

MICOM AUTODOOR Automatic Sliding Door Operator Model: EDM18G

Original Instructions

INSTALLATION MANUAL





OSAKA – JAPAN
www.micomautodoor.com

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IMPORTANT NOTICE

	Please read these instructions carefully before installing the door operator. We are not responsible for any loss or damage if these precautions are not followed.
	During maintenance and installation, the power switch of the control unit should be turned to the OFF position.
	Please use the correct power supply
	Make sure that the operator is grounded or connected to earth! The coating of the operator is made of an electrically conductive metallic material, which will easily induce electrical conduction! Ensure the ground or earth wire is connected!
	The operator housing is not completely sealed, therefore it should be noted that excessive moisture or a corrosive atmosphere could destroy the electronic components contained within.
	Do not remove screws and bolts from the internal structure of the Control Unit. Do not intend to open, repair or alter any part of the Control Unit. The failure to comply results in loss of warranty.
	Installation and maintenance of this product can be performed by MICOM authorized personnel only.
	Before switching ON the power supply, make sure that no objects obstruct the travel of the automatic doors.
	Follow all indicated instructions, as improper installation could cause severe damage.
	Please keep these instructions.

 **IMPORTANT SAFETY NOTICE!!!** 

When the door starts for the first time, it will automatically perform a series of opening and closing cycles (normally between 3 to 5 times) – Known as teaching or self-learning mode.

Please note these learning cycles are performed at high speed without safety features enabled.

Keep clear of the entrance and doors. Ensure that no pedestrians pass through the doors during the initial learning, installation or maintenance. Keep clear of doors when opening or closing during learning. It is advisable to identify and restrict the area with warning signs.

MAIN FEATURES

Control System Features

- Universal Voltage Acceptance AC85V to 265V Range
- Auto-Flush Control Re-set
- Long Term Memory when Power Off
- Simple Activation Input Connections
- 24V DC Power Output Supply
- Sensor Switch Activation Indicator
- Activation Test Switch
- Automatic Slow Speed and Braking Force Adjustment

Motor System Features

- Brushless Molded DC Motor
- Adjustable Speeds 250mm/s ~ 500mm/s

Product Summary

- Quick Set Up and Installation
- DC Motor & Microprocessor Control System
- Adjustable Open / Closing Speed
- Adjustable Open / Close braking Power
- Automatic Open / Close Braking Position
- Auto Reset & Re-start on Overload
- Auto Reverse on door blockage
- Half Open Function
- Open Timer (0 to 30 Seconds)
- Press Closing feature
- 2 Yrs Warranty on Control & Motor
- Electromagnetic Lock and Anti Panic System (optional)
- Selector Switch with Night Feature (optional)

Features Summary

High performance

(a) A DC brushless motor is used which produces minimal heat, the system will not be overloaded by motor temperature problems which would sometimes occur with traditional AC motors, therefore with no interruption to door operation.

(b) Quick Operation

Door operation is safe & reliable because of the opening / closing speed range. 500 mm/sec (max)

(c) Durable & Noise Free

Use of a brushless molded motor and strictly enclosed reduction gear ensures silent door operation, requiring no maintenance and improving door durability.

(d) One Time Teaching Stroke

Door stroke & breaking point are automatically set by teaching mode, this data is retained in the control box even when power supply is switched off.

Multiple functions

(a) "Half Open" Function

A "half open" switch is provided to enable easy half open operation. The stroke of half opening can be adjusted to 50% of the full open stroke. Using the selector on the control box, the user can choose the Automatic half open mode. The door is controlled with the half open or full open switch, depending on light or heavy traffic.

(b) Fault Detecting

If any problem occurs in the door drive system, for example, if the door is locked or is stopped due to a broken drive belt. The Automatic fault diagnoses system detects the problem and shuts off the power to the motor. After a 12 second period the power is automatically re-introduced.

(c) Press-closing function

When the door is at the closed door position, the door is pressed against the door frame so that no gap will be left between the door and frame, eliminating drafts or escaping air conditioning.

Automatic adjustment: Braking position

When the door is closing over a certain distance, the braking position on the closing stroke is automatically adjusted so that the door will automatically brake and reduce speed independent of the door weight or the running resistance.

Safety Features As Standard

(a) Automatic Stop & Automatic Re-Open.

If the door is forcibly stopped on the opening stroke due to a blockage, the power supply to the motor is automatically shut off. With automatic re-start after 15 seconds.

However, if this occurs on the closing stroke, the door movement will automatically go into a reverse action to fully open the door. The door then begins to close at low speed, if the door encounters the blockage again, the power supply to the motor will be shut off. (In both cases auto re-start will commence after 15 seconds)

(b) Safety beam sensor

A safety beam sensor can be fitted to the operator. This sensor is active only when the door is open; It does not operate when the door is fully closed.

Overload Detection & Automatic Reset

If an excessive load is applied to the motor for continuous 15 seconds or longer during a door operation, the power to the motor is shut off. After approx 15 seconds, door operation will automatically re-start.

Compatibility

There is no compatibility between YII/ZII and G type. However, installation size for C/box and M/G are same as YII/ZII.

E-LOCK Function

One shot lock (LK1 solenoid) is only available as an optional function:
Power on → unlock | Power off → Locked

1. Technical Specifications

	Single sliding	Double sliding
Model	EDM18G-S	EDM18G-D
Applicable door (Max.)	90 kgf	80 kgf × 2
Power supply/consumption	AC85V~260V 50,60Hz 1.3A(AC100V)	
Manual opening / closing force	24.5~39.2N (2.5~4kgf)	29.4~49.0N (3~5kgf)
Rated operation	Continuous Opening / Closing Assured	
Door opening speed	250 to 500 mm/s Adjustable	
Door closing speed	250 to 500 mm/s Adjustable	
Door open.close force	High speed 137.2N(14kgf) Low speed 78.4N(8kgf)	
Motor	Brushless Molded DC Motor	
Reduction gear	Enclosed Belt System	
Control system	Microprocessor Control	
Braking stroke adjustment	Auto Adjustment	
Door opening time	0 to 30 seconds Adjustable	
Elimination of door-to-frame gap	Electric pressure at low voltage Pressing force is 39.2N(4kgf).	
Obstruction Safety functions	Obstruction when opening - Safety stop	
	Obstuction when closing - high-speed reverse opening, followed by low speed closing and door stop.	
Failure detection	Automatic reset by sensorsignal or after 12 seconds.	
Energy saving (optional)	50% half open operation is available.	
Operating environment	Ambient temperature: -20c to +50c (no condensation or icing) Ambient humidity: 30% to 85% RH (no hazardous materials must be present in the atmosphere.)	
Insulation resistance	10 MΩ or more at 500V DC	
Dielectric strength	AC1000V for one minute	

2. Construction

The EDM18G is an automatic door operator which consists of a motor to drive the door, a control box to control the reduction gear and the motor, a drive belt to convert rotary motion of the motor into horizontal motion, plus fixtures, rollers and rails to carry and support the door. These components are enclosed in an aluminium enclosure or header located above the door. Activation is via a sensor switch or similar device which detects any human, cart or other object. The signal from this sensor switch is sent to the control box, which opens or closes the door. The layout drawing below shows the flow of driving power and control signals.

Motor and Reduction gear

A brushless molded DC motor is used to ensure quiet operation as well as durability. The reduction gear is of a dual reduction type and housed in a die-cast aluminium cases. Flange-coupled with the motor assuring secure enclosure, low-noise operation, as well as superior durability.

To prevent slippage, the drive belt has teeth to engage with the reduction gear output pulley. The connector to link the belt and the door is made of galvanized iron plate.

Control Box

This control box contains two printed circuit boards, one is a motor circuit board to produce high speed, low speed and braking modes for the motor, and the other is a control circuit board to control these modes. These circuit boards are furnished with a number of IC's. Particularly, in the Control circuit board, a microcomputer is provided to execute failure detection, half opening operation and many other functions.



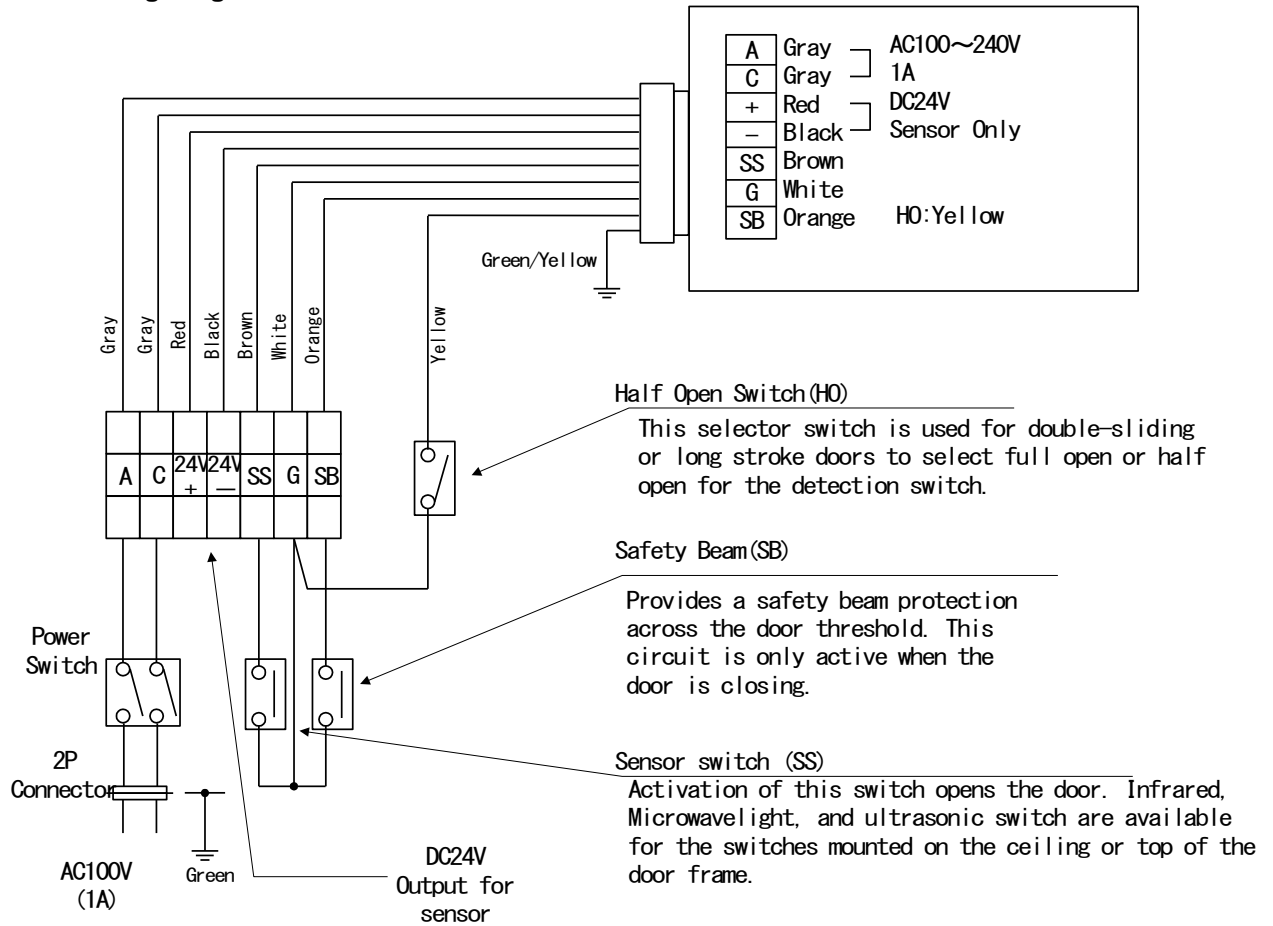
Hanger Roller Bracket

The hanger roller brackets are made of iron plate and are connected to the door with bolts. Each pulley has greased sealed ball bearings and polypropylene rollers. The rail is extruded aluminum. For installation of fire doors, the pulleys and rail are made of iron. (EDM-30 version)

Sensor

Sensor switches are available in various types: Infrared, Microwave, Ultrasonic, electronic mat, rubber mat, tough, loop coil, push-button and other switches. Select the one best suited for your requirements.

3. Wiring Diagram



4. Operation

EDM 18G door operator utilizes a microcomputer which reads the number of pulses from the motor, memorizes the door stroke, then automatically adjusts the braking position and half open position. This automated process eliminates the need of a position detecting switch and adjustments of the braking position etc.

The following describes the operations of this door operator, starting from power switch on.

It is necessary to memorize door stroke and this is automatically done on the initial teaching stroke when start-up of the installed operator occurs.

- (a) When power is turned ON, the door starts to close at low speed, with closed door position memorized.
- (b) Upon receipt of the first ON signal from the sensor switch, the door operator opens the door at low speed. When the door stops at the fully open position the operator memorizes door stroke. The teaching process is now been completed.
- (c) Then the door closes at normal speed.
- (d) After a few operational cycles the door opening/closing, braking position is adjusted automatically about 50 - 70mm of low speed area. Door stroke and braking position are always memorized in the control box even when the power supply is turned OFF.

Memory

- (a) About 3 seconds after power switch is turned ON, the door starts to close at low speed and finally presses against the door frame to close completely. (When the door is fully closed, it is pressed against the door frame about 3 seconds later). After the operator learns the door closing position, the door opens/closes normally.
When the operator receives a sensor or safety beam signal during the above closing cycle, the door starts open at low speed. Once the operator knows the door opening position, the door opens/closes normally.

Opening / Closing Operation (normal door operation)

When the teaching process is complete the door starts to operate in the normal manner.

(a) Opening;

When the sensor switch is turned ON, the door opens at high speed and brakes just before the full open position. When it reaches the full open position, it is pressed open against the door frame. The door braking position is adjusted between 50-70mm automatically.

(b) Closing:

When the open timer has elapsed, the door closes at a set closing speed and brakes just before the fully closed position. When it reaches the full close position, it is pressed closed against the door frame. The door braking position is adjusted automatically between 50-70mm. If the sensor switch is activated while the door is closing, the door reverses its moving direction to open quickly.

Half Open Operation

Use the selector on the Control Box to select half open

- (A) Opening: When the sensor switch is activated, the door opens at high speed, slows down

immediately before the half open position. When it reaches the half open position, it stops and power to the motor is cut.

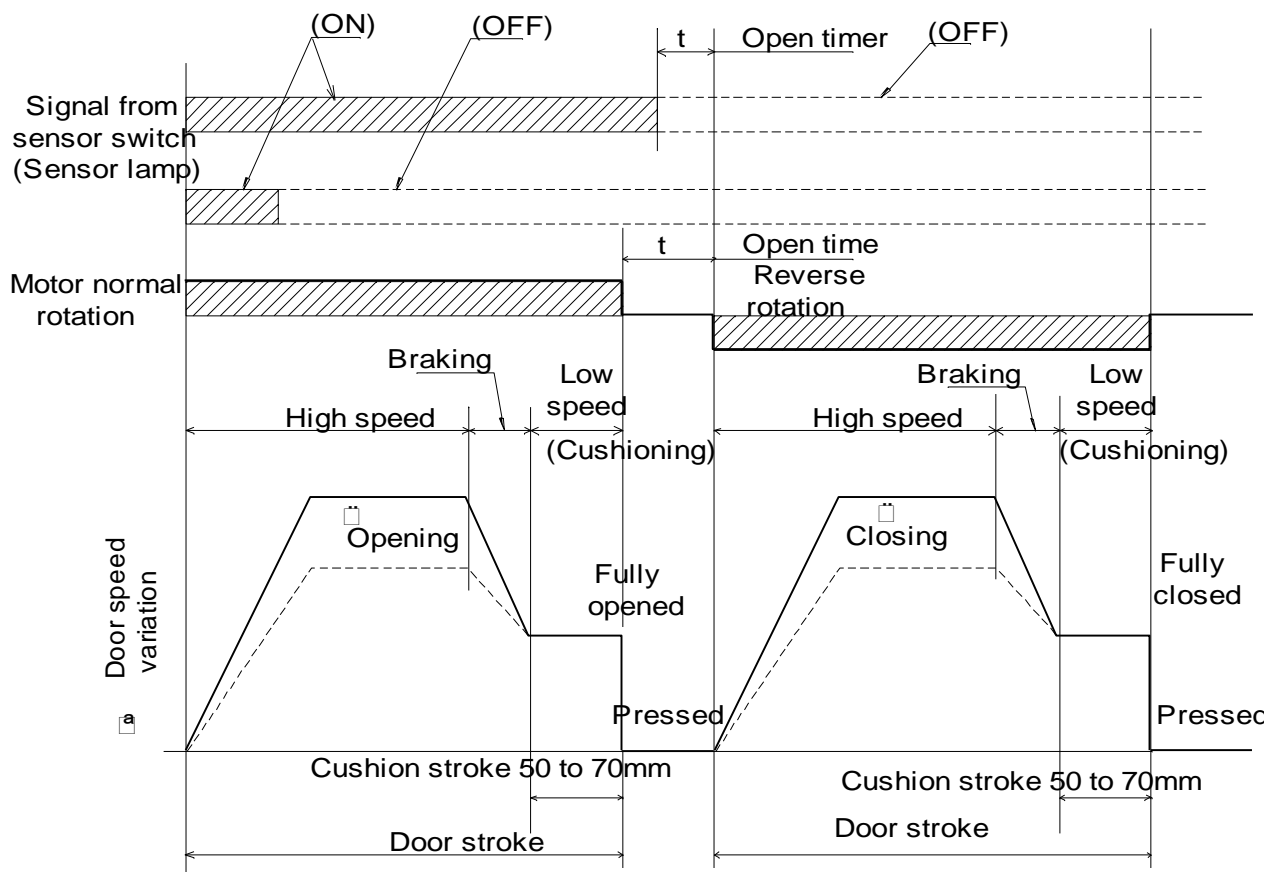
(B) Open door timer is engaged.

(C) Closing: The door closes the same way as in normal closing operation.

When automatic operation is selected, the door performs the following operation. If the sensor switch is kept activated for seven seconds or longer, the operator automatically slides the door to the full open position from the half open position.

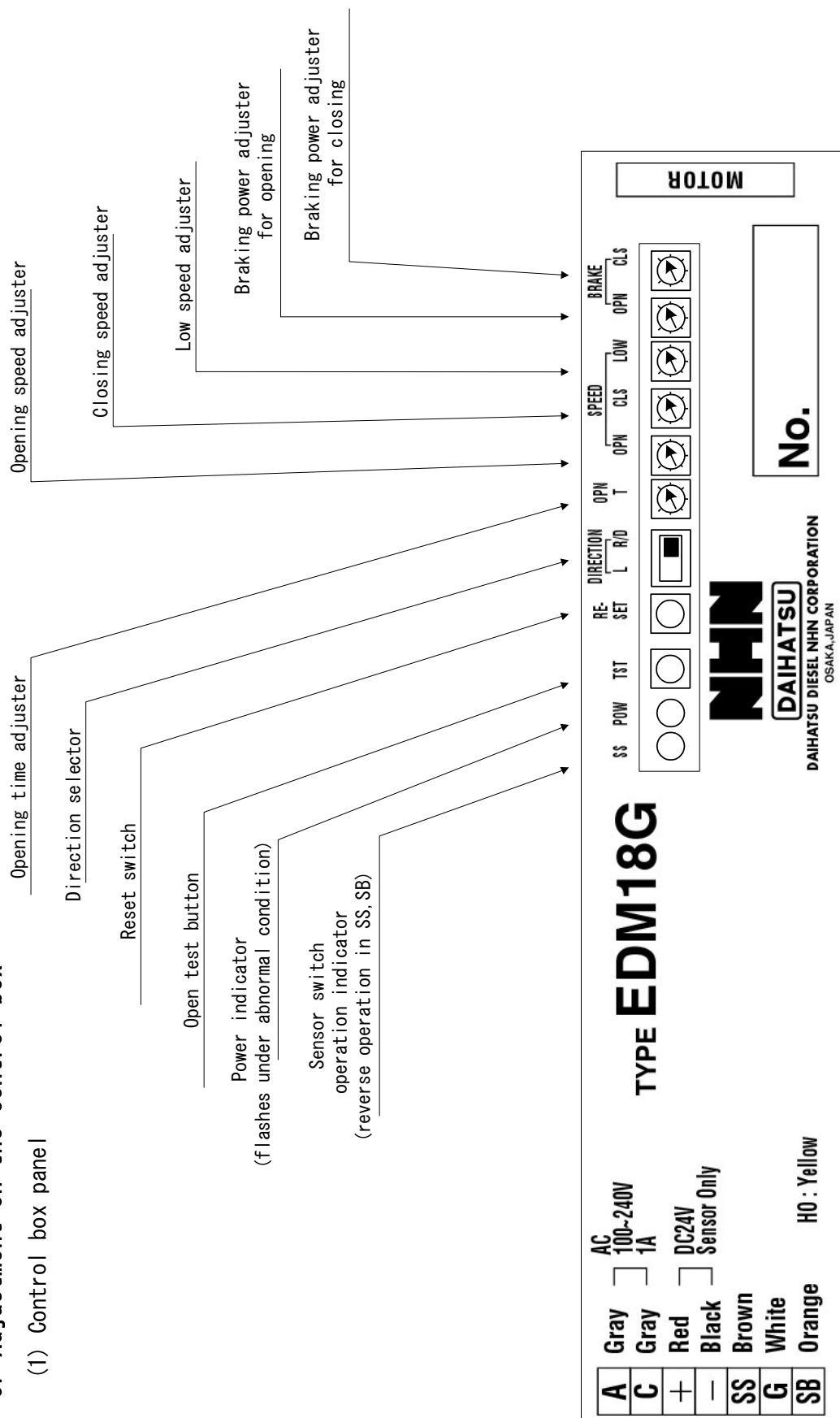
Half open position: Trouble detection

If any problem occurs in the door or drive system. For example, if the door is locked or it is jammed by any obstacle, or even if the belt is broken, then a sensor detects the disorder and shuts off the power to the motor.



5. Adjustment on the control box

(1) Control box panel

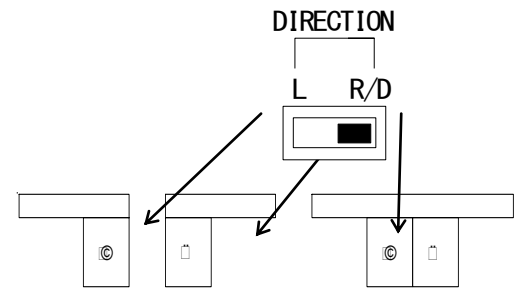


6. Setup & Adjustment

Adjust the following items before turning the power ON.

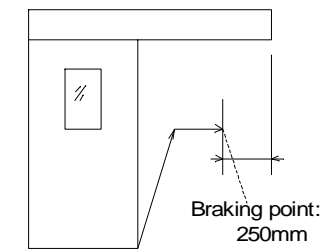
1. Direction selector switch

Single sliding, left opening: set to the "L" position.
Single sliding, right opening: set to the "R/D" position.
Double sliding: set to the "R/D" position.



2. Teaching Stroke: Memorizes the door stroke by teaching.

(a) After the power switch is turned ON, Green LED starts to flash.
(b) Then, push reset button.
(c) The door starts to close at the low speed and after closing, the door starts to open at the low speed. (During closing cycle, SS & SB signal is ignored.) After the door is at the fully open position, the operator has then memorized the full stroke within the control box and will then operate normally.

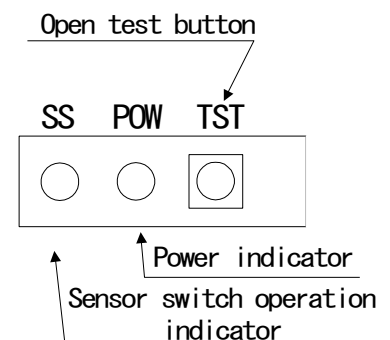


Memory Retention

The door stroke is memorized within the control box, even when the power supply switch is OFF. It is not necessary to re-adjust the door stroke. However original data can be deleted using the reset button.

3. Check the door movement by test button

Pushing the test button, the door opens at high speed with braking, to fully open position. After fully opening, the door starts to close at the high speed with braking, then to fully closed position

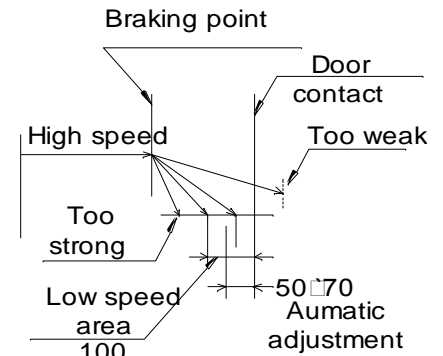


4. Sensor Switch

When Sensor Switch is activated, a red LED is ON (not test button).

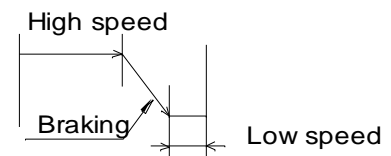
5. Adjusting the braking force

Adjust the opening/closing braking force to ensure a smooth operation. Turn this control button right or clockwise to increase the force.



6. Adjusting opening / closing speed

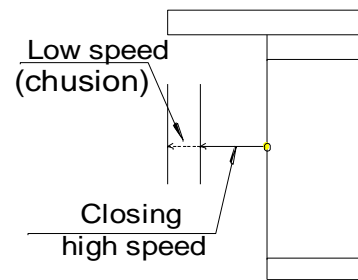
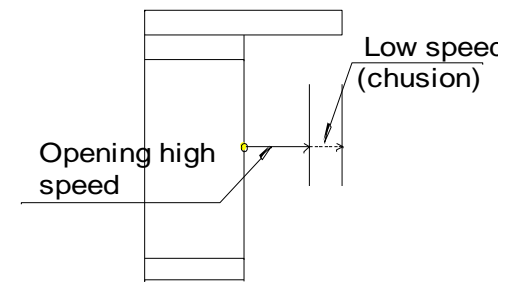
- Turn volume button to right or clock wise to increase the speed.
- Turn to the left or Anti Clockwise to decrease the speed. (250mm-500mm/s)



7. Adjusting the cushioning speed (low speed)

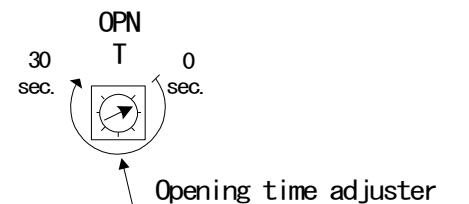
This feature is used to obtain a smooth braking and Cushioning speed after full braking. (50-60mm/s)
Too much low cushion speed may result in an uneven door operation.

Note: Make the final setting after checking the slow speed section during teaching process.



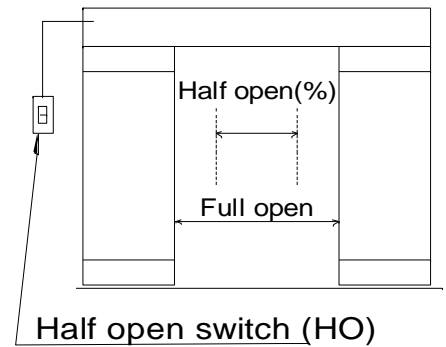
8. Adjusting the open timer

To adjust the open-door period between the Door at full open position and the door closing action. A range from 1 to 30 seconds in eight steps is available. Normally 1 to 2 seconds is used.



9. Half open operation switch

The half open stroke can be selected to 50%.
Note: Use of an external full open / half open selector (HO) switch to select half open operation is required. This switch is located next to main ON/OFF power switch.
(See: EDM 18G Model Parts List. Page 10. – Switch Assembly for Double Sliding Doors)

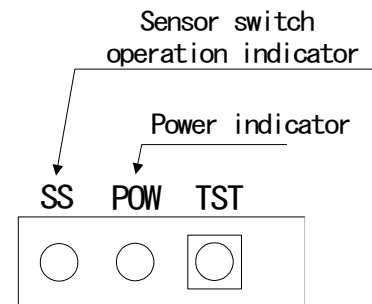


10. Trouble detection

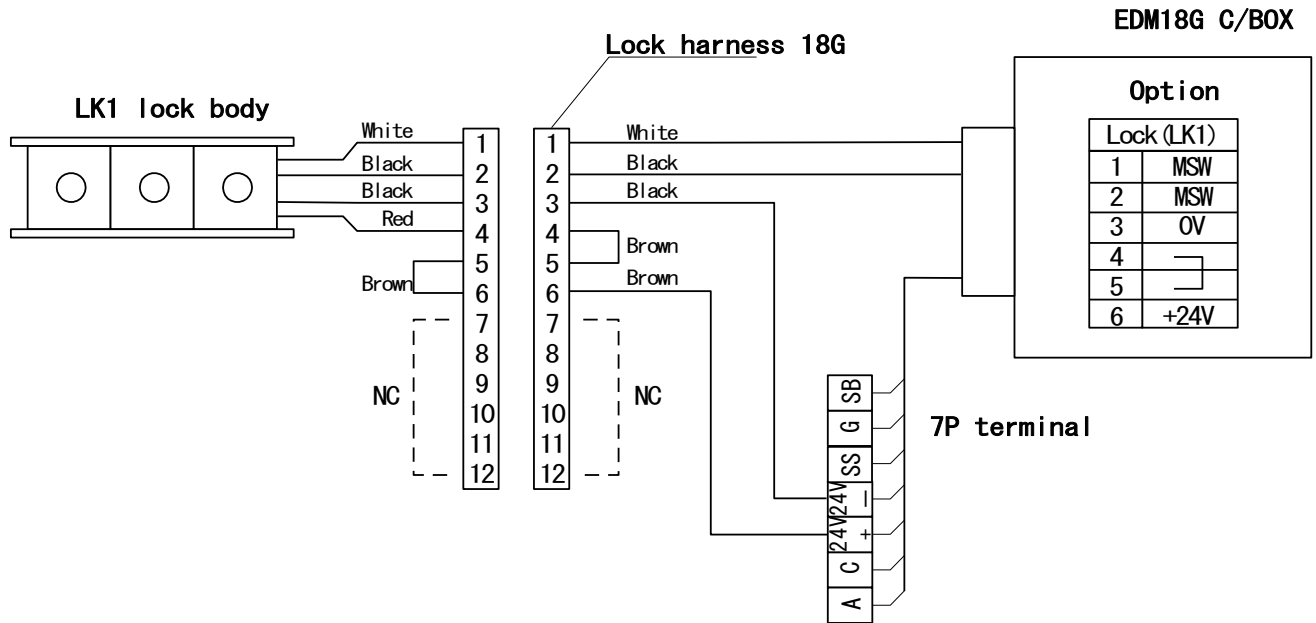
If any problem occurs in the door or drive system, The Power LED (green colour) will flash.

11. Sensor switch indicator

The red indicator illuminates when the sensor switch is activated. (This LED lights up when the controller receives an SS signal or when the door is re-opened at an SB signal.)
On malfunction or maintenance, check this LED for malfunction test of the sensor switch or wiring.



7. E-Lock LK1 (Option)



[POWER ON: LOCK OFF / POWER OFF: LOCK ON]

This section is how to connect the LK1 lock harness into the Control Box of EDM18G. In order to avoid injury & dirt, it is recommended wearing gloves for the following work.

Open the control box cover screwed by 4 bolts.
Disconnect Earth Wire from Bolt fixing.

MICOM Autodoor - Head Office Japan
12th Floor | Tower West | Umeda Skybuilding 1-30 | Oyodonaka 1-Chome | Kita-ku | Osaka 531-0076 | Japan
TEL: (0081) 6 6 454 9721 | FAX: (0081) 6 6 454 9726
E-MAIL: info@micomautodoor.com

MICOM Autodoor - Europe
2nd Flr . Dobson House | Regent Centre | Gosforth | Newcastle Upon Tyne | NE3 3PF | U.K.
Tel: (0044) 0191 2336323 | Fax: (0044) 0191 2840222
E-Mail: info@micomautodoor.com

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