair or adjustment is necessary.
- Disconnect supply when cleaning or other maintenance is to be carried out.
- The operator can be used by children over 8 years of age if they have been instructed by a person in charge of their safety.
- The operator can be used by children 8 years of age or younger if they are supervised by a person responsible for their safety.
- The operator can be used by persons with impaired physical, sensory or mental capacity if they have been instructed by a person in charge of their safety.
- Cleaning and user maintenance shall not be made by children.
- Do not let anyone climb on or play with the door or the fixed/remote controls.
- The doorset can be operated automatically by sensors or manually by activators.

Congratulations on your new automatic door!

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

Electronic equipment reception interference

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.

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 electronics technician for additional suggestions.

Environmental requirements

Entrematic Group 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 the provided "Service Log Book" and "Site Acceptance Test and Risk Assessment" documents are kept available for maintenance and service records
- 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)

Service

Inspections should be done regularly by a trained and qualified person. The frequency of these inspections should be according to national regulations (or according to industry standard if there are no national regulations). 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. Environmental aspects shall also be considered.

Talk to your Entrematic Group representative to learn more about our service offering.

Intended use

The EM SL is an automatic sliding door operator developed to facilitate entrances to buildings and within buildings through sliding doors.

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.

In emergency situations the doorset is opened and remains open automatically. It may also be equipped with break-out function, in which case the door leaf is pushed manually open in the escape direction.

Dual batteries and motors are used in escape routes as indicated in associated certificates. See "[Electrical emergency unit with batteries](#)" on page 16 and "[Electrical emergency unit with batteries and two motors](#)" on page 16. For manual break-out see "[Break-out unit PSB](#)" on page 17.

It is to be used indoors where it is suitable for almost all types of external and internal sliding doors. Ensure that the lock is only activated when there are no persons in the room.

For installation and maintenance see Installation and Service manual 1004572.

Save these instructions for future reference.

Technical specification

Manufacturer:	Entrematic Group AB
Address:	Lodjurgatan 10, SE-261 44 Landskrona, Sweden
Type:	EM SL
Mains power supply:	120 - 240 V AC 50/60 Hz, mains fuse max 10A
Power consumption:	Max. 250 W
Degree of protection:	IP20
Sound pressure:	$L_{pa} \leq 70 \text{ dB}(A)$
Approvals:	Third party approvals from established certification organizations valid for safety in use, see Declaration of Conformity.

How the EM SL works

The EM SL works electromechanically. The drive unit, control unit, transmission, 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 and hangs on a sliding track. The active leaf travel is directed by a floor guide.

When an opening impulse (e.g. from a motion sensor) is received by the control unit, the drive unit starts and transmits movement to the door leaves to open.

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

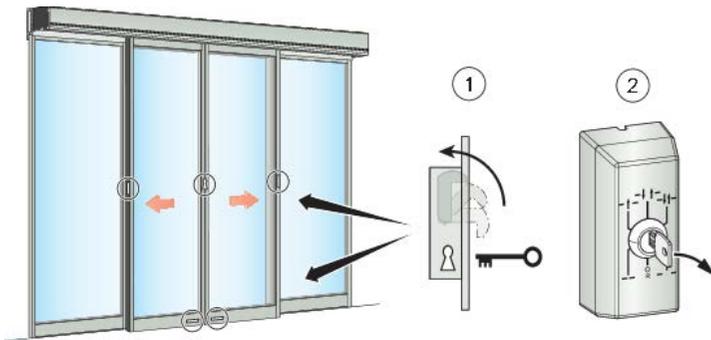
The EM SL user can select five different modes of operation if a programme selector is installed. See [Programme selectors on page 8](#).

Locking

Doors used for emergency escape in buildings such as hospitals and homes for elderly people may not be locked or put in mode selection OFF mode. In other buildings emergency escape doors may be locked or put in 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.



Programme selectors

The door functions are set with different key programme selectors. The key must always be removed on emergency escape doors after changing settings.

Flush mounted

PSMB-5
PS-5M



Surface mounted

PSMB-5
PS-5M



PS-6



Programme selector functions



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 push-button (if fitted) the door opens fully.



EXIT

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).



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).



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.



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.



RESET

Set the programme selector to AUTO. Insert a narrow object in the small hole on the programme selector and push briefly. The operator makes a system test of the emergency unit (if selected), electromechanical lock, watchdog relay and closed door position. The operator is after closing reset and ready for normal operation.



RESET

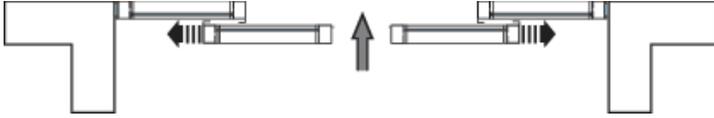
Note! The RESET is not available on programme selector PS-5M. Turn the key clockwise to the position "R" (six o'clock) and insert a narrow object in the small hole on the programme selector and push briefly. Then turn the key counter-clockwise back to the requested setting. The operator makes a system test of the emergency unit (if selected), electromechanical lock, watchdog relay and closed door position. The operator is after closing reset and ready for normal operation.

Note! The key cannot be removed in the "R" position.

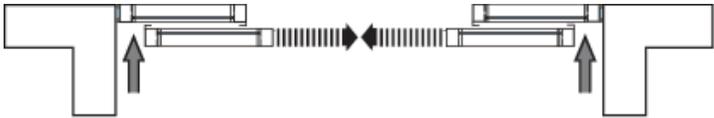
Note! If monitored emergency unit is a demand, a test of the emergency unit is performed when the programme selector is turned from OFF or OPEN to any other position.

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 while the door is opening, 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. The doors will start to close when the object is removed.



Technologically advanced sensors

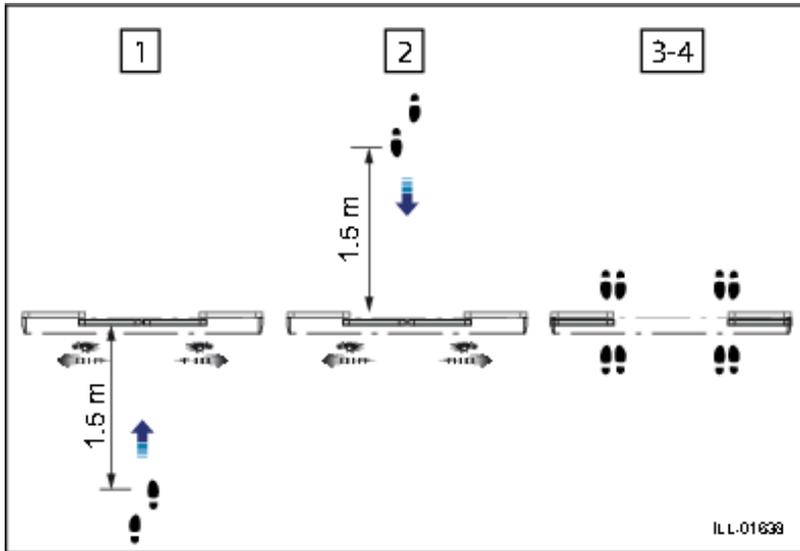
The Entrematic Group sensors have been tested and approved by the Entrematic Group test laboratory for use on Entrematic Group's automatic sliding doors. These presence sensors further improve the already high obstruction detection obtained with the built in self-monitored crush force limitation. Monitored sensors have built-in monitoring for error detection.

Note! If you have a problem you cannot correct, turn off the automatic door immediately and call your Entrematic Group 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.

- 1 Walk towards the door opening, the door shall start to open when you are about 1.5 meter from the door and the door shall stop in open position.
- 2 When the door has closed, repeat the same procedure from the other side of the door opening.
- 3 Open the door, stand still close to the face of the open door leaf on the left side for more than 5 s. The door shall remain open. Repeat on the right side.
- 4 Repeat step 3 in the other side of the door opening.



How to check your side presence detector(s)

Side presence sensors can be used for example if higher door speed is required or for installations in homes for elderly/disabled or childcare centres, to protect users from being struck by the doors during their opening cycle. When a side presence sensor detects an obstacle the door operator will not stop, but slow down the door movement to a safe speed. With this safe speed the door will try to push the obstruction away, to ensure that the person passing through the door will not walk into the door.

Walk into the detection field of the side presence sensor on one side. Activate the impulse on the operator, the door shall not stop, but slow down to safe speed during the opening.

If you have a bi-parting (double) door then repeat the procedure above on the other side.



Emergency escape

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

Break-out unit PSB

The door leaves and the side screens 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.



Electrical emergency unit (EEU)

The door is opened by means of a rechargeable battery unit in the event of a power failure. The door remains in this position until the power is restored. The operator will then resume the function set by the mode selector. The emergency unit is monitored by the operator control unit. A monitoring error is indicated by flashing red LED on the operation mode selector (OMS) and the door remains in open position until the error is cleared.

For further information, [see General accessories on page 16](#).

The electrical emergency function can also be used to close the door in the event of power failure. The fire authorities make this a requirement to stop fire or smoke from spreading throughout the building.

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 the operator if repair or adjustment is necessary.

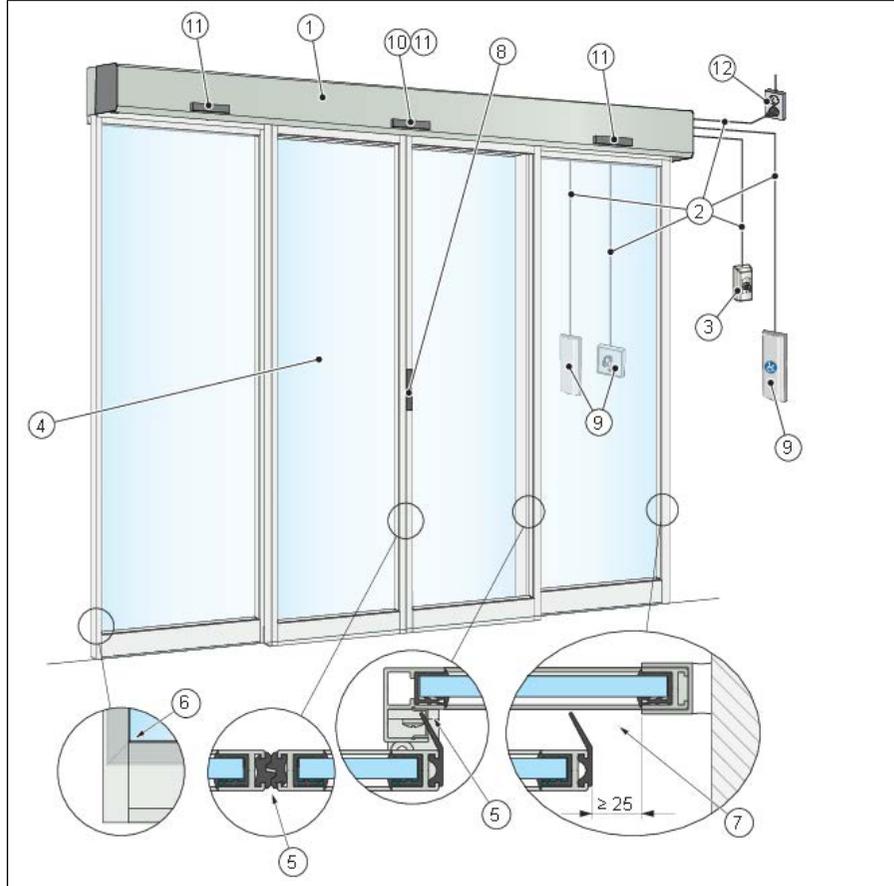
Disconnect supply ¹² when cleaning or other maintenance is to be carried out.

Daily Action		If problem occurs	
Activate your operator and <i>visually</i> check, fastening of <ul style="list-style-type: none"> operator and cover ¹ cables ² programme selector(s) ³ door and glass (stability) ⁴ 			
Also inspect your operator and check <i>visually</i> for <ul style="list-style-type: none"> condition of door seals and weather stripping ⁵ condition of glazing rubbers ⁶ finger protection ⁷ 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 ⁸ really secures the door.			
Activate the manual activation units ⁹ , 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 ¹⁰ in the same way.			
Check the safety sensors ¹¹ if any. If you are unsure of which type of sensor you have, please contact your Entrematic Group 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 mode 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		If the operator is equipped with automatic opening system, shut off the power and the door should open and remain open. Restore power and the door should close.	
		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 Entrematic Group representative. For contact information, see last page.

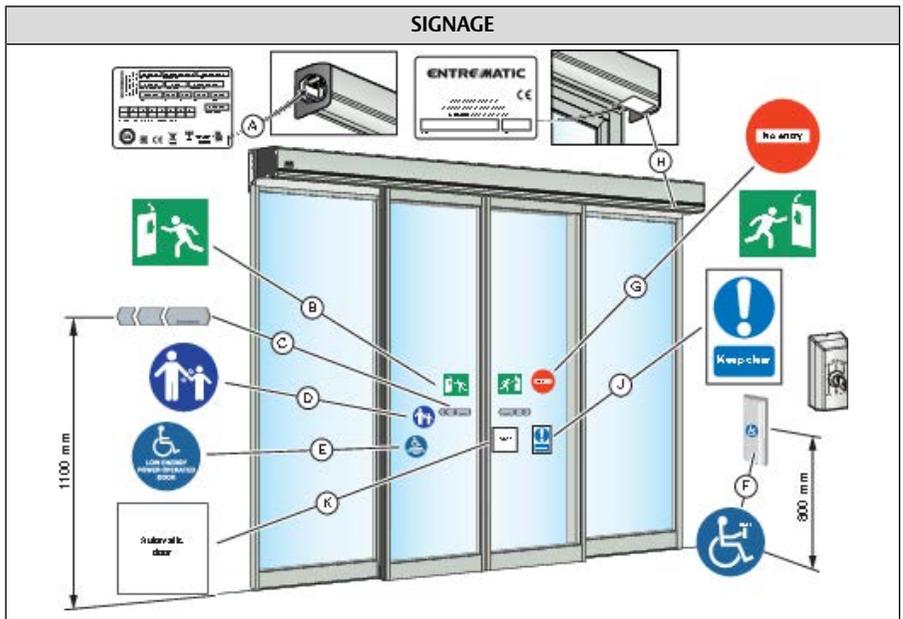
FUNCTION AND VISUAL INSPECTION



CLEANING

The best way to remove dust and dirt from the EM SL is to use water and a soft cloth or a sponge. A gentle detergent may be used. To maintain the quality of the surface treatment, 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, mode 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.



Action	
Check that all required signage is applied and intact. Mandatory indicates that the signage is required by European directives and equivalent national legislation outside the European Union.	
(A)	Product label: Mandatory
(B)	Emergency break-out: Mandatory, if approved for escape route.
(C)	Entrematic Group door sticker: Mandatory, if applicable to highlight the presence of the glass (applied to all glass sections that are moving).
(D)	Supervision of child (applied to both sides of the door): Mandatory according to national regulations. Recommended, if the risk analysis shows use by children.
(E)	Operator designed for disabled people: Recommended, if applicable (applied to both sides of the door).
(F)	Activation by disabled people: Recommended, if applicable.
(G)	No entry, identifying one-way traffic: Mandatory in GB and US, if applicable, not included in the product.
(H)	Local product label
(J)	Keep clear
(K)	Automatic door

Safety accessories

Even though the EM SL 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 Entrematic Group company for detailed description).

- Combined motion and presence sensors
- Separate presence sensors (presence in the door opening or side presence for the trailing edge of the door)

General accessories

Your EM SL can be further improved with the following add-ons (please contact your local Entrematic Group dealer for detailed description).

Cover

Made in clear anodized aluminium as standard. Paint finished in RAL colours or anodizing optional.

Motion sensor and presence sensors

Add motion and presence sensors to improve comfort and safety.

Programme selectors

[See page 8.](#)

Electrical locks

The following locks are available to the operator:

- Locked with power (LDP), fail safe
- Locked without power (LD), fail secure
- Bistable lock (LDB)

Manual unlocking device

For manual unlocking of the electrical lock, locked without power.

Micro switch kit, LSK/LIS

For indication of door and lock position.

Locked door indicator, LDI/LIS

For indication of locked lock and closed door for connection to alarm system.

Electrical emergency unit with batteries

Used if a door is required to be opened or closed by means of a rechargeable battery unit and remain in this position in the event of power failure. Authorities can demand that the emergency units are monitored on a regular time basis. Half an hour before this time has elapsed the following opening impulse generates an emergency opening test. If there is no opening impulse within the next half hour, the operator control unit generates the opening impulse itself.

If the battery opens the door within the limited time the test is successful and the door resumes the function set by the programme selector.

Note! The test is never performed in programme selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing program selection, from a position where a test is not done to a position where the test is a demand.

Electrical emergency unit with batteries and two motors

Used if a door is required to be opened by means of a rechargeable battery unit and remain in this position in the event of power failure. Authorities can demand that the emergency unit is monitored on a regular time basis. Half an hour before this time has elapsed the following opening impulse generates an emergency opening test. If there is no opening impulse within half an hour, the operator control unit generates the opening impulse itself.

If the battery opens the door within the limited time the test is successful and the door resumes the function set by the programme selector.

Note! The test is never performed in programme selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing program selection, from a position where a test is not done to a position where the test is a demand.

Emergency closing with repeated closing

If the door is opened by hand after an electrical emergency closing, it will close again.

Break-out unit PSB

Enables door/side screens to be broken outwards in case of emergency.

[See page 13.](#)

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). EXU-4 required.

Convenience battery UPS

Stand-by supply which gives continued operation during short power failure. EXU-3 or EXU-4 required.

External error indication

Obtained if a lamp or a buzzer is connected. EXU-4 required.

Key switches (flush and/or surface mounted)

Used to give opening impulse to the door in any programme selector setting.

The key switch can also open the door when power is switched off, if a battery is fitted.

Push button

Used to give opening impulse to the door.

Double carriage wheels

Used for door weights over 100 kg and for narrow door leaves as anti-tilt.

Emergency opening

Opens the door in any programme selector setting (fireman's opening). EXU-4 required.

Synchronization

Used between the operators of two single sliding doors, working together in very large openings.

Troubleshooting

What's wrong?	Remedies
The door does not open	
The motor does not start	Change the setting of the mode selector.
	Check the mains switch and fuse in the building.
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 mode selector.
	If a presence sensor is installed, check for and remove objects placed in the presence zone.
The motor starts but stops during opening	Clean the floor guide.
	Check for objects jammed under the door.
The door moves slowly	
	Prevent traffic from using the door and allow it to close completely.
	Reset the operator by setting the programme selector to AUTO and pushing a narrow object in the small hole on the programme selector.
If the problem continues, please contact your Entrematic Group representative.	

Service/Maintenance

Service and adjustments performed by your Entrematic Group-authorized representative will ensure safe and proper operation of your automatic door unit.

Remember to keep “Service Log Book” and “Site Acceptance Test and Risk Assessment” documents available. These are used together.

The table below shows the recommended interval in months, when to replace parts during preventive maintenance.

Part	Cycles/hour in operation			Abusive Environment
	<10	<100	>100	
	Low traffic	Medium traffic	High traffic	
Electrical emergency unit battery	24	24	24	24
Mechanical emergency unit elastic cord	12	12	12	12
Floor guide shoe Standard Felt padded Break-out	24	12	6	6
Carriage wheel Double Anti-derailing	36	24	12	12
Sliding track	36	36	36	24
Tooth belt	48	48	48	36
Drive unit damper kit	60	60	60	60
Lock ramp	60	60	60	60
Belt clamp	60	48	36	24
Plastic protector center shaft kit	60	60	60	48
Door stop rubber kit	24	24	24	24
Tension wheel assembly	36	36	36	36
Detachment guard	60	60	60	60
Brush/sealing	12	12	12	12

Other products from Entrematic Group

- Door Systems
- Swing doors
- Automatic and manual activation units

Declaration of conformity

We

**Entrematic Group AB
Lodjursgatan 10
SE-261 44 Landskrona
Sweden**

declare under our sole responsibility that the type of equipment:
EM SL Single or Double, EM SL T Single or Double. With or without emergency unit

complies with the following directives:

**2014/30/EU ElectroMagnetic Compatibility Directive (EMCD)
2006/42/EC Machinery Directive (MD)
2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)**

Harmonized European standards which have been applied:

EN 60335-1	EN 61000-6-2
EN 61000-6-3	EN ISO 13849-1
EN 16005	

Other standards or technical specifications, which have been applied:

BBR	BVL
FCC 47 CFR Part 15 B	EN 60335-2-103
DIN 18650-1/-2	

EC type examination or certificate issued by a notified or competent body (for full address, please contact Entrematic Group AB) concerning the equipment:
SITAC 0137/05 TÜV B 12 07 74969 007

The manufacturing process ensures the compliance of the equipment with the technical file. The manufacturing process is regularly assessed by 3rd party.

The CE mark was first applied 2002-12-29.

Compilation of technical file:

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SE-261 44 Landskrona
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Email: anders.forslind@entrematic.com

Place
Landskrona

Date
2019-06-06

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