

INSTALLATION INSTRUCTIONS

MODEL: EDM MM50 & MM80 Auto & Assist Version (Japanese Type)



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 100V AC (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.

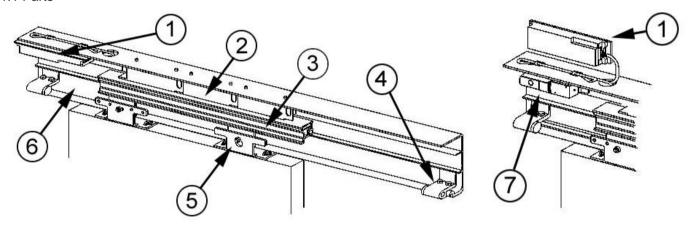
IF YOU HAVE ANY PROBLEMS – PLEASE SWITCH OFF THE PRODUCT AND CONTACT A MICOM REPRESENTATIVE IMMEDIATLEY OR E-MAIL: info@micomautodoor.com



1. Operator Description (MM50 & MM80 from Japan)

AUTO Type	ASSIST Type
Push & Go Function	Push & Go Function
Vi-Part Synchronisation	Open Speed Adjuster
Open Speed Adjuster	Partial Open Adjuster
Closer Speed Adjuster	Open Timer
Open Timer	Ratchet Switch (Flip Flop) Function
Ratchet Switch (Flip Flop) Function	Hold Open Function – Setting By Hand
Obstruction Protection	Free Stop Function – Setting By Hand
E-Lock LK1 - Fail Safe (Option)	Obstruction Protection

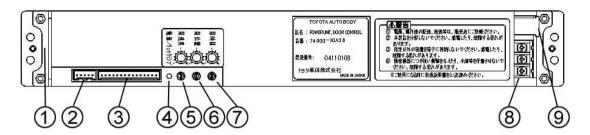
1.1 Parts



No.	Part Description
1	Control Box Assembly - MM50 & MM80 Assist Type
2	Magnetic Linear Motor MM50 & MM80
3	Moving Magnet
4	Stopper
5	Hanger Roller Assembly
6	Aluminium Rail
7	Electronic Lock (Option)



1.2 Control Box MM50 & MM80 (Auto & Assist Type)

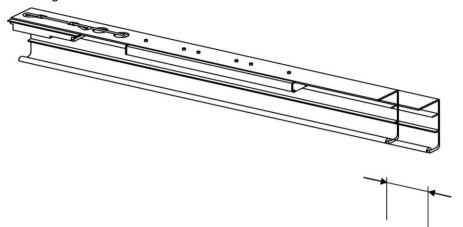


No.	Description
1	Motor Connection – Already Connected
2	E-Lock Connection (option)
3	Harness Connector – Signal Input / Output Data
4	LED - Power On – Green LED will Flash 5sec. Then Green LED ON Activation Signal / Safety Signal Input – Green LED OFF LED RED ON – Over Heating Protection – Automatically 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	Model AUTO Type: Close Speed Adjuster - 200~500mm/s (Default 300mm/s)
6	Model ASSIST type: Partial Open Adjuster (0=50% ~ 10=100%).
7	Open Timer Adjuster - 1~10 sec. (Default 3sec.) & Ratchet.
8	Power Input – AC100V +/- & Earth
9	Power Switch – ON/OFF Input



2. Installation

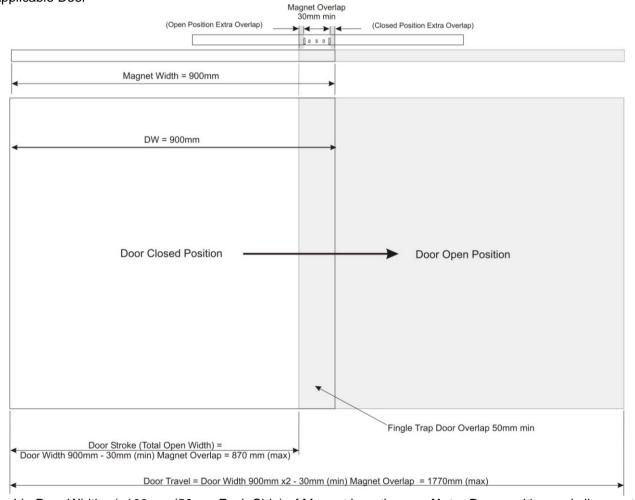
2.1 Cutting Rail



Cut to size for required installation.

Control and Linear Motor must be protected from metal particles.

2.2 Applicable Door



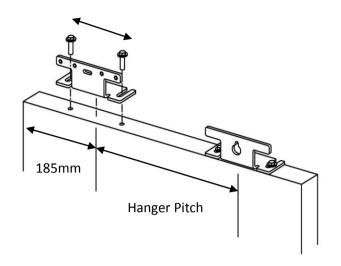
Applicable Door Width +/- 100mm (50mm Each Side) of Magnet Length.

Applicable Door:

Magnet Length 800mm = Door Width Min 700mm to Max 900mm Magnet Length 900mm = Door Width Min 800mm to Max 1000mm Magnet Length 1100mm = Door Width Min 1000mm to Max 1200mm **Note:** Door position and alignment to magnet can be left side, right side or central depending on requirement.

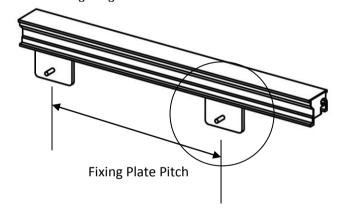


2.3 Hanger Assemblies



Position of hangers – Hangers should not be closer than shown. If the pitch is too close, the door will not move smoothly. Fix with M8 Bolts supplied.

2.3.1 Moving Magnet



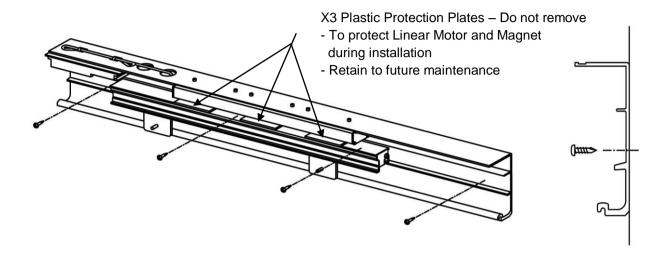
Fixing Plate Pitch Adjustment – Loosen x2 M4 screws and adjust the position of the fixing plate to same distance as Hanger on door. (do not forget to re-tighten).

Note: Adjust Fixing Plate of Closing side only.



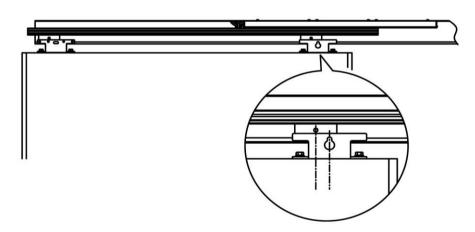
2.4 Installation of Operator

Using appropriate fixing, attach operator to horizontal surface.



2.4 Installation of Door

Step1. Position door without fixing.

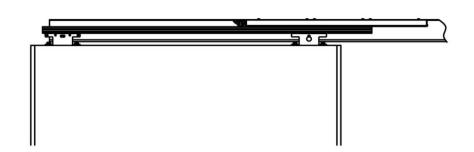


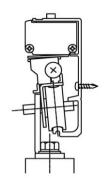
Step2. Hanging Door – Use 1st





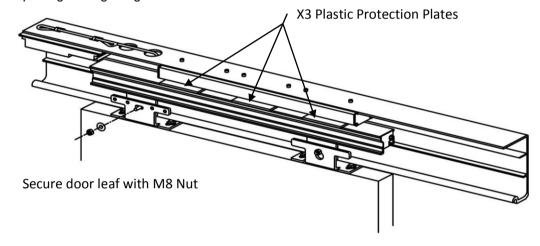
Step3. Hanging Door – Use \bigcirc 2nd

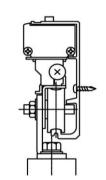




Door mounted without tightening hangers

Step4. Tightening hangers with M8 nut.





Once bolts are tightened, door and hangers will be aligned.



2.5 Plastic Protection Plates

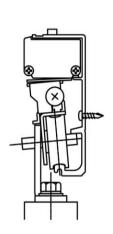
It is important to have x3 plastic protection plates in place when installation is being carried out. These plates protect the Linear Magnetic Motor and the Moving Magnet from being in contacting with each other and causing damage. As well as maintaining the correct 2mm distance between the Linear motor and moving magnet before the hanger assemblies are tightened.

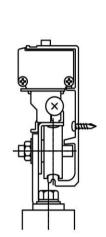
Note: Please keep protection plates for future maintenance requirement.

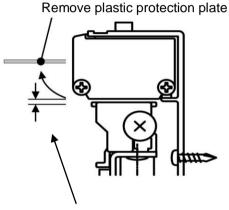
With door hung on Hanger bracket but not tightened, ensure plastic protection plates are in place.

Tighten M8 nut with flat washer

Maintain exact Horizontal and Vertical alignment.

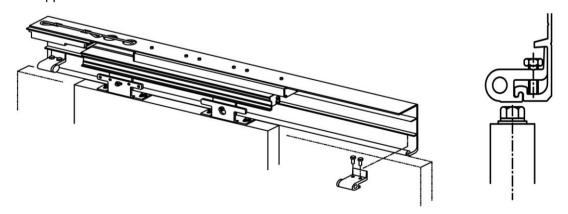




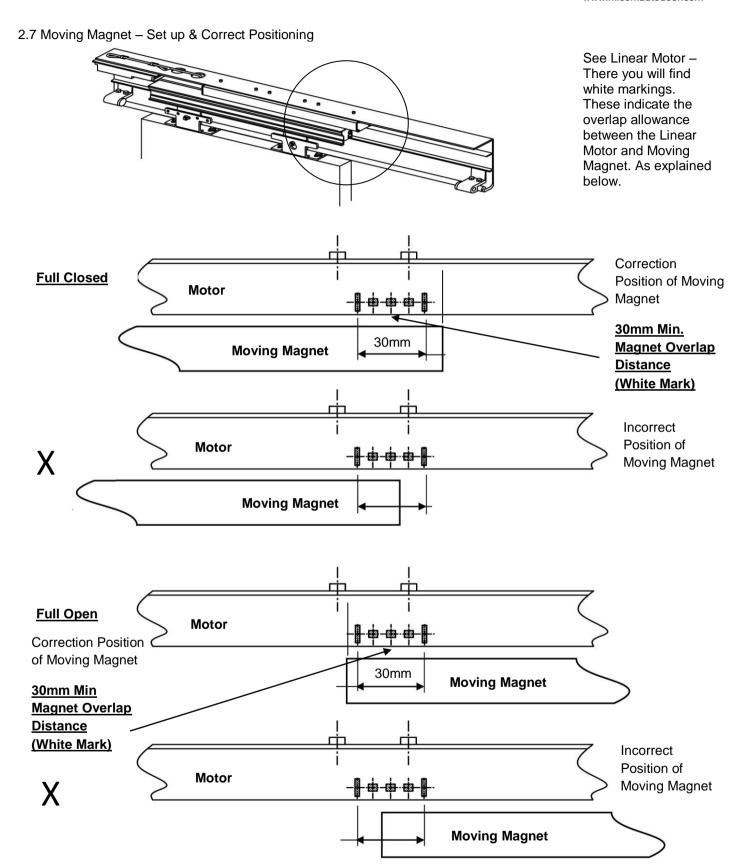


IMPORTANT: Confirm linear motor and moving magnet are EXACTLY 2mm horizontally and vertically aligned along length of motor. (use plastic protection plate to check). Motor and magnet should not be in contact with each other at any point.

2.6 Stopper Installation







Note: If there is not enough overlap, this will be cause of defective operation.



2.8 Wiring

2.8.1 Power Input & Mains Switch



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

2.8.2 Harness Wiring

Activation Input (SS)

	-,
Cable	
Red	Activation Signal Input
Green	Common
Black	AC100V output (Japan use only)
White	AC100V output (Japan use only)

Vi-Part & Function Input/Output - AUTO Type Only

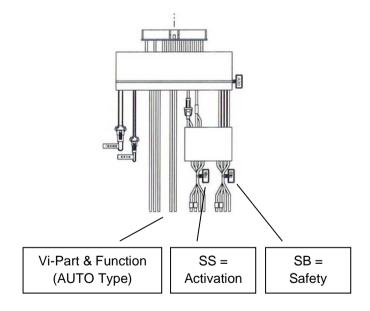
Cable	
Yellow	Closed End Signal Output
Blue	Common (Closed End Output)
Purple	Bi-Parting Signal Input
Orange	Bi-Parting Signal Output
Green	Ground

Notes:

- Model MM50 & MM80 is a NC (Normally Closed) circuit. 0 Voltage output of SS, SB, Vi-Part & Function Cables. 100V AC 1A output of Black and White cables to be isolated (Japan use only).

Threshold Safety Input (SB)

Cable	
Red	Safety Signal Input
Green	Common
Black	AC100V output (Japan use only)
White	AC100V output (Japan use only)





3. Operation

3.1 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 Fully Open / Close. 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.

3.1.1 Learning Operation - Door Starting Position:

(a) Closed -

Activate to start the teaching process. 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.

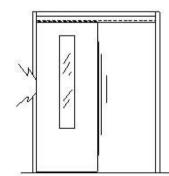
(d) Teaching Complete -

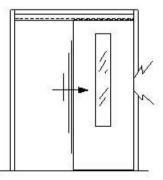
Once the door has opened fully and then returned to the fully closed position and stopped – teaching is complete.

3.2 Normal Operation

After the teaching process is successfully completed, the operator will be ready to accept all customary activations. With door in closed position, it can be activated to open. After pre-set open time, the door will close. It will re-open if any activation signal or safety signal is turned 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 re-opens automatically. The operator is not installed correctly. Please contact your MICOM Representative or email: info@micomautodoor.com

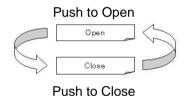


3.3 Activation & Functions

Not only can the operator be activated by all customary sensors and activation devices, but also by hand activation. Please see supporting Wiring Diagrams for accessory options.

MM50 & MM80 incorporates an assist activation function as standard. Moving the door by hand in the direction of open for 2cm will activate the door. After pre-set open time it will close automatically.

- a. Activation by Hand (Push & Go) (Auto & Assist Type) By simply pushing the door in the open direction for 2cm, the operator will be activated and carry out automatic open and close cycle.
- b. Hold Open by Hand (Assist Type) By holding the door in the full open position, an audible signal will be heard. The door is now in Hold Open. To close, again simply pull the door, no more than 2cm and the door will automatically close.
- c. Free Stop (Assist Type) Once door is in motion, hold the door (by handle if fitted) at any position before it reaches the full open position. The door will stop and be free to move by hand as a manual sliding door. To re-activate, return the door to full closed position.
- d. Partial Open (Assist Type) Partial Open is adjustable by the Partial Open adjuster. Adjustable range 0 = 50% to 10=100% Open. Factory Setting at 100% Full Open. Partial open is a fixed setting by control. The use of a Partial Open Switch Selection is not applicable. Partial Open % setting is effective after activation through SS input. When activation by hand (Push & Go), Partial Open % setting is ignored and door opens to 100% Full open.
- e. Ratchet Function (Auto & Assist Type) By use of the Open Timer Setting Adjustment Turning the timer to max, the Ratchet Function will be enabled. Ratchet operation enables the door to be opened and closed with a switch.



Caution: It is not recommended to use an activation sensor for Ratchet Function. See Section 3.3

Ratchet Function with E-Lock – it is not possible to use Assist Activation (Push & Go) feature as the door cannot be opened by hand. The door must only be activated by a switch.

3.4 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.

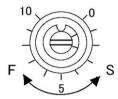
The door will then close after the preset open time at slow speed. Should the door find the obstruction again, the door will stop. Door will return to operation upon the next activation signal. With the obstructing cleared, normal operation will continue.



4. Operation Adjustment

4.1 OPEN SPEED - ADJUSTER 1.

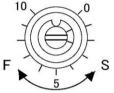
Open / Close Speed is adjustable by the speed adjuster. Turning Right = Faster (F). Adjustable range is $200\sim500$ mm/s. Factory Setting Speed: Open Speed at 400mm/s / Close Speed at 300mm/s.



4.2.1 AUTO TYPE: CLOSE SPEED - ADJUSTER 2.

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

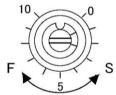
CAUTION: It is recommended not to set the Close Speed to max for safety or pedestrians.



4.2.2 ASSIST TYPE: PARTIAL OPEN ADJUSTER 2.

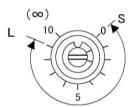
Partial Open is adjustable by the Partial Open adjuster. Adjustable range 0 = 50% to 10=100% Open. Factory Setting at 100% Full Open.

Note: Partial open is a fixed setting by control. The use of a Partial Open Switch Selection is not applicable.



4.3 OPEN TIMER & RATCHET - ADJUSTER 3.

Open time will begin when the door has reached its full open position. (Turning Right = Longer (L)). Adjustable range is $1\sim10$ sec. (Factory Setting Open Time: $2\sim3$ sec)



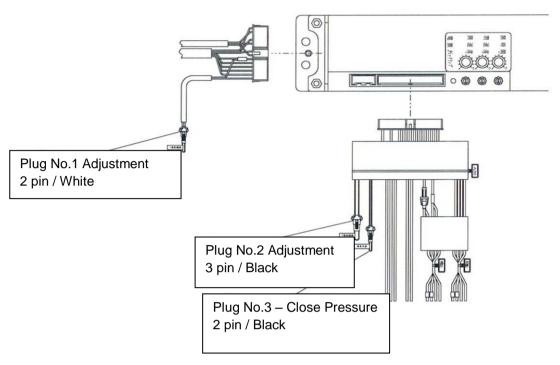
4.3.1 Ratchet Function

Turning the adjuster to max, open time will become infinite (no limit). The door will stop at the open position which is known as Ratchet Function (or Flip Flop). See Section 2.5

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



4.4 AUTO Type - Open / Close Breaking & Sensing Function (with Bi-Part)



4.4.1 Close Pressure Adjustment

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Plug No.3 – Close Pressure	Close Pressure	
Connected	On = ACTIVE (Factory Setting)	
Disconnected	Off = NOT ACTIVE	

4.4.2 Open / Close Breaking Force Adjustment

Procking	Breaking Level Plug No.1 Plug No.2 White Plug No.2	Plug No.1	Plug No.2	Applicable Door	
breaking		White	MM50 Single	MM80 Single	
Heavy	1	Connected	Disconnected	40-50kg	40-80kg
	2 (Factory Setting)	Connected	Connected	30-40kg	30-40kg
	3	Disconnected	Connected	20-30kg	20-30kg
Light	4	Disconnected	Disconnected	20-25kg	20-25kg

NOTE: Above door size and weight should be used as a guide only. Please check breaking force setting by sight.

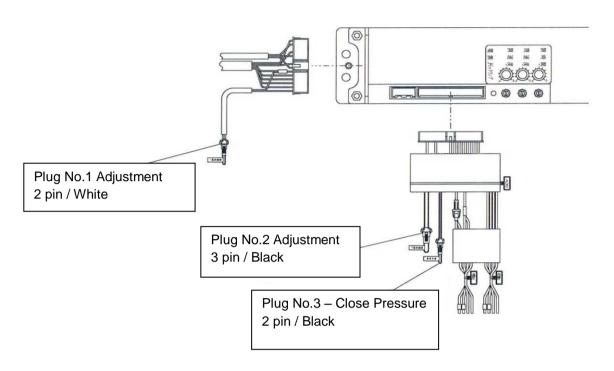
For Example: Door Open / Close Force Level '2' = Factory setting Plug no.1 & Plug no.2 – Connected.

If the braking is too weak (door hits a little hard) - Set to level '1' = Plug no.2 – Disconnect & Plug no1 - Connected.

If the breaking is too hard (door jumps) – Set to level '3' = Plug no.1 – Disconnect & Plug no. 1 – Connected.



4.5 ASSIST Type - Open / Close Breaking & Sensing Function



4.5.1 Close Pressure Adjustment

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Plug No.3 – Close Pressure	cure Close Pressure	
Connected	On = ACTIVE (Factory Setting)	
Disconnected	Off = NOT ACTIVE	

4.5.2 Open / Close Breaking Force Adjustment

Drooking	eaking Level Plug No.1 Plug No.2 White Plug No.2	Plug No.1	Plug No.2	Applicable Door	
breaking		MM50 Single	MM80 Single		
Heavy	1	Connected	Disconnected	40-50kg	40-80kg
	2 (Factory Setting)	Connected	Connected	30-40kg	30-40kg
	3	Disconnected	Connected	20-30kg	20-30kg
Light	4	Disconnected	Disconnected	20-25kg	20-25kg

NOTE: Above door size and weight should be used as a guide only. Please check breaking force setting by sight.

For Example: Door Open / Close Force Level '2' = Factory setting Plug no.1 & Plug no.2 – Connected.

If the braking is too weak (door hits a little hard) - Set to level '1' = Plug no.2 - Disconnect & Plug no1 - Connected.

If the breaking is too hard (door jumps) – Set to level '3' = Plug no.1 – Disconnect & Plug no. 1 - Connected



5. 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?

6. Specification

6.1 Technical

Model	EDM MM-50 EDM MM-80		
Application	ASSIT=Single AUTO=Single or Vi-Part	ASSIT=Single AUTO=Single or Vi-Part	
Door Weight (max)	20-50 Kg per Leaf	20-80kg per Leaf	
Power Supply	100V AC (Control 100V AC +/-	- 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	1~10sec Max – (Factor Default 3sec) & Ratchet (Flip Flop)		
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)		



MM50 & MM80 - Harness Wiring & Connections

A. ACTIVATION SIGNAL INPUT

RED = ACTIVATION (SS)

GREEN = COM

WHITE - 100VDC (Japan Only)

BLACK - 100VDC (Japan Only)

B. THRESHOLD SAFETY SIGNAL INPUT

RED - ACTIVATION (SB)

GREEN - COM

WHITE - 100VDC (Japan Only)

BLACK - 100VDC (Japan Only)

C. VI-PART & FUNCTION SIGNAL

INPUT/OUTPUT

 ${\sf BLUE-COM}~({\sf CLOSE}~{\sf END}~{\sf OUTPUT})$

YELLOW - CLOSED END OUTPUT

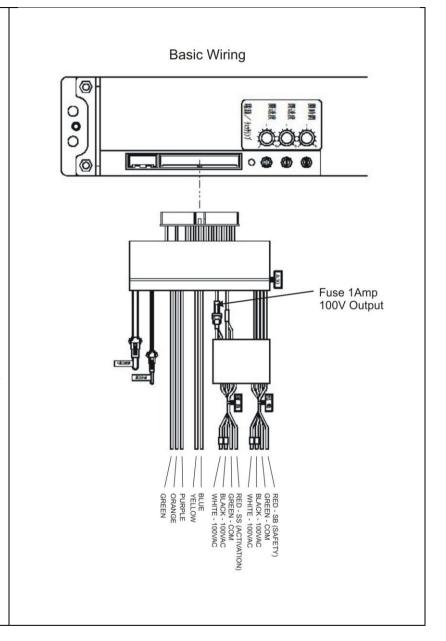
GREEN - COM

ORANGE – VI-PARTING OUTPUT

PURPLE – VI-PARTING OUTPUT

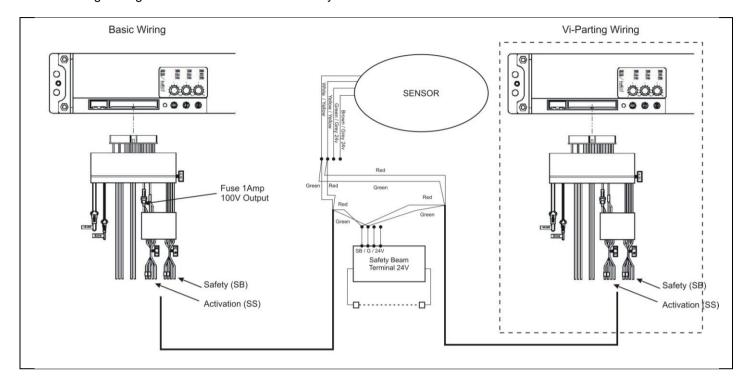
Note:

- Model MM50 & MM80 is a NC (Normally Closed) circuit.
- 0 Voltage output of SS, SB, Vi-Part & Function Cables.
- 100V AC 1A output of Black and White cables to be isolated (Japan use only).

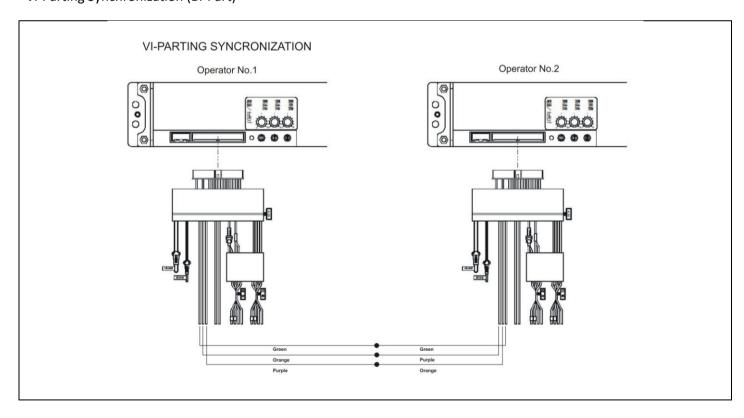




Basic Wiring - Single & Bi-Part - Activation & Safety

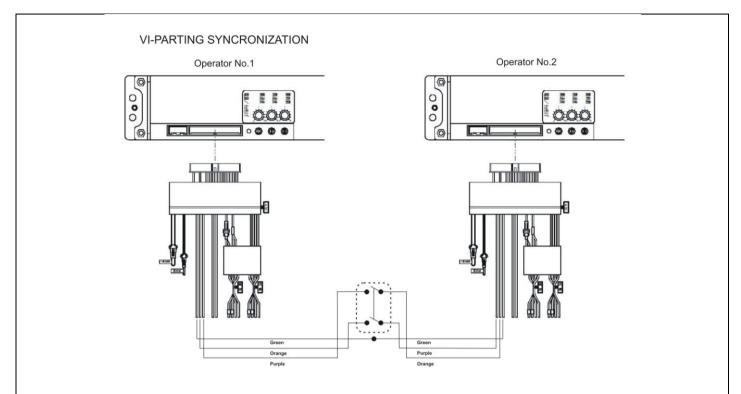


Vi-Parting Synchronization (Bi-Part)



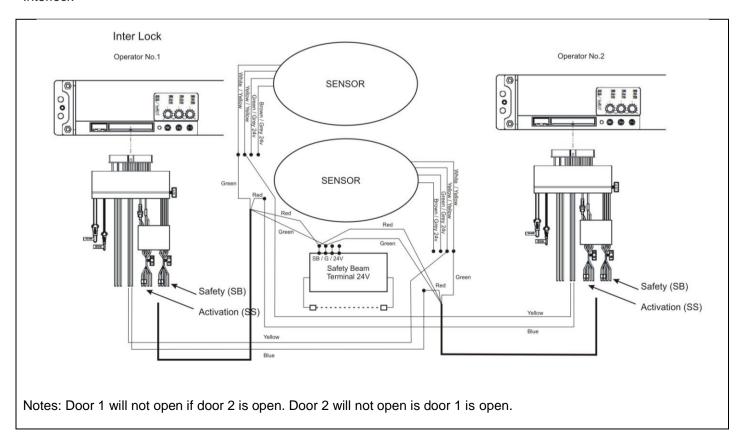


Vi-Parting Synchronization (Bi-Part) or Individual Operation by Switch



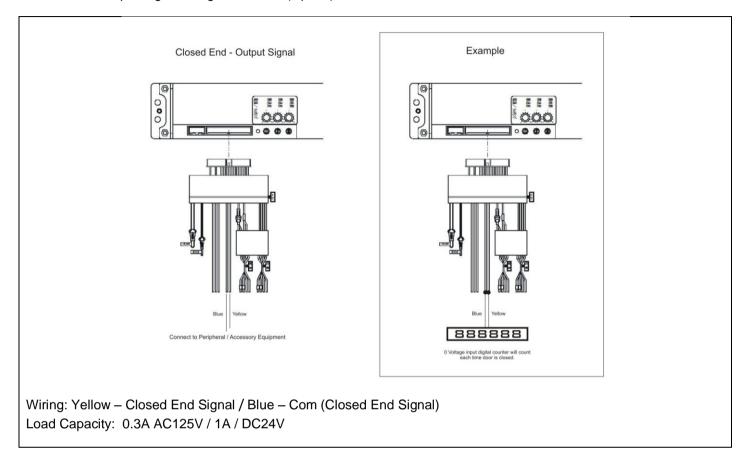
Notes: When door is synchronized using Vi-Parting connection, it is possible to include a switch to change operation for Single Door use. SWITCH ON = Synchronization | SWITCH OFF = Individual

Interlock

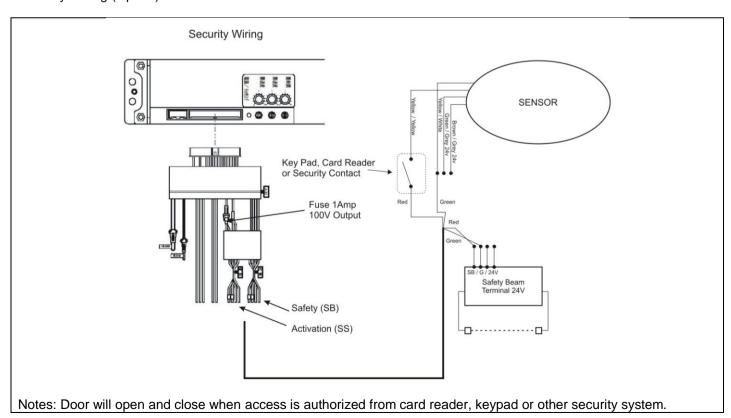




Closed End Output Signal – Digital Counter (Option)

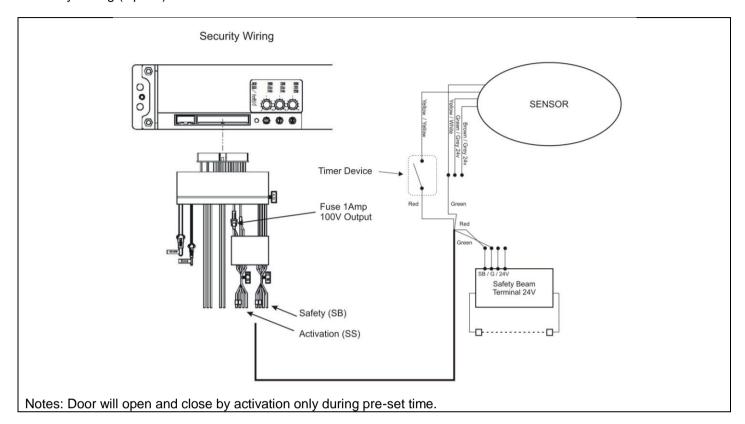


Security Wiring (Option) - Access Control

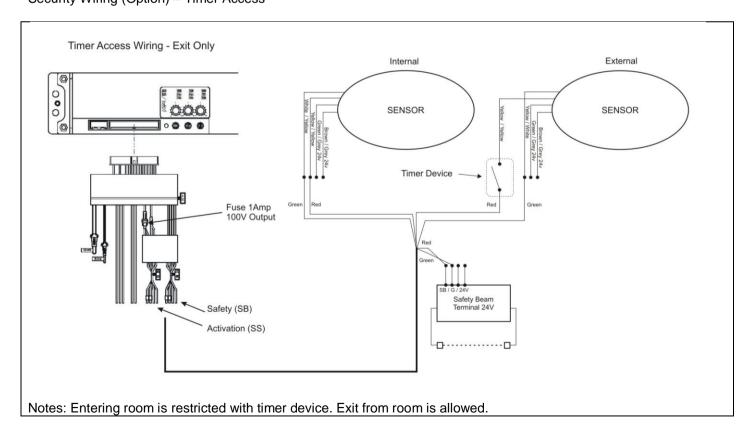




Security Wiring (Option) - Timer



Security Wiring (Option) - Timer Access





6.2 Applicable Door Size

MM50 & MM80		Rail Length (mm)	Entrance Width (mm)
Standard Size Option	Single - Left / Right	1666 / 1925 / 2232 / 2512 / 2710	833 / 962.5 / 1116 / 1256 / 1355
Cut to Size (Made to Order)	Single	1500 - 1800	750 - 900
		1801 - 2200	900 - 1100
		2201 - 2710	1100 - 1350
		2711 - 3200	1355 - 1600

7. Electronic Lock (Option)

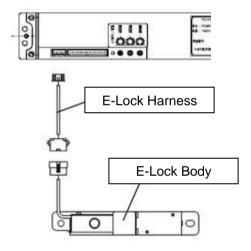
NOTE: E-Lock is available with AUTO type only. Assist type does not support E-Lock. E-Lock offers LK1 FAILSAFE (UNLOCK without power) function only.

If an E-lock is fitted, it is not possible to open the door by hand. The door will be unlocked upon an activation signal to the controller and open automatically. Once a full open and close cycle has been performed, the door will 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.

7.1 Teaching with E-Lock

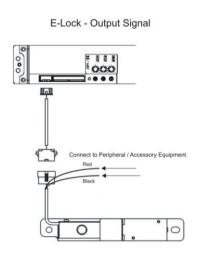
LED will flash RED with Buzzer.

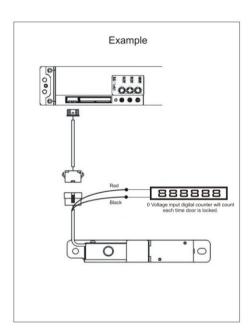


Lock output Signal (Option – With Counter)

Wiring: Red – Lock output signal Black – Com

Load Capacity: 0.3A / AC125V / 1A / DC24V







8. Health & Safety

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

8.1 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)

8.2 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).

8.3 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.



8.4 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, Prism	atic and Folding Door
y , ,	<u> </u>
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 Fit	ted
Escape System	
Fail Open: Active / Not Active Breakout: Fitted / Not fitted	Droot, out force, N
Breakout: Fitted / Not litted	Break out force: N
Cianaga Fittadi V/N	
Signage Fitted: Y/N	
General Comments:	
General Comments.	
Name:	Time:
Signed:	Date:
	· ·