MAGNETIC LINEAR SLIDING DOOR OPERATOR

INSTALLATION INSTRUCTIONS

MODEL: EDM MM100

DRAFT

ORIGINAL INSTRUCTIONS

⚠	WARNING: Avoidance of Injury, Electric shock and Fire

- Installation and adjustment must be performed by approved personnel only.
- Repair and/or alteration to the control box and motor are prohibited.
- Power should be switched off during installation and service.
- Switch power off when not in use.
- Power supply AC 220~240V (Control Box Power Input AC 100V).
- Keep away from any item which creates steam, heat or a humidifier.
- Do not touch when a lightning storm occurs.
- Should a burning smell be detected, switch power off at fuse. Contact your MICOM representative immediately.
- Do not put hands, flammable liquids, gases or items affected by high temperatures onto operator during operation.
- Do not spray pesticides or detergents onto operator directly.

⚠	CAUTION: Avoidance of Injury and Malfunctions

- Ensure sliding door travel area is clear before switching power switch ON.
- Do not hit or restrict door whilst moving.
- Keep fingers, clothing and hair clear of belt and all moving parts.
- Protective gloves should be worn when handling metal parts.

⚠	CAUTION: Avoidance of Injury during Maintenance & Disposal

Risk of electrocution or personal injury can be avoided by switching mains power off for routine maintenance.

Risk of crushing or impact by a falling door panel or other solid object onto a person can be avoided by laying any heavy object horizontally onto the floor at one the side of the working area. Risk of tripping or falling can be avoided, by placing any removed objects to one side of the working area. A safe working area should be maintained by cordon or other temporary boundary.

⚠	IMPORTANT NOTICE: Avoidance of Injury during Cleaning

To be performed by authorised personnel only:

With power OFF - Using neutral detergent, wet and twist a soft cloth to wipe clean the operator.

If power is not switched off before cleaning, there is risk of electrocution or personal injury due to door movement.

⚠	IMPORTANT: NOTICE TO USER

Do not hang any items on the rail or door as this will cause improper operation of sensors and function of door operator.

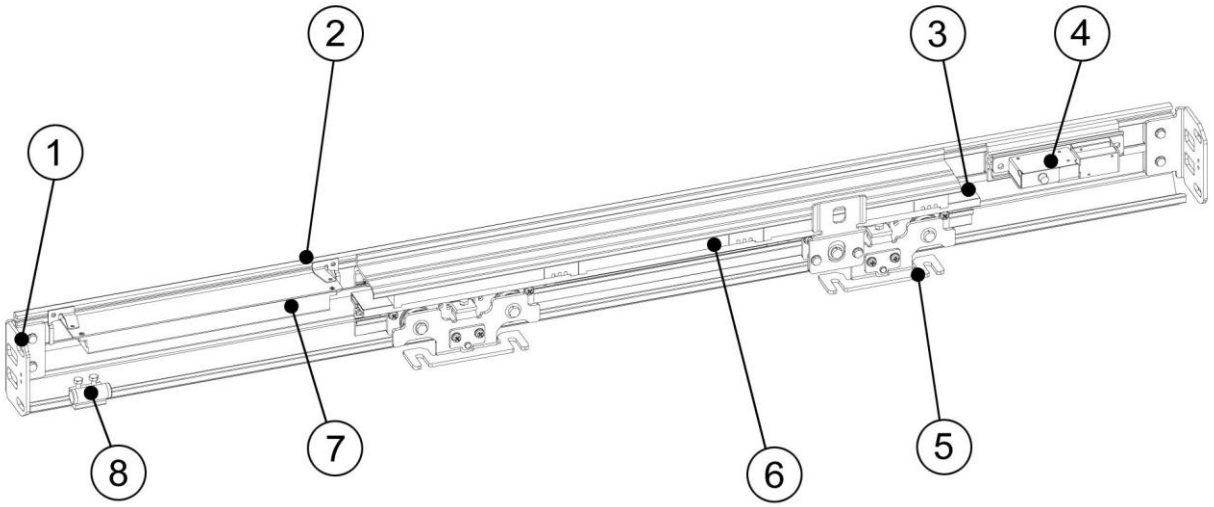
Teaching Stoke – Teaching will be operated after power on or a power cut. Please note that teaching is slower than normal operation. Please refer to Section 2 for Teaching Operation.

Door frame may alter after original installation due to the condition of the building. Further adjustment may be needed later after installation.

IF YOU HAVE ANY PROBLEMS – PLEASE SWITCH OFF THE PRODUCT AND CONTACT A MICOM REPRESENTATIVE IMMEDIATLEY OR E-MAIL: info@micomautodoor.com

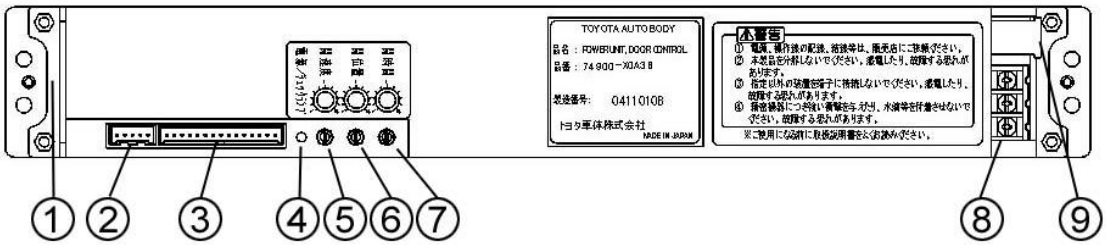
1. Operator Description

1.1 Parts



No.	Part Description
1	End Cover or Bracket for Built-in (as shown)
2	Rail
3	Moving Magnet
4	Electronic Lock (Option)
5	Hanger Roller Assembly
6	Magnetic Motor
7	MM100 Control
8	Stopper

1.2 Control Box



No.	Description
1	Motor Connection – Already Connected
2	E-Lock Connection (option)
3	Harness Connector – Signal Input / Output Data
4	LED - Power On – Green LED will Flash 5sec. Then Green LED ON Activation Signal / Safety Signal Input – Green LED OFF LED RED ON – Over Heating Protection – Automatically Stop / Open LED RED FLASHING SLOWLY – Obstruction Stop LED RED FLASHING QUICKLY (with Beep) - Problem with E-Lock.
5	Open Speed Adjuster - 200~500mm/s (Default 400mm/s)
6	Close Speed Adjuster - 200~500mm/s (Default 300mm/s)
7	Open Timer Adjuster - 1~11 sec. (Default 3sec.)
8	Power Input – AC100V +/- & Earth
9	Power Switch – ON/OFF Input

1.3 Power Input & Mains Switch

1. Power Switch On/Off Plug In.
2. AC100V
3. AC100V
4. EARTH

2. Set-Up & Operation

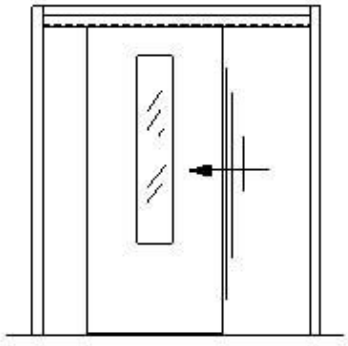
2.1 Teaching or Learning Operation

Learning Cycle-
With the Power ON/OFF Switch provided, power can be switched ON to begin the Teaching Stoke process.
Teaching will begin once the power is turned ON. A full open and close cycle stroke will be performed at SLOW speed.
CAUTION: When learning, allow the Door to Open / Close fully. If sensors are fitted, step back from the activation area. Do not obstruct the door when teaching.

Each time the power is switched off (by switch or power cut), a teaching stroke must be carried out at the next power ON.

Learning Operation - Door Starting Position:

(a) Closed –
Activation switch is activated, the door will start to move SLOWLY in the open direction. Once the door has reached its FULL open position, it will return SLOWLY in the closing direction, until FULLY CLOSED.
Do not stand in the detection area when the door is teaching, as it will not close.



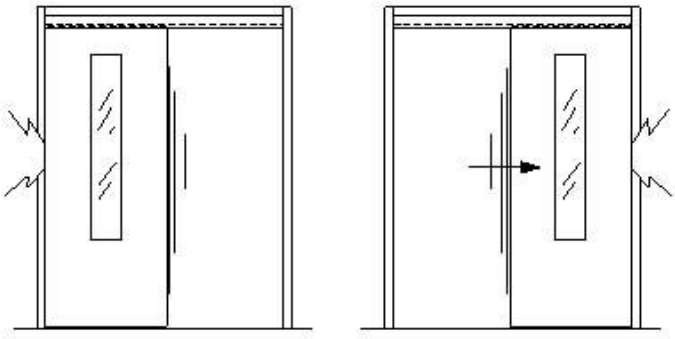
(b) Not Closed –
The door will start to automatically close to the fully closed end. Once reaching FULLY closed position, teaching can be performed as above.

(c) Closed with E-Lock -
If the operator is fitted with E-Lock, the teaching will always being with the door in FULLY closed and LOCKED position.

Teaching Complete
Once the door has opened fully and then returned to the fully closed position and stopped – teaching is complete.

2.2 Normal Operation

After the teaching process is successfully completed, the operator will be ready to accept all customary activations. Usually the door is in the closed position and will active to open by use of a motion sensor or switch. When the door is closing, it will re-open if a sensor, switch or safety signal is on. If there is no such activation, the door will close fully. With an E-Lock fitted, the door will lock after it is fully closed.



CAUTION: If the door does not stop at the closed end position and opens automatically. The operator is not installed correctly. Please contact your MICOM Representative or email: info@micomautodoor.com

2.3 Activation Inputs

The door can be activated by all customary sensors and activation devices. Please see supporting Wiring Diagrams.

2.4 Obstruction Detection

EDM MM Controller is always calculating door position and door speed. If the door hits an obstruction during closing, the door will stop immediately with light force and reverses to the open position.
The door will then close after the preset open time at slow speed. Should the door find the obstruction again, the door will stop. Activation is upon the next sensor or switch signal. With the obstructing cleared, normal operation will continue.

2.5 Electronic Lock
With an E-lock fitted, it is not possible to open the door by hand. The door will be unlocked upon an activation signal to the controller. Then door will open automatically. Again a full open and close cycle will be performed and the door will again lock with E-lock once fully closed.

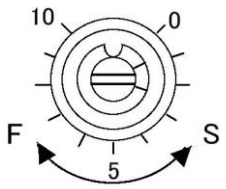
If there is a problem with the E-Lock, the controller will show this when either in teaching mode or during normal operation.

2.5.1 Teaching with E-Lock

LED will flash RED with Buzzer.

3. Operation Adjustment

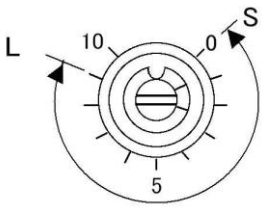
3.1 Open / Close Speed



Open / Close Speed is adjustable by the speed adjuster. (Turning Right = Faster (F)). Adjustable range is 200~500mm/s. (Factory Setting Speed: Open Speed at 400mm/s / Close Speed at 300mm/s)

CAUTION: It is recommended not to set the Open / Close Speed to max for safety or pedestrians.

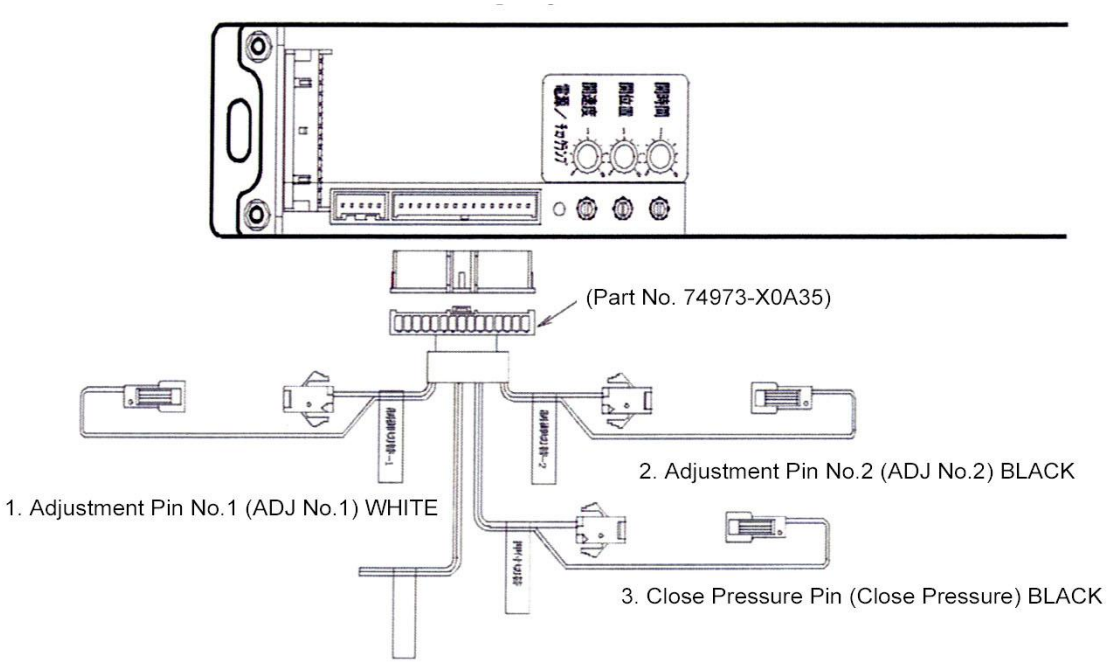
3.2 Open Timer



Open time will begin when the door has reached its full open position. (Turning Right = Longer (L)). Adjustable range is 1~11sec. (Factory Setting Open Time: 3sec._

CAUTION: Please take care to turn the adjusters with a thin screwdriver gently. Do not turn the adjuster strongly with force as the adjuster will be broken.

3.3 Open / Close Breaking & Sensing Function



3.3.1 Breaking Adjustment Function

Plug No.3 - Black	Breaking / Sensing
Connected	On (Factory Setting)
Disconnected	Off

3.3.2 Open / Close Breaking / Sensing Adjustment

	Level	Plug No.1 White	Plug No.2 White	Door (Factory Setting)	
				Single	Double
Heavy	1	Disconnected	Connected	65 – 90kg	65-75kg
	2 (Factory Setting)	Connected	Connected	45-65kg	45-65kg
	3	Connected	Disconnected	35-45kg	35-45kg
Light	4	Disconnected	Disconnected	30-35kg	25-35kg

Above door size and weight should be used a guide only. Please check door sensing adjustment by sight – for example: 65kg Door

Door Open/Close Sensing level '2' = Factory setting Plug no.1 & Plug no.2 – Connected.

>In case the braking is too weak near to the closed end and the door hits a little hard –|
Set to level 1 = Plug no.1 – Disconnect.

>In case the braking is too hard near to the closed end and the door jumps to the close – Set to level 3 = Plug no.2 - Disconnect.

CAUTION: MM100 Installation Precautions | DANGER: HIGH VOLTAGE!

- MM100 operator must be installed horizontally true and checked with level
- Avoid damage to travel surface of rail and roller.
- Avoid and remove all metal particles from Magnet, Moving Magnet, Rail and Rollers.
- Check wiring connections and harness are correct before power ON.
- Ensure sliding door travel area is clear before switching power switch ON.
- Do not hit or restrict door whilst moving.
- Keep fingers, clothing and hair clear of belt and all moving parts.
- Make final check of installation as detail in this document.

Model	EDM MM100-A	EDM MM100-D
Door Weight (max)	30 - 90 Kg / Single (or Vi-Part)	25 - 75kg x2 Double
Power Supply	AC 100V +/- 10% / 50/60Hz / Max 7A (700 Watt)	
Environment (Temp)	Ambient temperature -10C ~ +40C (no condensation or icing) Ambient humidity 30% ~ 85% RH (no hazardous materials must be present in the atmosphere)	

1. Check Position of Moving Magnet - When door is at full closed position, confirm edge of moving magnet and marked position on coil are in line as shown below (Fig1. & Fig2.)

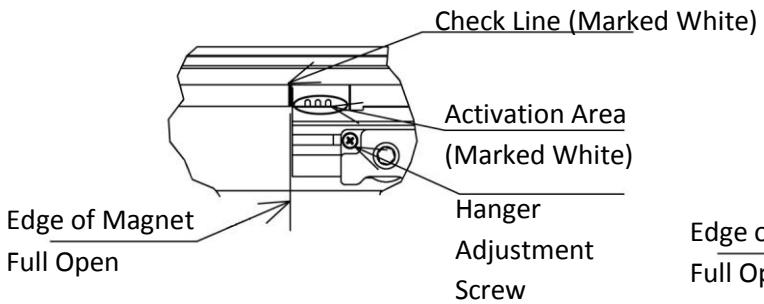


Fig 1. Built-in Type

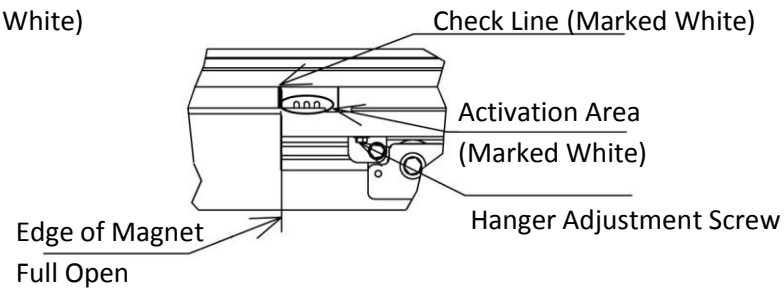
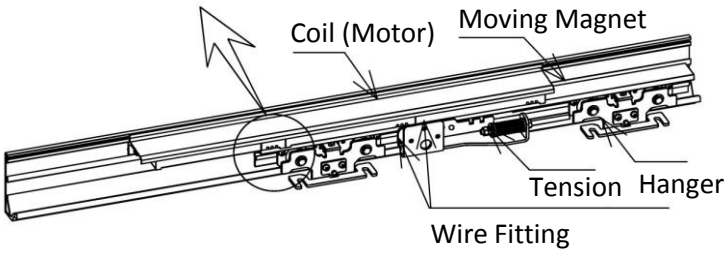


Fig 2. Surface Mounted Type

If not in line, ensure PLASTIC PROTECTION SPACER are in place between coil & moving magnet, before adjusting position of hanger bracket on moving magnet as below (Fig 2 ~ 4).
Note: Confirm Moving Magnet overlaps the marked position on the coil in both full open and full closed positions.



2.Check Correct Adjustment of Wire Tension Assembly

1. Ensure 'Nut A' is installed to right side as shown.
2. Check Part C (black plastic) is installed to right of notching Part B (Side D) as shown.
3. To adjust - Loosen 'Nut E' locking bolt and move it with Nut F as shown.

Now the wire tension should be adequate, This position should be maintained with 'Nut F' (M6) and locking bolt 'Nut E' (M6).

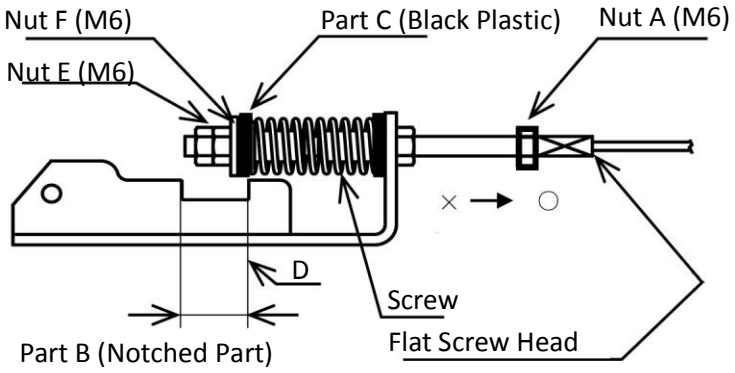
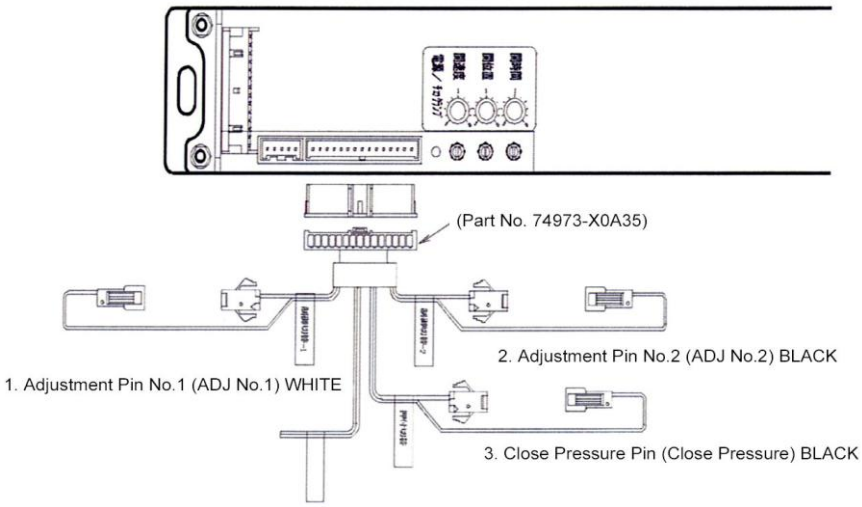


Fig1. Wire Tensions Assembly

4. Open / Close Breaking & Sensing Function - Check movement of door during the open and close cycle. If it is not smooth, adjustment with Pin No.1 & Pin No.2.



Open / Close Breaking / Sensing Adjustment

	Level	Plug No.1 White	Plug No.2 White	Door (Factory Setting)	
				Single	Double
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	2 (Factory Setting)	Connected	Connected	45-65kg	45-65kg
	3	Connected	Disconnected	35-45kg	35-45kg
Light	4	Disconnected	Disconnected	30-35kg	25-35kg

Breaking Adjustment Function

Plug No.3 - Black	Breaking / Sensing
Connected	On (Factory Setting)
Disconnected	Off

Note: Above door size and weight should be used a guide only. Please check door sensing adjustment by sight – for example: 65kg Door

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>In case the braking is too weak near to the closed end and the door hits a little hard –Set to level 1 = Plug no.1 – Disconnect.

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4. Trouble Shooting

Problem	Possible Solution
Does not power on. LED does not light.	Check wiring or power source. Wire to controller is disconnected?
Keeps Beeping (RED LED blinking quickly)	E-Lock Error. Wire to E-Lock is disconnected? Dead Bolt is not located into hole for Lock?
Does not open after sensor (SS) is activated	Sensor wire is not connected? Sensor is connected to Safety Wire (SB)?
Does not open even if Safety (SB) is connected	Sensor (SS) is disconnected? Door is closed?
Door Opens (from fully closed) when Safety (SB) is activated	Safety Sensor is connected to Activation wire (SS)?
Does not open with wireless touch switch or button	Wire from receiver of touch switch is disconnected? There is an obstruction stopping signal? Battery and direction are ok? Channel of switch and received is same?

5.Specification

5.1 Technical

Model	EDM MM100-A	EDM MM100-D
Application	Single (or Vi-Part)	Double
Door Weight (max)	30 - 90 Kg	25 - 75kg x2
Power Supply	AC 100V +/- 10% 50/60Hz Max 4A	
Open Speed	Adjustable 200 ~ 500mm/s (Factory Default 400mm/s)	
Closing Speed	Adjustable 200 ~ 500mm/s (Factory Default 300mm/s)	
Open Timer	1~11sec Max - Factor Default 3sec)	
Motor	Brushless Magnet Movable Linear DC Motor	
Environment (Temp)	Ambient temperature -10C ~ +40C (no (condensation or icing) Ambient humidity 30% ~ 85% RH (no hazardous materials must be present in the atmosphere)	

5.2 Size

MM100		Rail Length (mm)	Entrance Width (mm)
Built-In	Single - Left / Right	1800 1802 - 2200 2202 - 2600	900 901 - 1100 1101 - 1300
	Double	3600 3602 - 4400 4402 - 5200	1800 1801 - 2200 2201 - 2600
Surface Mount	Single - Left / Right	1800 1802 - 2200 2202 - 2600	900 901 - 1100 1101 - 1300
	Double	3600 3602 - 4400 4402 - 5200	1800 1801 - 2200 2201 - 2600

6.Health & Safety

It is recommended that the following installation guide lines be followed in compliance with safety standards.

6.1 Safety During the Open Cycle

Provision should be made to deter person from occupying the area through which the door travels during the open cycle. A 'keep clear' sign is recommended to be fixed to the screen or wall across which the door travels. Where practical, the following is recommended to be fitted: Barrier or Pocket Screen installed along the line of the opening leaf. (Pocket Screen: H=1500mm min from finished floor level)

6.2 Safety During the Close Cycle

Provision should be made using one of the following, to prevent a door shutting on traffic during the closing cycle. A Safety Beam is recommended to be positioned between the jambs at a height of 300mm – 600mm above the finished floor level. Alternately we recommend the use of an appropriate presence sensing safety device covering the threshold area, in relation to where a risk assessment shows there is a significant proportion of traffic using the entrance /exit doors, who are potentially vulnerable (e.g. elderly, infirm, disabled or very young).

Suitability of Safety Devices for Sliding Doors		
Door Type	Safety Beam	Presence Detection
Straight	Suitable	Suitable
Curved	Not Suitable	Suitable
Prismatic	Not Suitable	Suitable
Folding	Provides Partial Safety	Suitable
Telescopic	Provides Partial Safety	Suitable

6.3 Installation Check List

It is recommended that the following is carried out by the authorised technician and that the following information is provided during installation commissioning and at each annual safety inspection. We therefore provide the basis for such checks to be carried out in compliance with safety standards.

(Example)

Authorised Technician Check List	
Applicable to Sliding, Telescopic, Curved, Prismatic and Folding Door	
Site:	Serial No:
Door Type:	Opening Width:
Time	
Open Time: sec	Closing Time: sec
Hold Open Time: sec	
Closing Energies (Commissioning Only)	
At Low Speed: J	At Max Speed: J
Static Entrapment Force: N	
Activation Distances	
Straight Approach: m	Side Approach: m
Safety Device/s	
Hold Open Beams	
Number Fitted:	Height/s above Floor Level: m
Presence Sensors	
Field Width: m	Field Depth: m
Hold Open time: sec	
Drawing in protection	
Leading Stile to Jamb: mm	Outer Stile to mullion: mm
Barrier Rail / Safety Side Screen: Fitted / Not Fitted	
Escape System	
Fail Open: Active / Not Active	
Breakout: Fitted / Not fitted	Break out force: N
Signage Fitted: Y/N	
General Comments:	
Name:	Time:
Signed:	Date:

6.4 End User - Occupier Safety Tests - Recommended

To ensure safe daily use of our automatic door system, we recommend the follow be applied in compliance with safety standards.

The occupier is responsible for the undertaking of the following test procedure, which should be carried out at least weakly, unless a different schedule of tests is identified in the risk assessment priory to installation.

1. There should be no notice boards, literature racks, merchandise displays or other distractions or obstructions in the vicinity of the door which may congest or inhibit traffic flow.

Automatic Activation Device Test:
2. Test sensors by walking towards the door opening. The door should start to open when a person is approx 1400mm (5ft) from the door. The door should slide smoothly to the open position and stop without impact

3. Step out of the activation zone. After a time delay (normal 1s ~ 5s) the door should close smoothly.

4. Repeat steps 2 and 3 on the other side of the opening, if the door has two way operation.

Safety Devices
5. Safety Beams. If safety beams are fitted, place a test object on the threshold at the full open position, step out of the diction area and confirm the door remains open.

General Test
6. Check that the door area has no tripping or slipping hazards

7. Check all door panels for cracked or broken glass.

8. Check doors have signs correctly displayed at recommended viewing heights if fitted

9. Check the position and security of associated screens and barriers if fitted.

10. Check the operation of manual activation, remote activation or other stop devices if fitted.

11. Check and remove any distractions / obstructions in the vicinity of the doors.