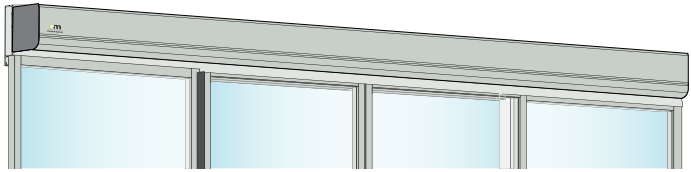
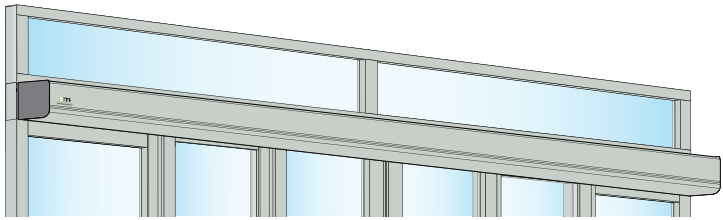
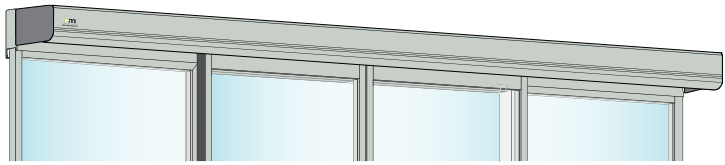
ENTREMATIC

Sliding Door Operator
EM PSL150, PSL150-T, PSL100







User Manual

Original instructions

CONTENTS - 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 age 8 and above, and persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, if they have been given supervision or instruction by a person responsible for their safety concerning safe operator use and the possible hazards involved.

  This does not however prevent those persons to use the door where the operator is installed.
- Cleaning and user maintenance shall not be made by children without supervision.
- Do not let children climb on or play with the door or the fixed/remote controls.
- Installer must properly ground door package! Improper grounding can lead to risk of personal injury.
- The doorset can be operated automatically by sensors or manually by activators.

Congratulations on your new automatic door!

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

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.

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 Nordic 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

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. 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 Nordic representative to learn more about our service offering.

Intended use

The EM PSL150, EM PSL150-T and EM PSL100 are automatic sliding door operators 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 17 and "Electrical emergency unit with batteries and two motors" on page 18. For manual break-out see "Break-out unit PSB" on page 18.

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 1009203.

Save these instructions for future reference.

Technical specification

Manufacturer:	Entrematic Nordic AB
Address:	Lodjursgatan 10, SE-261 44 Landskrona, Sweden
Type:	Sliding Door Operator EM PSL150, EM PSL150-T and EM PSL100
Mains power supply:	100 V AC -10% to 240 V AC +10%, 50/60 Hz, fuse 10 AT
Power consumption:	Max. 250 W
Degree of protection:	IP20
Approvals:	Third party approvals from established certification organizations valid for safety in use, see Declaration of Incorporation.

How the EM PSL150, EM PSL150-T and EM PSL100 work

The EM PSL150, EM PSL150-T and EM PSL100 work 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, (Full Break-Out) or Side Panel Guides (Fixed Sidelites).

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.

The EM PSL150, EM PSL150-T and EM PSL100 user can select five different modes of operation if a programme selector is installed. See Operation mode 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 programme selection OFF mode. In other buildings emergency escape doors may be locked or put in programme selection OFF mode after it has been secured and all people have left the building.

Unlocking

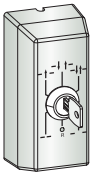
Unlock *all* the mechanical locks before activating the operator.

Operation mode selectors

The door functions are set with different operate mode selectors.
The operation mode selector is available with 5 buttons (plus RESET).
The key on the PS-6 mode selector must always be removed on emergency escape doors after changing settings.

Functions

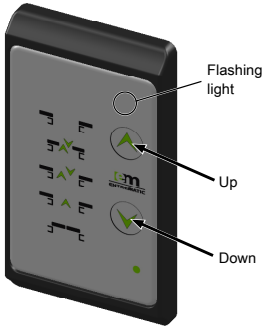
OPEN, AUTO PARTIAL, AUTO, ONE WAY and OFF functions can be obtained.



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.
	RESET	By briefly pushing the green dot with a narrow object, 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.
	RESET	Turn the key clockwise to the position “R” (six o’clock) and insert a narrow object in the small hole on the operation mode selector and push briefly. Then turn the key counter-clockwise back to the requested setting and 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. **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 operate mode selector is set from OFF or OPEN to any other operation mode.

Access codes and flashing light

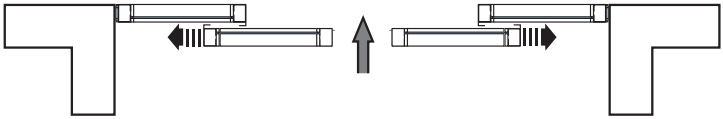


Codes	
Three alternative selectable codes are used.	
1	The default access is obtained by pushing the arrow symbol pointing up or down for 2 seconds.
2	An optional access code can be selected where the access is obtained by briefly pushing in turn the arrow up symbol, followed by the arrow down symbol, followed by the arrow down symbol again and at last the arrow up. The entire code must be entered within 3 seconds.
3	No access code.
The different operation modes are selected by pushing the arrow symbols pointing upwards or downwards. When a button is pushed a buzzer will sound. The present selection is indicated by a blue light to the left of the function symbol or text. When an arrow symbol has not been pushed for 15 seconds the access will be locked.	

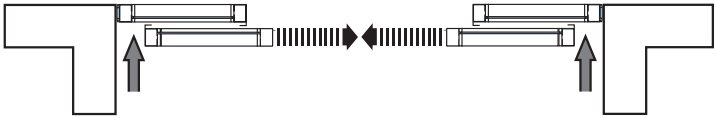
Flashing light	
Red	• A red light every other second is indicating an error in the door operator. If the error remains after a RESET then service is needed. • If the red light is quickly flashing 3 times per second it is indicating an internal error in the operation mode selector.
Orange	An orange light every other second is indicating a status or condition that can be cleared by the owner e.g. a break-out door is standing open.
Yellow	A yellow light every other second is indicating that maintenance is needed.

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.

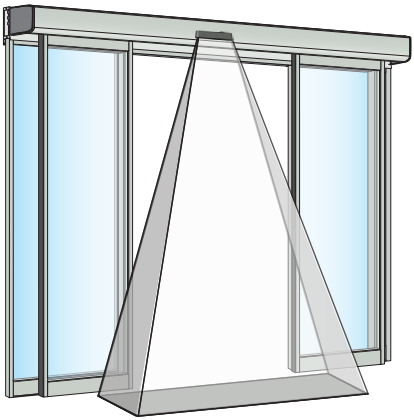


If an obstruction is detected between opening doors and surrounding walls or interior fittings, the doors stop immediately, and then close after a time delay.



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 Entrematic Nordic sensors have been tested and approved by the Entrematic Nordic test laboratory for use on Entrematic Nordic'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 Nordic service representative for assistance.

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

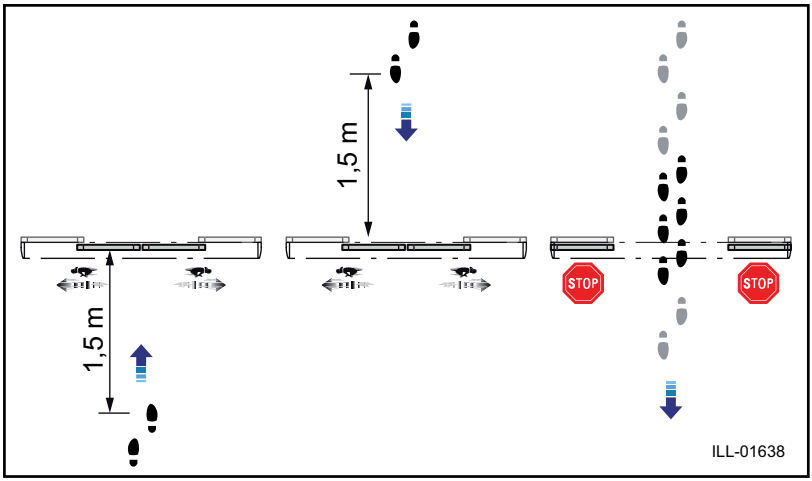
Combined sensors are used when you want both a motion sensor and a presence sensor integrated into the same unit.

When walking towards the door opening at moderate speed, the door should start opening when you are about 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 15 cm/s). The door shall remain open.

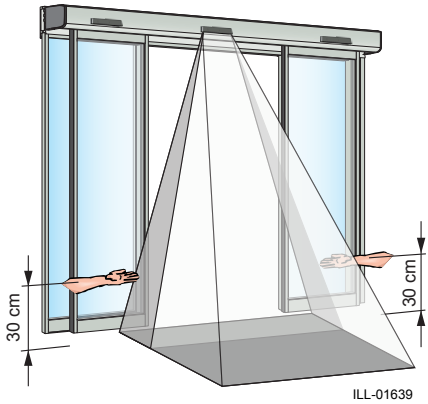
If your door is set up for one-way traffic, the sensor on the side not intended for use shall reopen the closing door if an object is detected at a minimum of 20 cm from the door at floor level.

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 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 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.

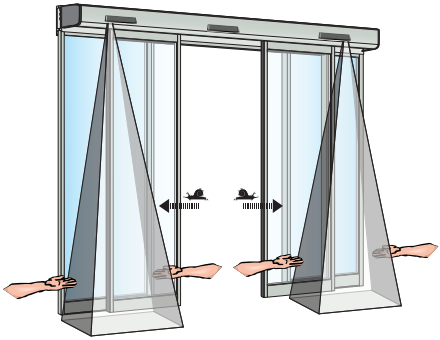


How to check your side presence detector(s)

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 quite safe speed. With this safe speed the door will try to push the obstruction away of the opening door. Make sure that the door starts to open.

Walk into the detection field of the side presence sensor on one side. 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.



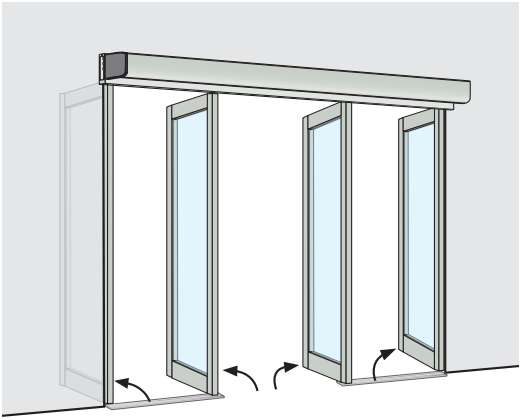
Emergency escape

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

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 programme selector. The emergency unit is monitored by the operator control unit. A monitoring error means that the door opens and remains open until the error is cleared.

For further information, see General accessories on page 17.

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 if repair or adjustment is necessary.

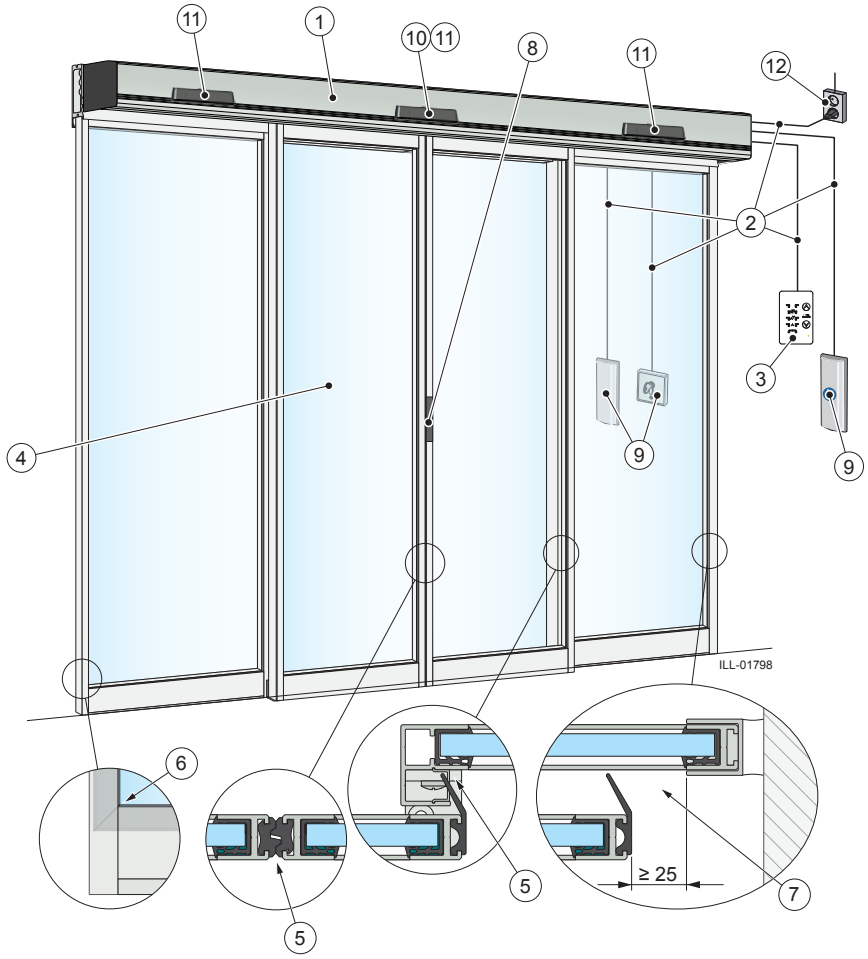
Disconnect supply ⑫ when cleaning or other maintenance is to be carried out.

Daily Action			If problem occurs
Activate your operator and *visually* check, fastening and any damage of • operator and cover ① • cables ② • operator mode selector(s) ③ • door and glass (stability) ④			
Also inspect your operator and check *visually* for • 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 Nordic 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.	
		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.	
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 Entrematic Nordic representative. For contact information, see last page.

FUNCTION AND VISUAL INSPECTION

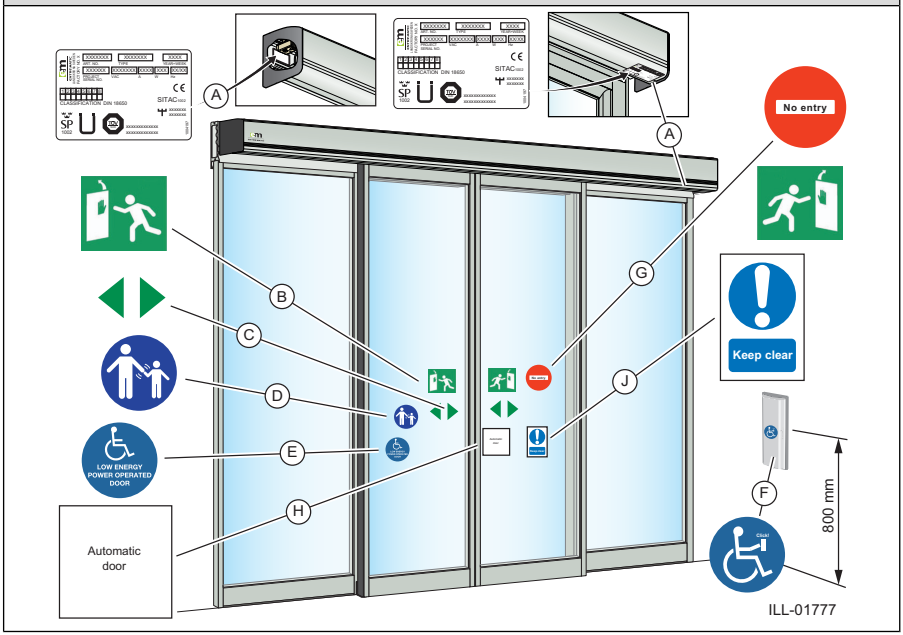


CLEANING

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



Action		If problem occurs
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.		
Ⓐ	Product label: Mandatory	
Ⓑ	Emergency break-out: Mandatory, if approved for escape route.	
Ⓒ	Entrematic Nordic door sticker: Mandatory, if applicable to highlight the presence of the glass (applied to all glass sections that are moving).	
Ⓓ	Supervision of child: Mandatory, if applicable (applied to both sides of the door). To be placed on entrances where the risk analysis shows use by children, elderly and disabled.	
Ⓔ	Operator designed for disabled people: Recommended, if applicable (applied to both sides of the door).	
Ⓕ	Activation by disabled people: Recommended, if applicable.	
Ⓖ	No entry, identifying one-way traffic: Mandatory in GB and US, if applicable	
Ⓗ	Automatic door	
Ⓙ	Keep clear	

= Contact your Entrematic Nordic service representative. For contact information, see last page.

Safety accessories

Even though the EM PSL150, EM PSL150-T and EM PSL100 are 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 Nordic company for detailed description).

- Combined motion and presence sensors
- Separate presence sensors

General accessories

Your EM PSL150, EM PSL150-T and EM PSL100 can be further improved with the following add-ons (please contact your local Entrematic Nordic dealer for detailed description).

Cover

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

Motion sensors

Motion and presence sensors, see separate manuals.

Operation mode selectors

See page 8.

Electrical locks

There are 4 different types of locks to the operator. Locked with power (LDP), fail safe, locked without power (LD) , fail secure or bistable lock (LDB) and espagnolette lock (LDE).

Note! The espagnolette lock is at the moment not allowed to mount in escape routs.

Manual Opening Lock device, MOLD

For manual unlocking of the electrical lock (LD), locked without power (fail safe).

Micro switch kit

For indication of door and lock position.

Locked door indicator

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

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 operation mode selector.

Note! The test is never performed in operation mode selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing operation mode 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 operation mode selector.

Note! The test is never performed in operation mode selector setting OPEN. In setting OFF it can be selected. The test is always performed after a RESET and after changing operation mode 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 14.

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). Interconnecting cable required.

Convenience battery UPS

Stand-by supply which gives continued operation during short power failure.

External error indication

Obtained if a lamp or a buzzer is connected.

Key switches (flush and/or surface mounted)

Used to give opening impulse to the door in any operation mode selector setting. With electrical emergency unit also during power failure.

Push button

Used to give opening impulse to the door.

Synchronization

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

Interconnecting cable required.

Open / Close function

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.

Fire alarm connection

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

Nurse function

Used mostly in combination as a Nurse - Bed function. Nurse opens the door to partial open position, and bed (connected to inner or outer impulse) opens to full open position.

Nurse works in operation mode selections Exit, Auto.

The Nurse impulse has the same hold open time as partial open.

Remote Exit mode

Remotely put door into Exit via an remote system, like timer.

Emergency open impulse

Used to give opening (fireman's opening) impulse to the door in any operation mode selector setting. With electrical emergency unit also during power failure.

Troubleshooting

What´s wrong?	Remedies
The door does not open	
The motor does not start	Change the setting of the program selector.
	If break-out unit PSB is installed, check that the door leaves and side screens are completely closed.
	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 program 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 using the door and allow it to do a complete opening and closing cycle with low speed.
	Reset the operator by pushing the AUTO-symbol on the mode selector and then push a narrow object on the globe of the logotype on the operator mode selector.
	Allow the operator to control the closed position without interruption.
If the problem continues, please contact your Entrematic Nordic representative.	

Service/Maintenance

Service and adjustments performed by your Entrematic Nordic-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	Part number	Cycles/hour in operation			Abusive Environment
		<10	<100	>100	
		Low traffic	Medium traffic	High traffic	
Electrical emergency unit battery	330000419	24	24	24	24
Floor guide shoe Standard Felt padded Break-out	 33830064 33831622 830792	24	12	6	6
Door carriage Plastic wheels Steel wheels Anti-riser device	 330000381 330000382 330000434	36	24	12	12
Sliding track	330000466	48	36	24	12
Tooth belt	330000464	60	48	36	24

Other products from Entrematic Nordic

- 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 PSL150, EM PSL150-T, EM PSL100. With or without emergency unit

complies with the following directives:

2014/30/EU ElectroMagnetic Compatibility Directive (EMCD)
2006/42/EC Machinery Directive (MD)

Harmonized European standards which have been applied:

EN 61000-6-2:2005	EN 61000-6-3:2007+A1
EN ISO 13849-1:2008	EN 16005:2012
EN 60335-1:2012	EN 60335-2-103 2003+A1:2009

Other standards or technical specifications, which have been applied:

BBR	BVL	FCC 47 CFR Part 15 B
UL 325	IEC 60335-2-103 ed.2 1:2011	IEC 60335-1 ed. 5:2010
DIN 18650-1/-2:2010		

EC type examination or certificate issued by a notified or competent body (for full address, please contact Entrematic Group AB) concerning the equipment:

SC1320-13 B 1604 85479 007

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

Compilation of technical file:

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Place	Date	Signature	Position
Landskrona	2016-04-26	Christian Trobro	Product Safety & Liability Manager

DoC 1011991-EMEI-5.0

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