P&M® automatic

MX1000 Installation Guide

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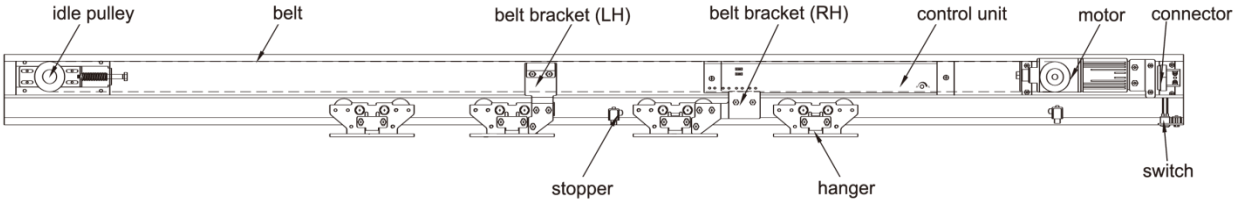
1) Things to Note

- The installation of automatic door should be entrusted to an appointed Installer or a professional installation team to prevent the possibility of injuries arising in the midst of installation
- The installation of automatic door must be executed in accordance with the relevant rules and regulations governing electrical installations.
- This installation guide must be kept well for future product maintenance purposes.

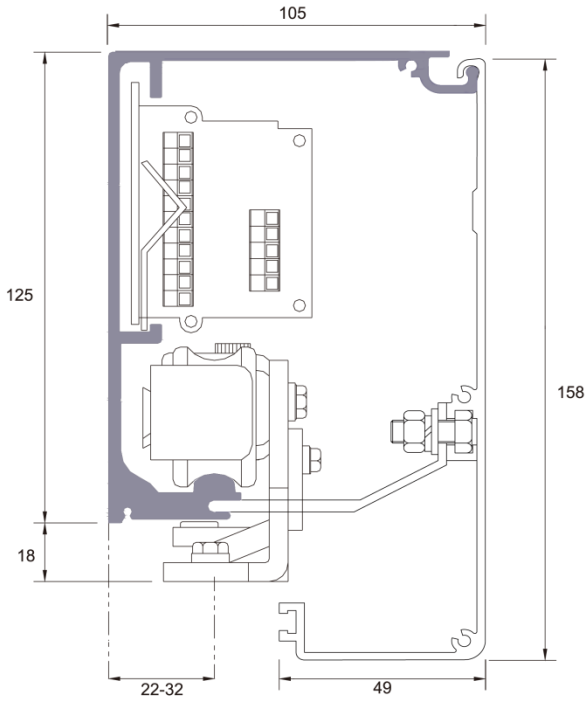
2) Safety Precautions

- Installation and adjustments must be carried out according to the installation guide
  - Carelessness in installation and adjustments may result in accidents such as fire, electric shocks & fall risks.
- During installation, ensure that the work area is condoned off and appropriate safety measures are taken.
- Never attempt to remodel the parts.
- Do not use the power beyond the stipulated voltage or frequency.
- The sensor should be set and adjusted to ensure that there are no blind spots.
- An auxiliary safety beam sensor is HIGHLY RECOMMENDED for the extra security that the whole walking area is covered.
- Do not use the door in a place subject to dampness, vibration or corrosive gas.
- Ensure that there is a space of more than 30mm available on each side after the door is opened.
- Do not cut off the power supply when the automatic door system is in operation.
- Please stick the adhesive tapes firmly on the door leaf
- Do not connect an electric device with a capacity of over DC24V,300mA to the plug of the controller to prevent fire risk.
- Other Precautions
  - Do not use a door leaf that exceeds the specified weight to prevent failure of system
  - If back up battery is used:
    - Charge the battery for 24hours before usage
    - The service life of a backup battery lasts for 3-5 years at an ambient temperature of 0°C - 40°C.
      - A temperature that is out of range will shorten the service life of the battery
      - If the battery does not work when the supply power is off even thought it has been charged for 24 hours, it time for a replacement of battery.
      - A bi-annual check of battery is required.
  - If electro-magnetic lock is used:
    - Ensure that the environment it is used in do not exceed an ambient temperature of 0°C - 40°C, else it may malfunction.
  - The drawings and specifications stated in this guide are for reference only. Kindly use it discretionally. Products are subject to changes without notice.

3) Positions of All Components in the Guide Rail



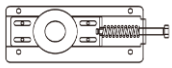
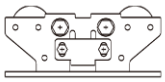
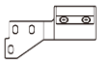
4) Side View of Guide Rail & Hanger



5) Technical Specifications

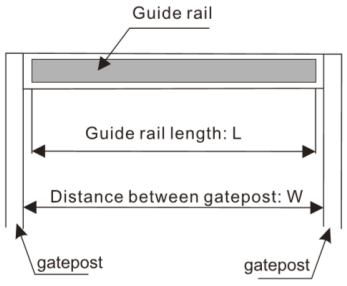
MX1000		
Door Panel	Single Leaf	Double Leaf
Door Weight (max)	150 kg	120 kg
Opening Width	1450mm - 3100mm	2500mm - 5000mm
Installation Method	Surface / Concealed Mounting	
Power Source	AC 110-220V ±10%, 50/60 Hz	
Opening Speed	150-460mm/s (adjustable)	
Closing Speed	130-460mm/s (adjustable)	
Hold-Open Time	0 - 8s (adjustable)	
Motor	DC 24V, 60W - 70W (DC, brushless)	

6) Components List

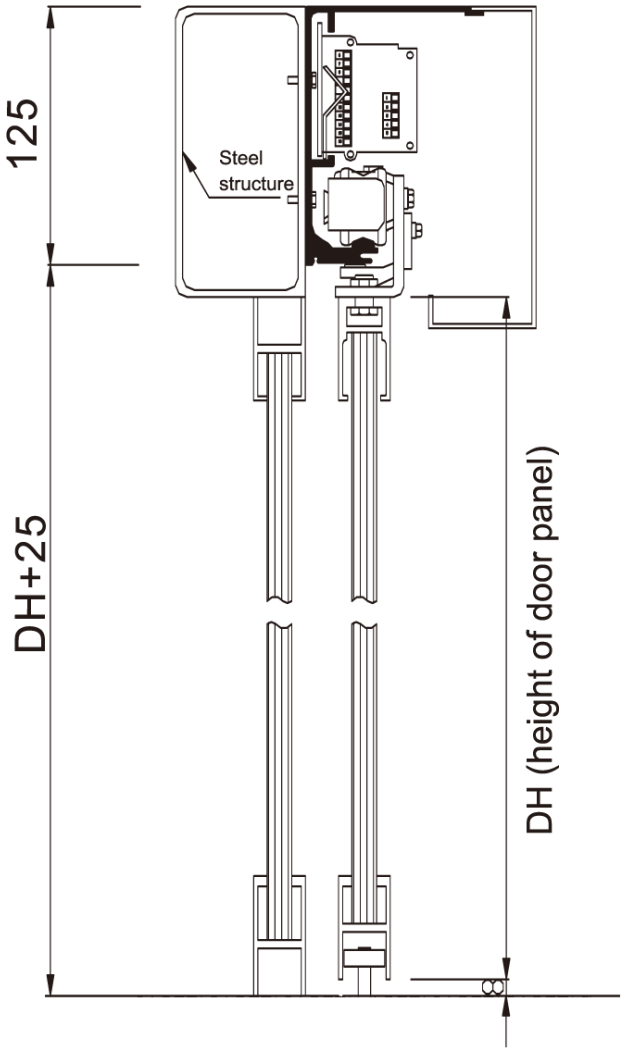
Description	
MX-1001 **Motor**	
MX-1002 **Contor Unit**	
MX-1006 **Pulley**	
MX-1011 **Terminal Switch**	
MX-1004 **Hanger**	
MX-1009 (LH) **Belt Bracket**	
MX-1009 (RH) **Belt Bracket**	
MX-1007 **Stopper**	
MX-1008 **Toothed Belt** 6m length	

7) Cutting and Installation of Guide Rail

- Cutting
  - Standard Length of the guide rail is 4.2m (2.1m*2), 2.4m or 6m (3m*2)
  - Cutting Formula
    - Length (L) = W (Distance between gatepost) – 10mm



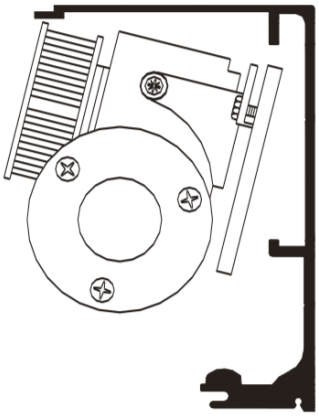
- Installation
  - Install the guide rail at a height of DH + 25mm from the ground (measure from the bottom of the guide rail)
    - Place the guide rail against the steel structure (or wall surface)
    - Measure the levelness of both ends of the guide rail
    - Temporarily fix each end of the rail unto the steel structure (or wall surface) with a self-tapping screw.
    - Once the final calibration is done, fix the remaining holes in the guide rail onto the steel structure (or wall surface) with self-tapping screws (or M8 expansion bolts)
    - NOTE:
      - The Guide Rail MUST be levelled
      - The height of the sliding door leaf is DH
      - The clearance height above the guide rail should be more than 50mm
      - The head of the screw/bolt must be fully sunk



8) Installation of motor

a. Hold the motor cable in the front of the motor
b. Insert the motor bracket top into the upper groove of the guide rail properly
c. Then insert the motor bracket bottom into the below groove of the guide rail
d. Move the motor to the right end of the guide rail
e. Tighten the mounting bolts
f. Make the motor cable pass through the top of the motor and come out from the left side

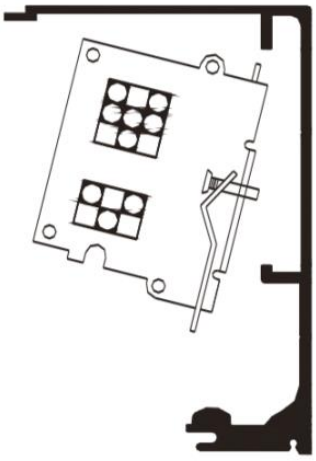
CAUTION: Mis-operation in Step b,c,e may result in the derail of motor.



9) Installation of Controller

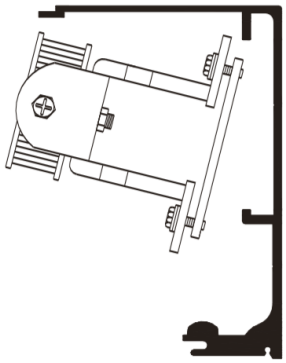
a. Insert the controller top firmly into the upper groove of guide rail
b. Insert the controller bottom into the below groove of guide rail firmly.
c. Move the controller to proper position for connecting with the motor cable and terminal switch cable
d. Tighten the mounting screws

NOTE: Mis-operation in step a & b may result in derail of controller.



10) Installation of Idle Pulley

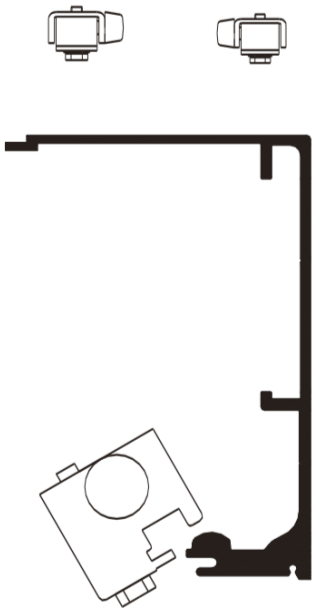
a. Insert the idle pulley top firmly into the upper groove of the guide rail.
b. Firmly insert the idle pulley bottom into the below groove of the guide rail
c. Fix the idle pulley temporarily with a fixing screw ensuring that it can still be moved easily.



11) Installation of Stopper

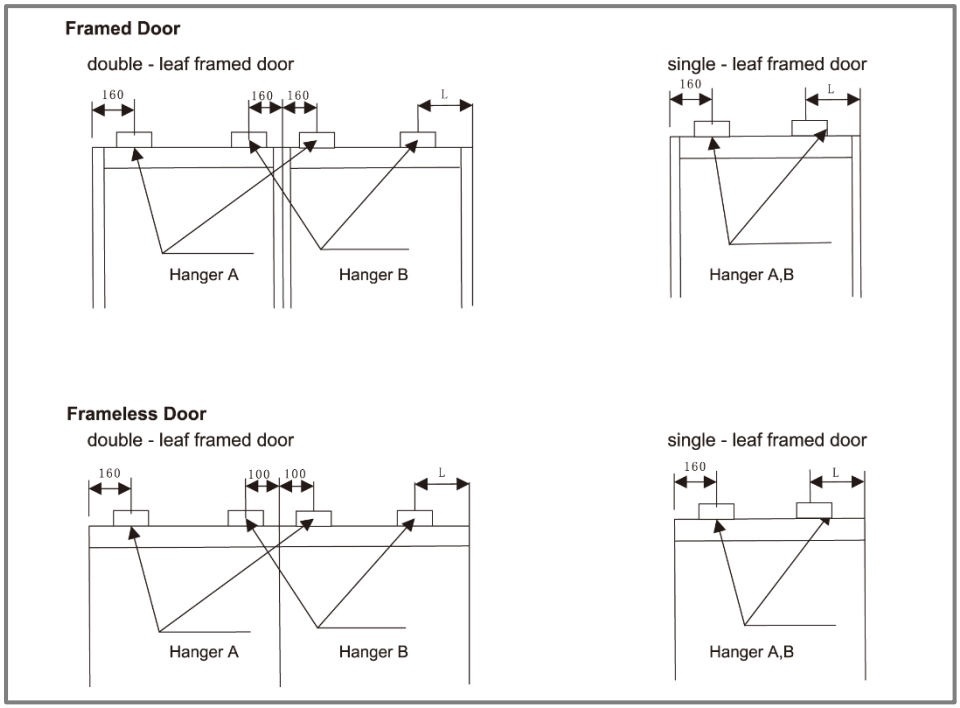
a. Loosen the fixing bolt of the stopper with hexagon wrench
b. Insert the stopper onto the bottom flat rail of the guide rail
c. Determine the position of the stopper by aligning with the open and closed positions of the sliding door leaf.
    i. When setting the position of the stopper, the hanger should be stopped when it touch the rubber of the stopper.
d. Tighten the fixing bolt firmly with the wrench.

NOTE: Carelessness may result in damage to the door



12) Installation of Hanger

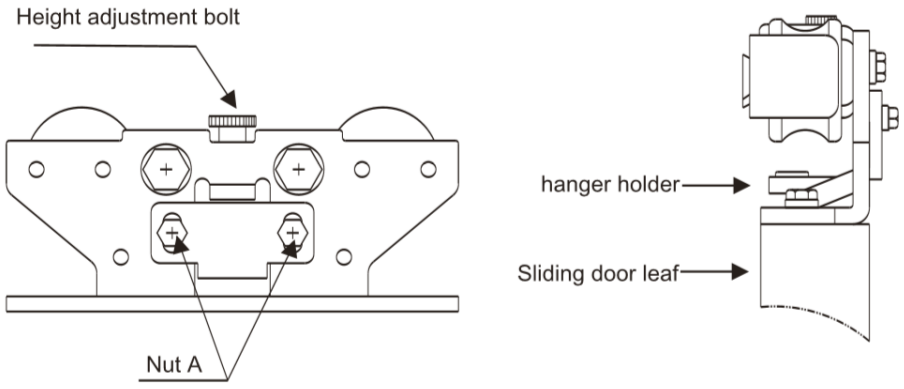
a. Loosen nut A of the hanger and remove the holder from the hanger.
b. Fix 2 hangers onto the top of each sliding door leaf at the correct position with bolts (M8*20)



L= 190

c. Hang the sliding door leaf on the bottom flat rail of the guide rail.
d. Resume the holder into the hanger, but don't tighten nut A.

NOTE(1) : When fixing the hangers, ensure that (1) both hangers are flat with each other (2) the sliding door leaf top & the white wheels of the hanger are parallel.
NOTE(2): During installation, the centre of the hanger wheel should be in full parallel with the door leaf. Else, the service life of the wheel will be shortened.
NOTE(3): NEVER collide with the components in the guide rail. Doing so will not only damage the components, it will also reduce the service life of the wheel and create noise during normal operation.

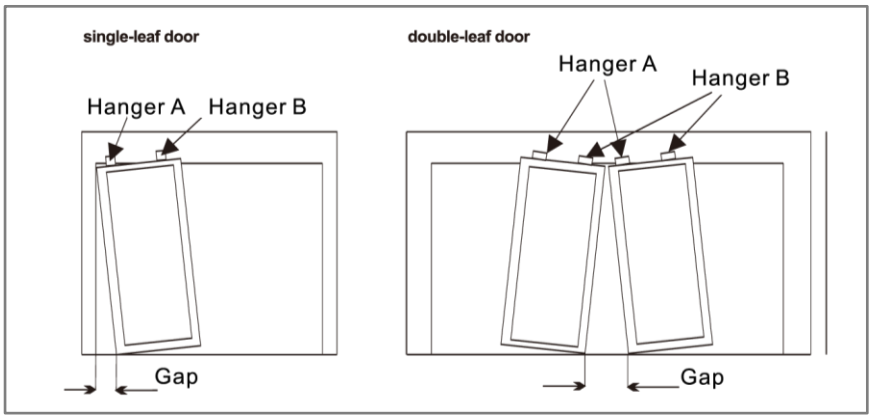


13) Installation & Adjustment of Door Leaf

a. In the case of panel(s) not aligning horizontally

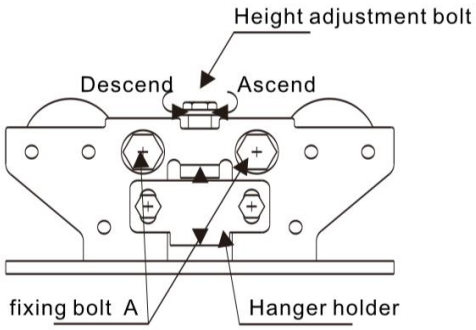
i. Loosen the fixing nut for fixing the hanger

ii. Adjust the height adjustment bolt

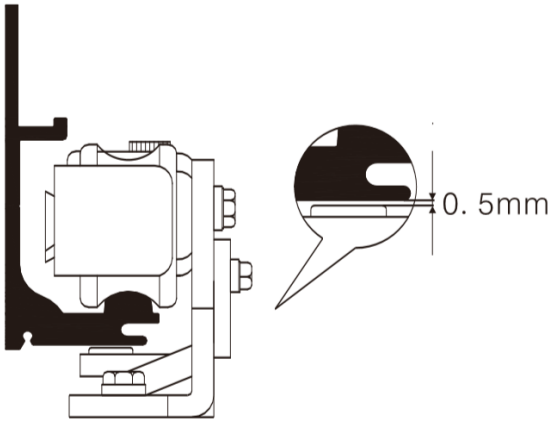


- Clockwise – Door Ascend
- Counter Clockwise – Door Descend

iii. Tighten fixing nut

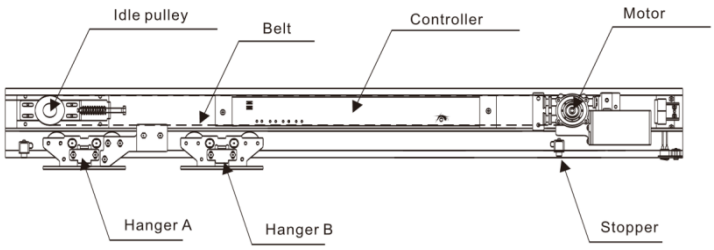


iv. After confirming that the gap between the guide rail bottom and the hanger holder is about 0.5mm, fix the hanger holder by tightening Nut A

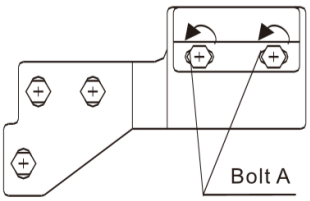


v. Check the friction during the operation
   - If it is hard to move the door leaf by hand, please check the below items
     a. The hanger is fixed vertically on the leaf
     b. Any friction between the floor guide and the leaf bottom
     c. Any friction between the door leaf frame and gatepost.
     d. Any friction between the hanger holder and the guide rail

14) Belt Installation of Single Leaf

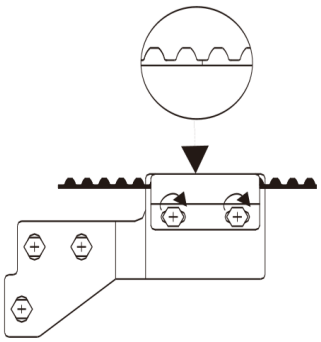


a. Remove the bolt A and take off the belt socket from the belt bracket



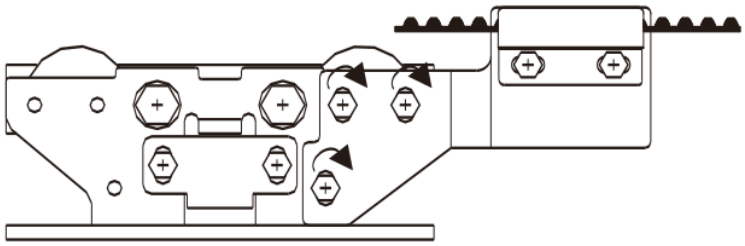
b. Cut the belt with reference to the belt cutting table
   i. Cut the belt at the middle between 2 belt teeth

c. Insert both ends of the cut belt into the belt socket and make these 2 ends meet in the middle of the socket.
   i. The belt can not be twisted in above installation

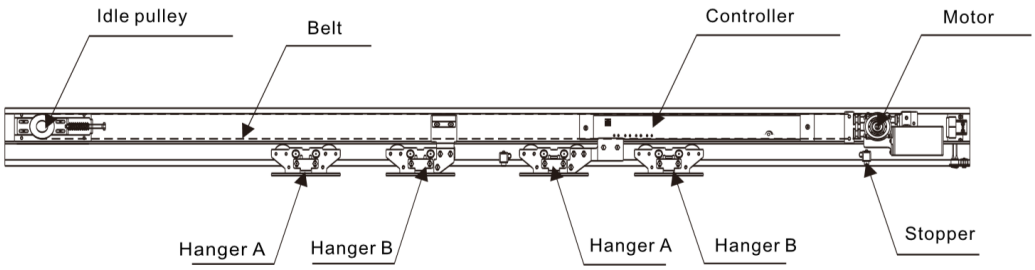


d. Fix the belt socket back to the belt bracket firmly.
   i. Note the direction of the belt bracket
e. Hang above belt onto the wheel of the motor and the wheel of idle pulley.

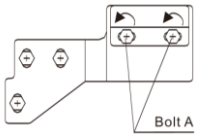
f. Fix the belt bracket onto Hanger A firmly with bolt (M6*12) and spring washer after adjusting the door leaf position.
    i. Tighten the bolts firmly



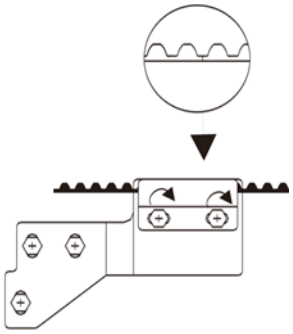
15) Belt Installation of Double Leaves



a. Remove bolt A and take off the belt socket A from the belt bracket A

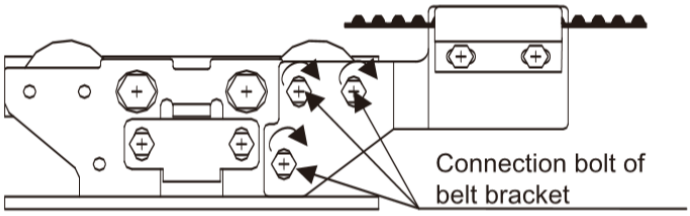


b. Cut the belt with reference to the belt cutting table
    i. Cut the belt at the middle between 2 belt teeth
c. Insert both ends of the cut belt into the belt socket A and make this 2 ends meet in the middle of the socket
    i. The belt cannot be twisted in above installation.
d. Fix the belt socket A back to the belt bracket A firmly.
    i. Note the direction of the belt bracket A

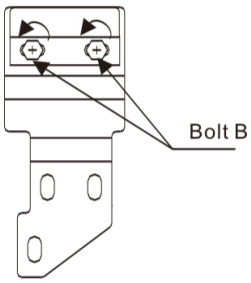


e. Hang above belt onto the wheel of the motor and the wheel of idle pulley.

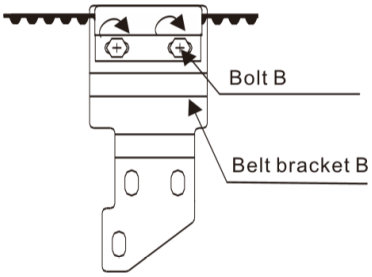
f. Fix the belt bracket A onto hanger A with bolt (M6*12) and spring washer
    i. Do tighten the bolts firmly



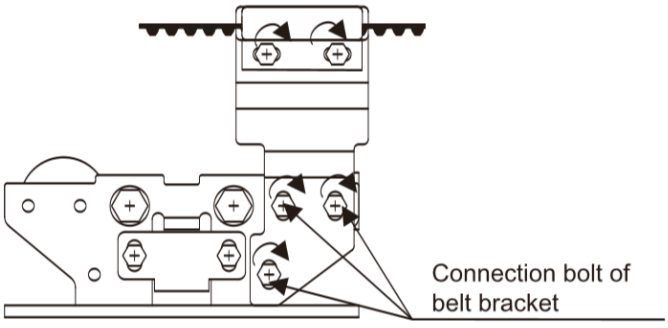
g. Adjust the tension of belt
h. Keep the 2 leaves closed
i. Remove bolt B and take off the belt socket B from the belt bracket B



j. Insert the belt into the belt socket B at the correct position
k. Fix the belt socket B back to the belt bracket firmly
    i. Note the direction of the belt bracket B



l. Link the belt bracket B onto hanger B with bolt (M6*12) and spring washer, adjust the door lead position, the tighten bolt B.
    i. Do tighten the bolt B after adjustment



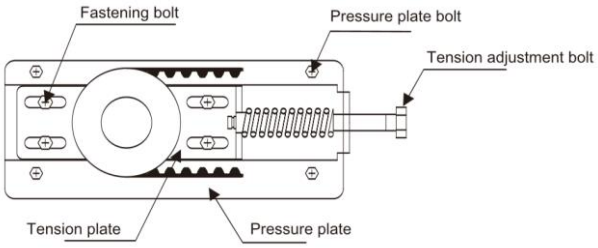
16) Belt Length Table

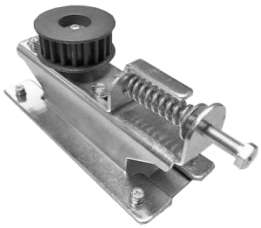
Minimum Length (For Reference only)

Door width (mm)	Belt Length (mm)
650	4100-4200
700	4400-4500
750	4700-4800
800	5000-5100
850	5300-5400
900	5600-5700
950	5900-6000
1000	6200-6300
1050	6640

17) Adjustment of Belt Tension

a. Move the idle pulley to the left end of the guide rail to keep the belt tightened and tighten the 4 pressure plate bolts
b. Loosen the 4 fastening bolts
c. Turn the tension adjustment bolt clockwise so that the tension plate will be moved to the left and the belt tension increased gradually.
d. Adjust the belt tension until it is suitable then tighten the 4 fastening bolts.

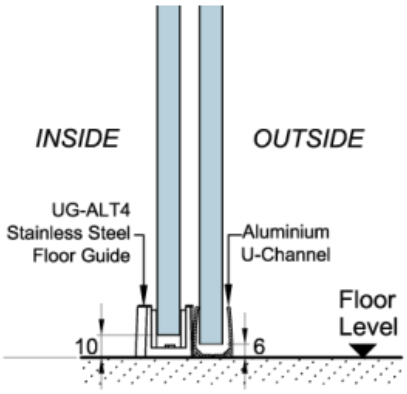




After use for some time, the belt may stretch slightly. Therefore the belt tension should be readjusted by repeating steps a – d. The recommended frequency is every 3 months.

18) Installation of Floor Guide

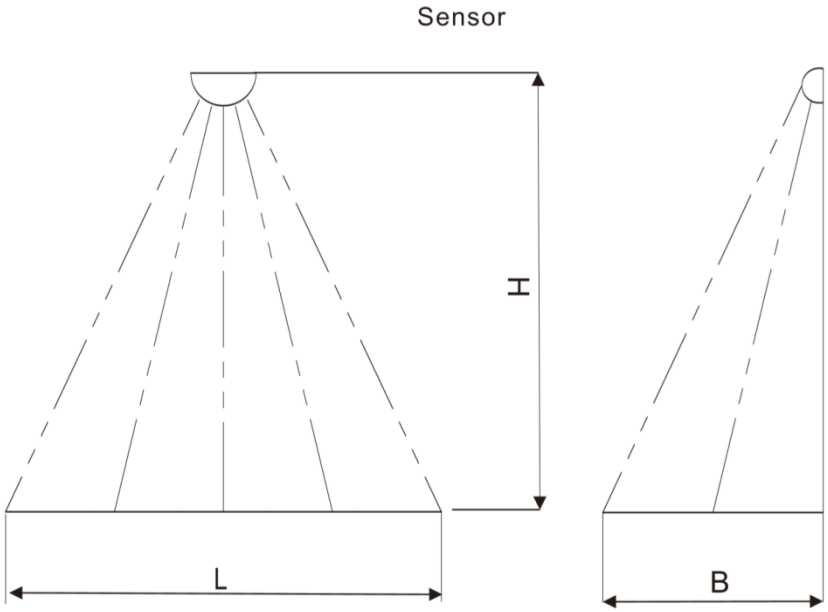
a. floor guide
    i. Frameless Door



b. The floor guide should be installed at the centre of the sliding door leaf with its axle centre coinciding with the central line of the door leaf depth.
c. The central distance between the 2 floor guides must be smaller than the total depth of this 2 sliding door leaves (2DW).

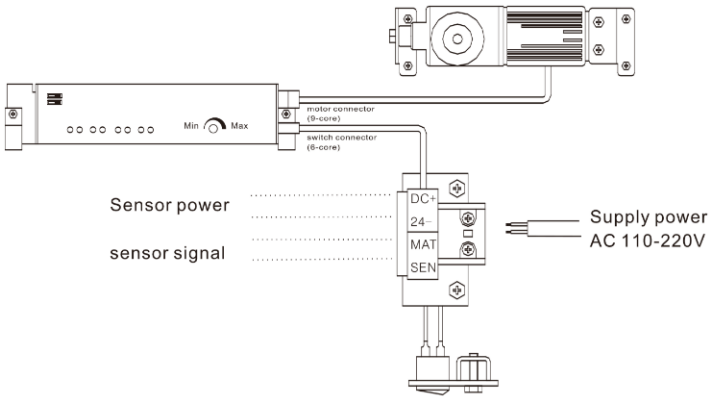
19) Installation of Sensor

a. The sensor should be installed on the top center above the sliding door leaf properly at a correct height according to the chosen sensor.
b. Normally, the height(H) is 2.2m – 3.0m
c. Generally, 2 sensors are installed, 1 inside and the other outside of the room.
d. For wiring, please refer to the wiring diagram.
e. For more details for installation. Please refer to the installation instructions from the sensor manufacturer.

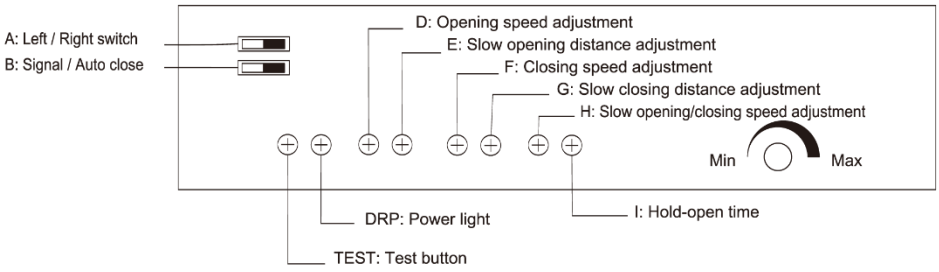


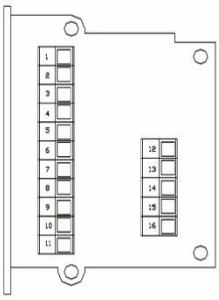
Caution: Wiring voltage of the sensor is different among different manufacturers and models, therefore please do not replace with each other at will.

20) Electrical Connection



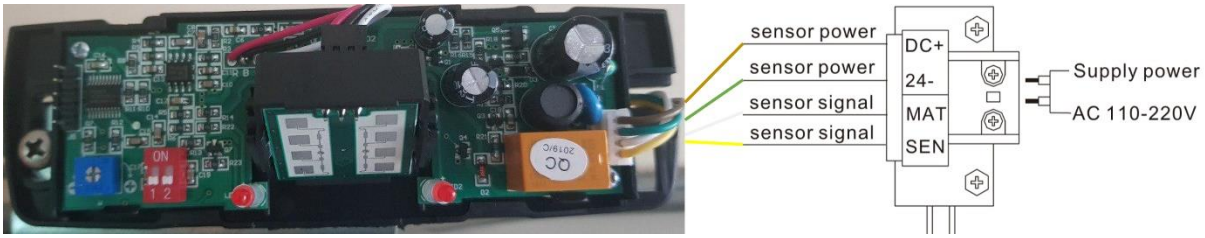
21) Description of Controller and Terminal Switch





1. Safety Beam Input
2. Access Control Signal Input
3. Interlocking input
4. Access Control & Safety Beam COM
5. Interlocking Output
6. Interlocking COM
7. GND
8. 12V output
9. GND
10. Backup Battery 24V input
11. Electric Lock + 12V output
12. Way Switch COM
13. Half Open
14. Open
15. Lock
16. Remote Control Receiver Interface

22) Connection of Sensor (Optional)



a. Sensitivity Potentiometer
   i. Clockwise – Max
   ii. Anti- Clockwise – Min

b. DIP Switch

	Mounting Height (1)	Immunity (Sunlight, reflections) (2)
ON	4m	High
OFF (Factory Value)	3m	Low

c. Installation Tips
   i. Avoid extreme vibrations
   ii. Do not place it behind panel and other materials
   iii. Avoid moving objects in the detection field
   iv. Avoid HF lamps or lighting sources in the detection field
   v. Do not touch the antenna directly

d. Troubleshooting

Issue	Reason	Solution
The door will not open & LED is off	The sensor power is off	Check the wiring & the power supply
The door opens and closes constantly	The sensor "sees" the door moving. When closing, the door creates vibrations picked up by the sensor	Increase the tilt angle and/or reduce the sensitivity. Make sure that the sensor is correctly fixed
The door will not close. LED is OFF	ON-OFF switch at the door control is in wrong position or faulty	Make sure that the ON-OFF switch for the door is in the ON or Automatic position
Detection area is too small	Sensitivity is too low. Height mode is wrongly set	Increase sensitivity by adjusting sensitivity potentiometer When mounting height is more than 3m, turn switch 1 to ON.

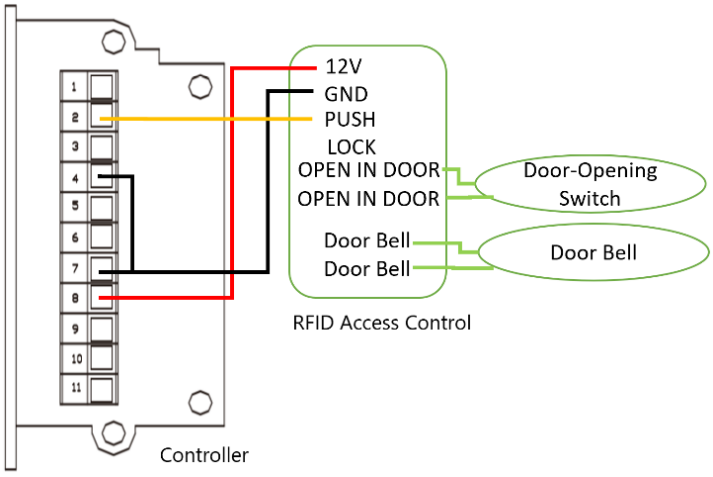
23) Connection of Code Card Reader (Optional)

a. All wiring connection should be done with the power disconnected
b. Positive/negative polarity should be identified.
c. Pin Setting
   i. J1 for setting normal open and close
   ii. J2 for high & low frequency
      - Used for connecting the power supply of interphone in buildings

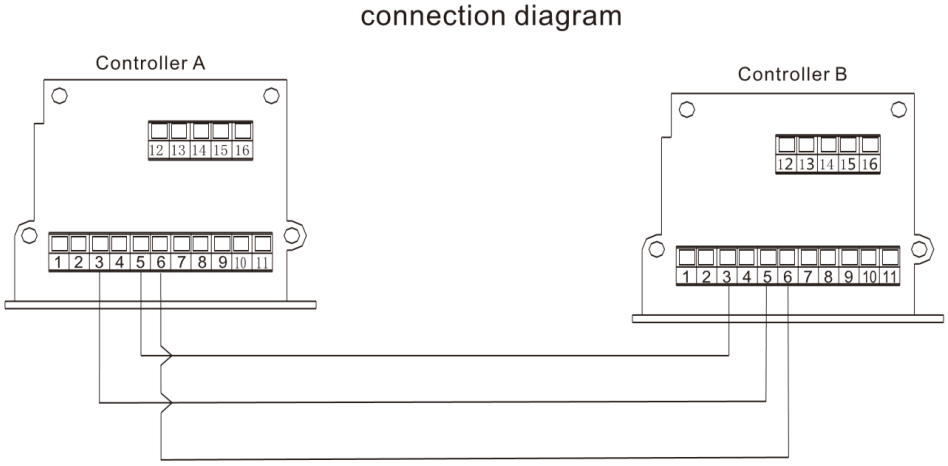
How to use: # + System Password (Default:12345) + Function + Operation + *

Operation	Function	Operation	Remark
Revise System Password	1	(Enter 5-digit Password)	System Password set
Revise Door Password	2	(Enter 4-digit Password)	Door password is set
Activation Method	3	00 01 02	00 – Opened by Card 01 – Opened by Card or Password 02 – Opened by Card & Password
Add Card by Card No.	4	0 + # + Card No. + #	Card No. refers to the last 8 numbers of the front group of sprayed group on ID card
Add Card(s) by Tapping	4	1 + # + Tap Card(s) + #	
Add Cards by Card No. (batch cards with consecutive numbers)	5	0 + # + Beginning Card No. + # + Enter number of cards + #	The max number of cards per operation is 999
Add Cards by Tapping (batch cards with consecutive numbers)	5	1 + # + Tap Beginning Card + Enter number of cards + #	The max number of cards per operation is 999
Delete Card by Card No.	6	0 + # + Card No. + #	Card No. refers to the last 8 numbers of the front group of sprayed group on ID card
Delete Card(s) by Tapping	6	1 + # + Tap Card(s) + #	
Delete Cards by Card No. (batch cards with consecutive numbers)	7	0 + # + Beginning Card No. + # + Enter number of cards + #	The max number of cards per operation is 999
Delete Cards by Tapping (batch cards with consecutive numbers)	7	1 + # + Tap Beginning Card + Enter number of cards + #	The max number of cards per operation is 999
Delete All Cards	8	88 + #	A buzzer rings to indicate success of operation
Revise lag time	0	(Enter 2- digit lag time in secs)	Range is from 01-99 secs
Restore system password	Switch off, Jump the jumper cap to	Power On Buzzer Rings 3 lights flashes at the same time Power off Jump the jumper cap to 1-2	The System password is resumed to 12345 Other data will not be deleted

Note: the initial system password is 12345. If system password is entered and responded with 4 rings, it means the password needs to be restored.



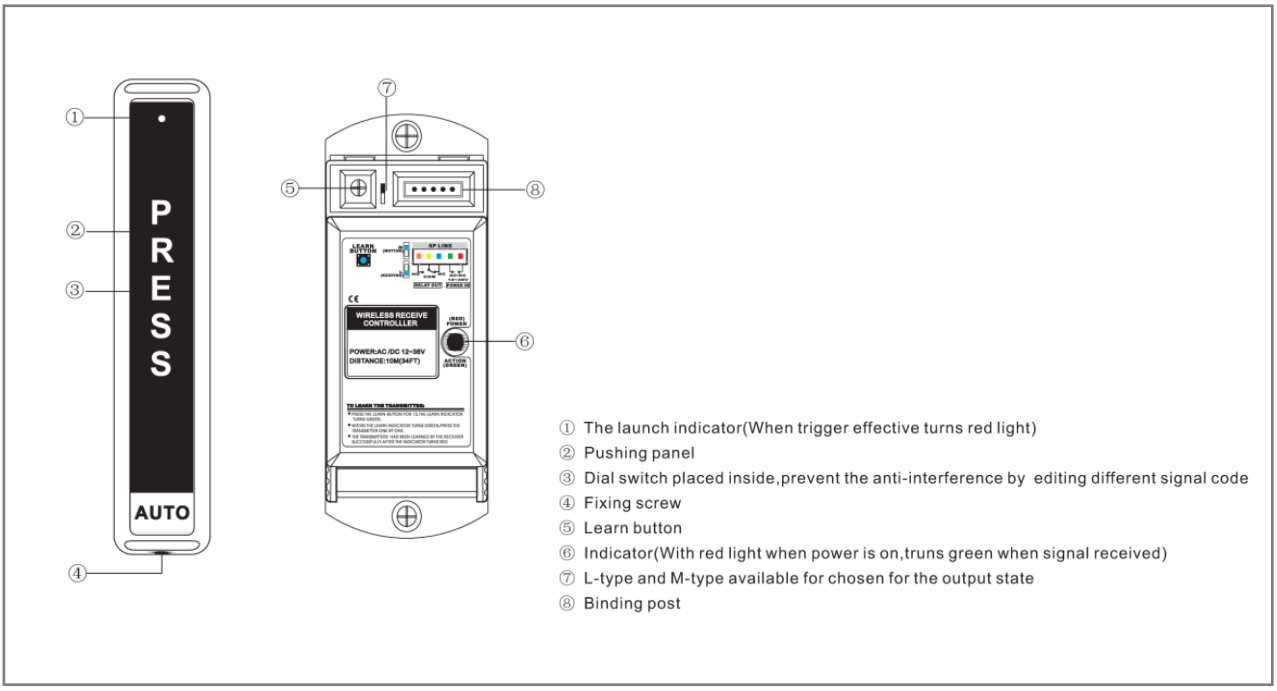
24) Connection of 2-Door Interlocking (Optional)

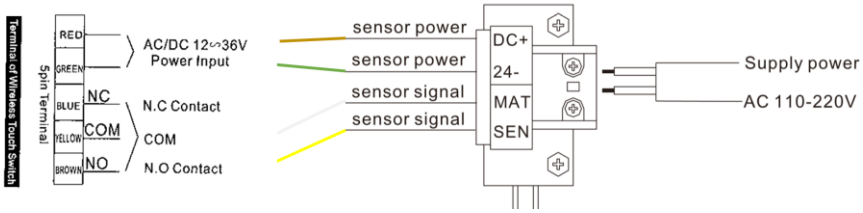


25) Connection of Wireless Touch Switch (Optional)

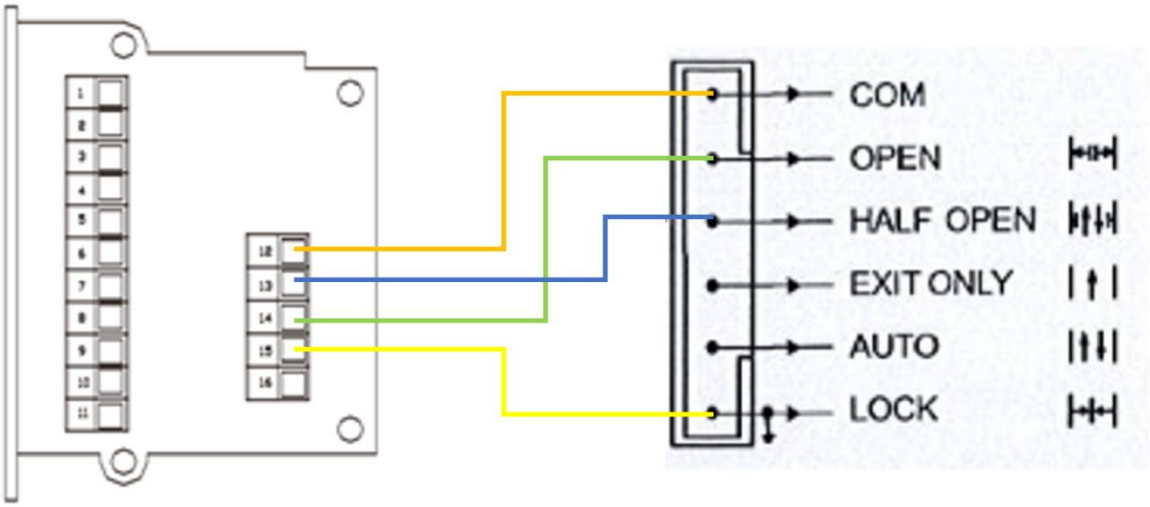
a. Method of Operation
   i. Press the learn button for 1s
   ii. Indictor turns green
   iii. Press any key of the remote transmitter
      - 2 flashes of green light appear on indicator to indicate success.

b. Method of Deletion
   i. Press the learn button for 5s.
   ii. Indictor turns green to indicate all codes has been deleted successfully.

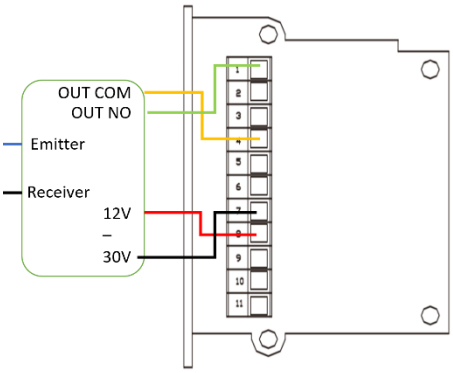




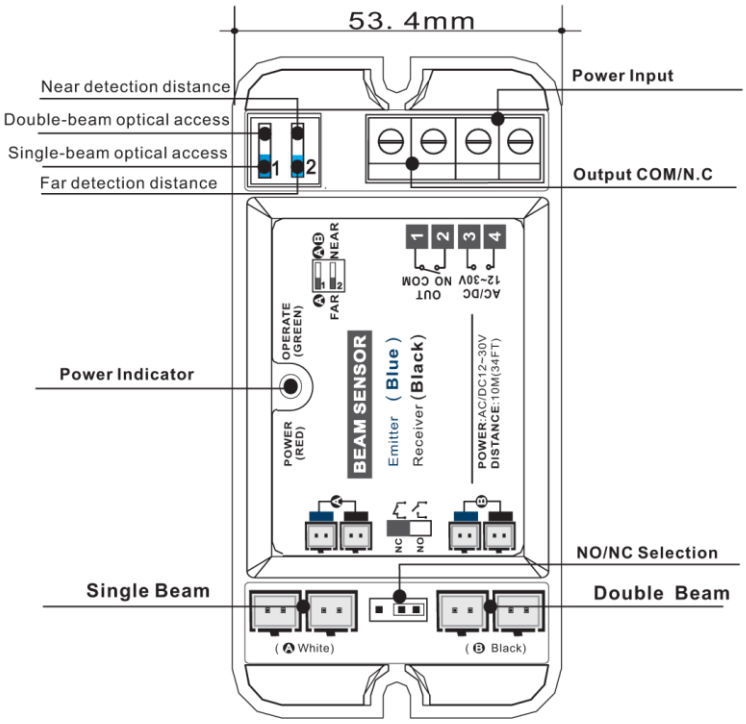
26) Connection of 5 - Way Switch (Optional)



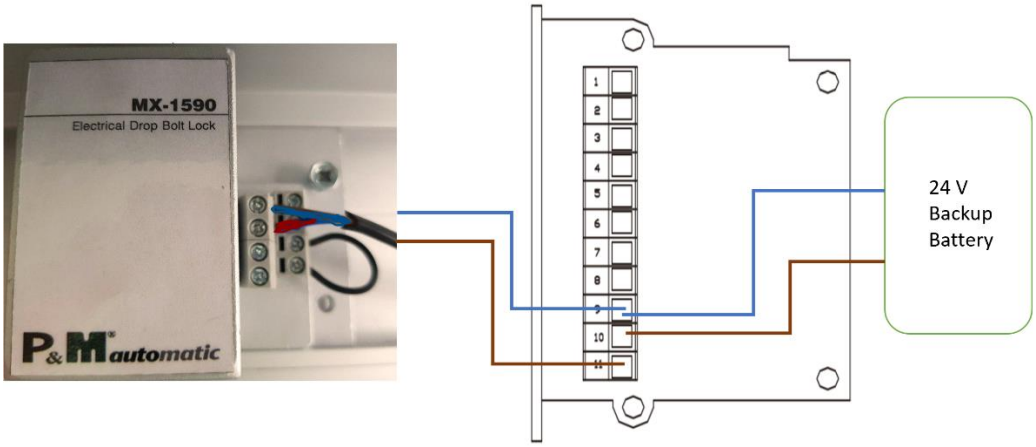
27) Connection of Safety Beam (Optional)



a. Single beam must be connected to group A
b. Double beam must be connected into Group A & B
c. The eye installation hole should be 13mm;
d. Single beam installation height: 60cm from ground
e. Double beam installation height: 1 @ 30cm from ground, 1 @ 90cm from ground
f. The eyes installation should be vertically and horizontally level.
g. Keep away from obstructions to avoid error action
h. The installation height should be at least 20cm from ground.

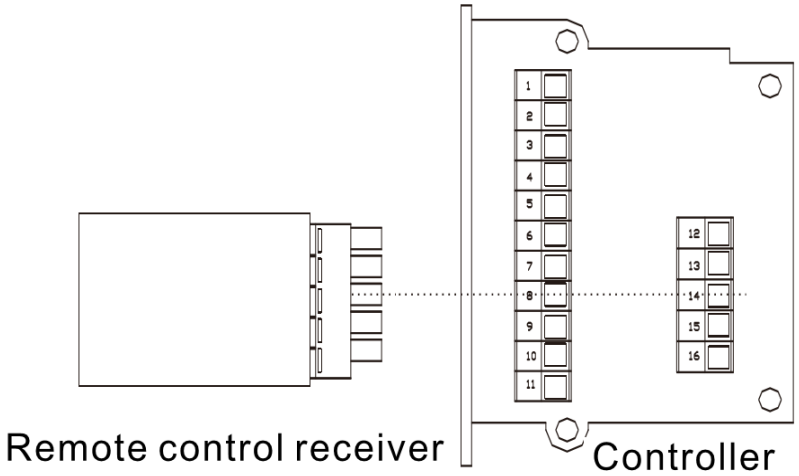


28) Connection of Backup Battery & Electrical Lock (Optional)

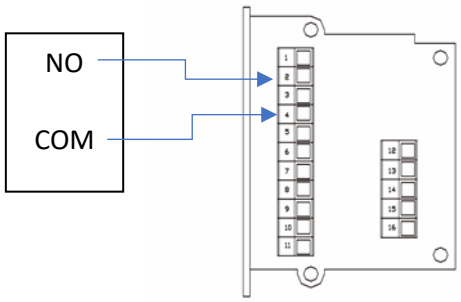


29) Connection of Remote Control (Optional)

a. Insert the remote control into the interfaces 12-16 of main controller
b. Note the direction of the plug
c. Remote Control Transmitter
    i. A – Lock
    ii. B – Keep Open
    iii. C – Half-Open
    iv. D- Automatic



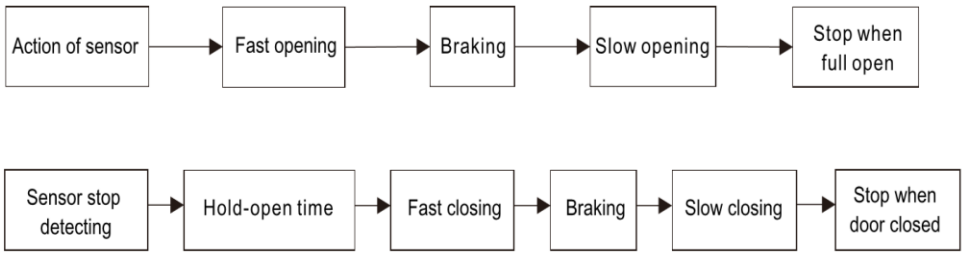
30) Connection of Plastic Switch (Optional)



31) Description of Operation

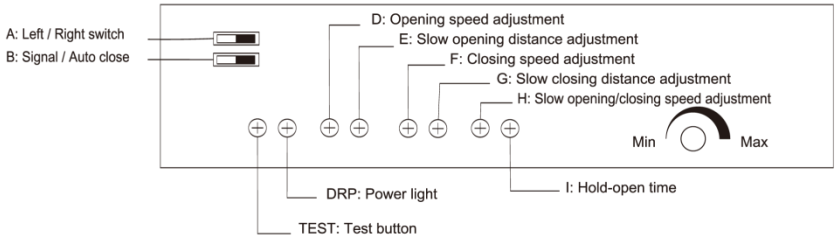
a. After installation,
   i. Push the door fully open by hand
   ii. Power on
   iii. System begins its initial program
      - The door will close at a low speed until the hanger is stopped by the stopper in the guide rail
      - This closing operation confirms the sliding route.

b. Door operation sequence



32) Adjustment of Opening & Closing Parameters

a. Name & function of each button of the controller



   i. Test
      - Press once to finish 1 open action
      - Can be used for adjusting each parameter in installation
   ii. DRP
      - The light is always on once switched on
   iii. Left/Right Switch (A): Single-Leaf Door
      - Switch left is for open to the left direction
      - Switch right is for open to the right direction

        Takes effect after cut of electricity and restart of system

   iv. Left/Right Switch (A): Double-Leaf Door
      - Switch right

        Takes effect after cut of electricity and restart of system

   v. Signal/ Auto Close (B)
      - Left: Signal Close

a. The door will not close by itself after opening, a closing signal needs to be given

- Right: Normal State (Auto Close)
  a. The door will close automatically after opening

Takes effort after cut of electricity and restart of system

vi. Opening Speed Adjustment (D)
- Counter-clockwise: Reduce Opening Speed
- Clockwise: Increase Opening Speed

vii. Slow Opening Distance Adjustment (E)
- Counter-clockwise: Reduce Slow Opening Distance
- Clockwise: Increase Slow Opening Distance

viii. Closing Speed Adjustment (F)
- Counter-clockwise: Reduce Closing Speed
- Clockwise: Increase Closing Speed

ix. Slow Closing Distance Adjustment(G)
- Counter-clockwise: Reduce Slow Closing Distance
- Clockwise: Increase Slow Closing Distance

x. Slow Opening/Closing Speed Adjustment(H)
- Counter-clockwise: Reduce Slow Opening/Closing Speed
- Clockwise: Increase Slow Opening/Closing Speed

xi. Hold-Open Time (I)
- Counter-clockwise: Reduce Hold-Open-Time
- Clockwise: Increase Hold-Open-Time

b. Adjustments steps
i. Open & close the door manually for several times to confirm the door can be opened and closed freely
ii. Set left/right switch
iii. Set signal closing/automatically closing
iv. Push the door to the closed position and set initially:
- Buffer (Slow opening/closing) Speed – Mid Position
- Opening Speed – Mid Position
- Closing Speed – Mid Position
- Slow Opening Distance – Longer
- Slow Closing Distance – Longer

v. Switch on the power
vi. Press the test button of the controller and adjust the buffer speed when the door is static.
- The 1st adjustment of the slow opening/closing distance is 8cm-10cm
- The power off time should be longer than 10s.

vii. Adjust the closing Speed and slow closing distance.
- Ensure that there are no pedestrian around the door during adjustment
- Adjust the slow closing distance to about 10cm

a. Must be set more than 5cm

- Adjust the closing speed
- Adjust the slow closing distance again if necessary.

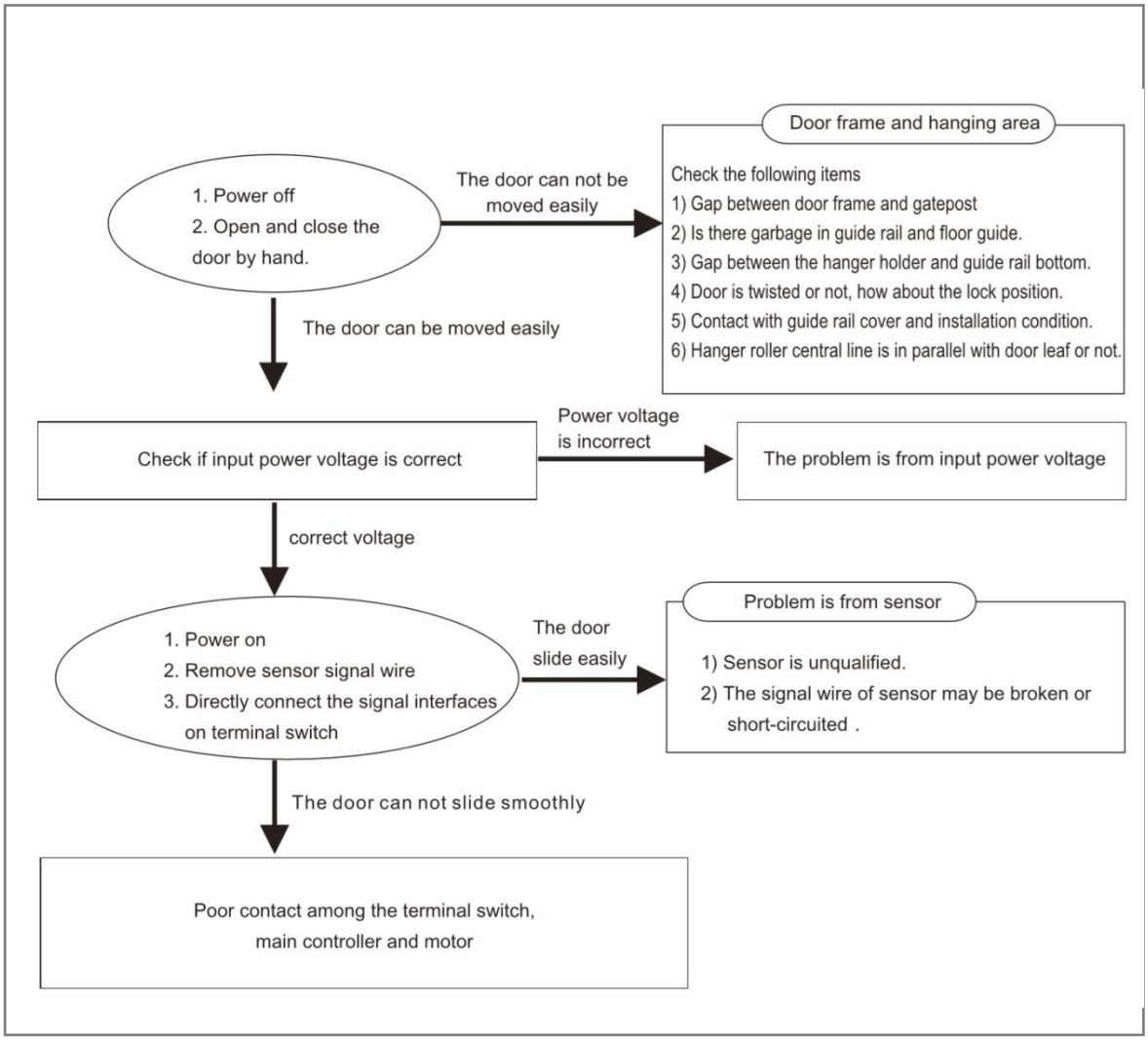
viii. Adjust opening speed and slow opening distance

- Ensure that there are no pedestrian around the door during adjustment
- Slow opening distance must be set more than 5cm.
- Adjust slow opening distance at about 10cm
- Adjust opening speed
- Adjust slow opening distance again if necessary

a. Do not do this adjustment during door opening or closing

- Adjust the door hold-open time after opening

33) Troubleshooting



SYMPTOMS	CAUSES	CHECK	SOLUTIONS
Open & Close is not smooth	• Opening/ Closing Speed is slow	• Check opening and closing speed	• Reset the opening/closing speed
	• Buffer Distance is too long, visual slow	• Length of buffer distance	• Reset the buffer distance
	• Obstruction when closing, resulting in an abnormal mode	• Power off and open the door manually	• Once obstruction is removed, it will return to normal
	• Too much resistance	• If any garbage in the guide rail	• Remove the garbage
		• If floor guide is damaged or loose	• Install the floor guide properly
		• If there are any obstacle	• Clear obstacle away
Door Leaf over-tight	• Slow opening/closing speed is too fast		• Decrease buffer speed
	• Slow opening/closing distance is too short		• Increase buffer distance
Door doesn't work	• Power not switched on	• Check the power switch	• Turn on power
	• Door locked	• Check if the door is locked	• Open the door lock
	• Garbage in the guide rail	• Turn off power to check if the door can be moved by hand easily	• Remove garbage
	• Poor electrical connection	• Something is wrong with the connectors between motor, controller and terminal switch	• Check the connector
	• 2-door interlocking		• Wait until the other door is closed
	• Auto-door is under protection because of great resistance		• Check door resistance after power off
	• Slow opening/closing speed is too small		• Screw the button "H" clockwise slowly
Door doesn't open fully	• Under half-open mode	• Check fully/half-open mode (Remote Control)	• Change to fully-open mode (Remote Control)
Door doesn't close	• Sensor keeps working	• There is object cause mis-operation in the detection range	• Clear away the moving object
		• There is no object cause mis-operation in the detection range	• Replace Sensor • Clear away the garbage
	• Safety beam keeps working	• Check if the safety beam eye has any contaminant.	• Adjust optical axis
		• Optical Axis is deviated	
	• Sensor signal wire is short-circuited	• Check if the door is closed after the signal wire is removed	• Change Signal Wire
Door keeps opening/closing with no stop	• Any movable object in the detection area	• Check for movable objects	• Remove moving object from the detection area
	• Intense electrical wave is emitted near the door	• Check for emission of intense electrical wave	• Remove the machine that emits intense wave.
	• Sharing the detection area with other sensor(s)	• Check if there is an overlap of detection area	• Change the anti-interference switch
	• Fluorescent lamp in the detection area		• Remove fluorescent lamp from the detection area
	• Unqualified sensor	• Check of specification of sensor	• Replace Sensor
Door comes into great collision	• Significant speed reduction, but with great collision		• Turn button (H) anti-clockwise slowly
	• Belt is loose		• Adjust belt tension
	• No speed reduction when opening door		• Turn button (E) clockwise slowly
	• No speed reduction when closing door		• Turn button (G) clockwise slowly

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