

# DAIHATSU Microprocessor- Controlled Door Operator

EDM18ZII/30ZII

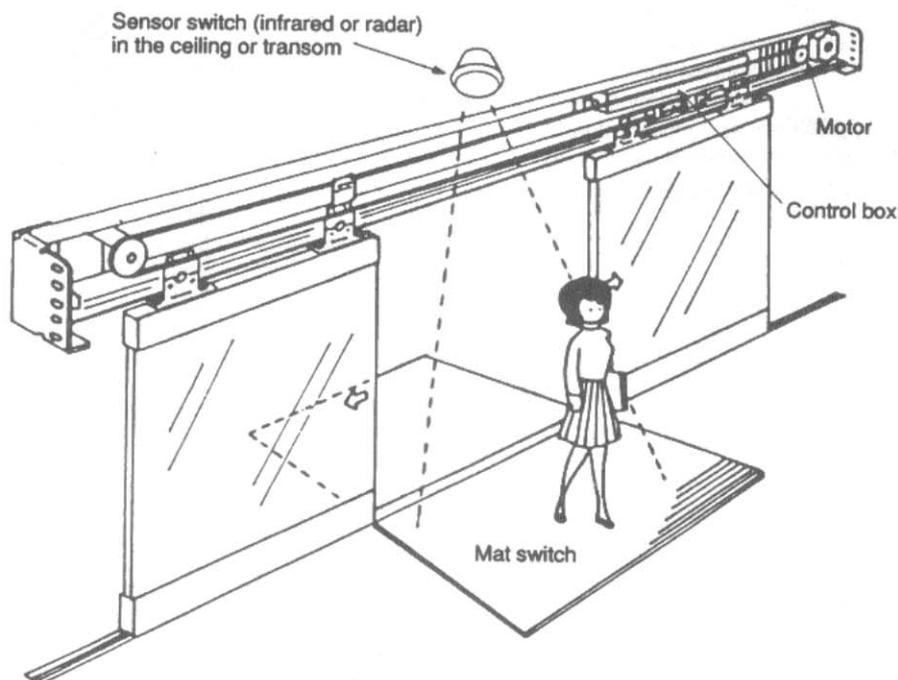
## INSTRUCTION MANUAL

*Read this Instruction Manual carefully before using the machine.*



DAIHATSU is happy to serve you; properly cared for, our Microprocessor-controlled Door Operator will assure years of trouble-free operation. This high-performance, multi-functional door operator from Daihatsu, the master of mechatronics, will provide your public with a dramatic entrance. It features

- highly efficient, continuous door operation;
- safety functions: safety-door-reversing, and safety-stop;
- automatic self-correction;
- energy-saving, and self-diagnostic functions.



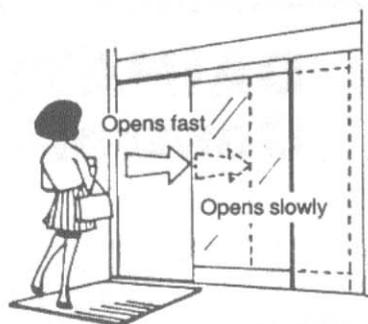
**DAIHATSU DIESEL MFG.CO.,LTD.**

Osaka, Japan

## HOW IT OPERATES

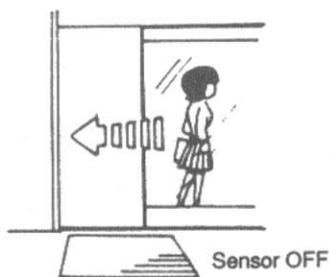
### Programming procedure

- Check that the door is unlocked, then turn on the main switch. The Door Operator then commences programming.
- Three seconds after power on, the open door starts to close slowly. If the door is closed, it remains still.
- Activate the sensor switch. The door opens by about 70% of the door stroke (the distance between the fully open and closed positions) at high speed, brakes to low speed, then opens slowly to the fully open position. The microprocessor uses this procedure to read and memorize the door stroke.
- When the sensor switch is deactivated, the door closes at high speed, brakes just before it reaches the fully closed position and then closes slowly.



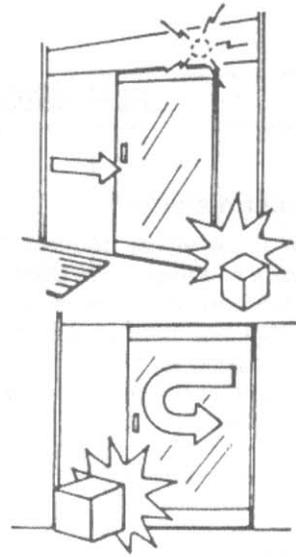
### Basic operation

- When a passerby approaches the door and the sensor switch is activated, the door opens at high speed, brakes before the fully open position, and opens slowly to the door stop, following the programmed data.
- When the passerby leaves, the sensor switch turns off, and, after the period preset on the open timer, the door closes at high speed, brakes to low speed a little before the fully closed position, and slowly closes.
- If the sensor switch turns on while the door is closing, the door stops and reverses open.



## Safety features

- If the door encounters an obstacle on the opening stroke, it stops, triggering an alarm.
- If the door is blocked on the closing stroke, it reverses at high speed to the fully open position, and then slowly closes. If the door is blocked again, it stops, triggering an alarm.
- Fifteen seconds later, or the next time the sensor switch is activated, the door opens fully once, and then resumes normal operation.

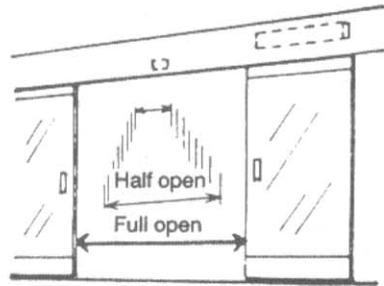


## Energy-saving feature

- To cut down on air conditioning expenses, you can set the door opening to full or half depending on the traffic.

### Setting

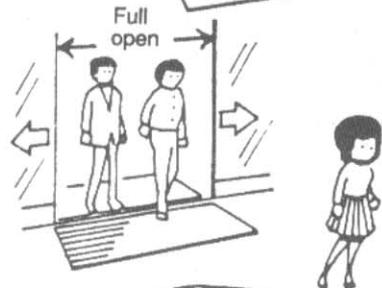
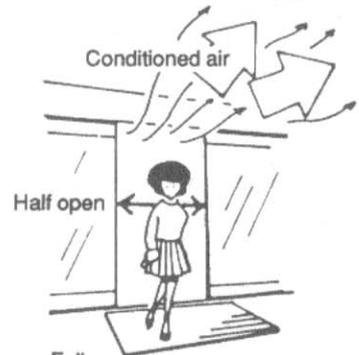
- For constant half-open operation, set the Full-/Half-open switch at Half and Automatic/Constant switch at Constant.
- For automatic switching between full- and half-open operation, set the Full/Half-open switch at half-open and Automatic/Constant switch at Automatic.
- After setting the switches as desired, turn on the main switch. The Door Operator programs itself with the necessary data.



### Automatic switching mode

- If the sensor switch remains on for more than 7 seconds, the door opening is switched to full-open because the Door Operator assumes that the traffic is heavy.
- After the door is fully closed, if another passerby comes, the door opens halfway because the Door Operator assumes that the traffic is light.
- If a passerby comes while the door is closing, the door reverses and opens halfway the first time; the second time, it reverses and opens fully.

Note: The Full/Half-open switch is standard on Door Operators for double sliding doors and optional for single sliding doors.



### Manual door operation (During a power failure)

By turning the power switch off, the door can be opened and closed manually.

**If the door is not going to be used for a long period:**

Turn the power switch off, then lock the door.



## SELF-DIAGNOSIS

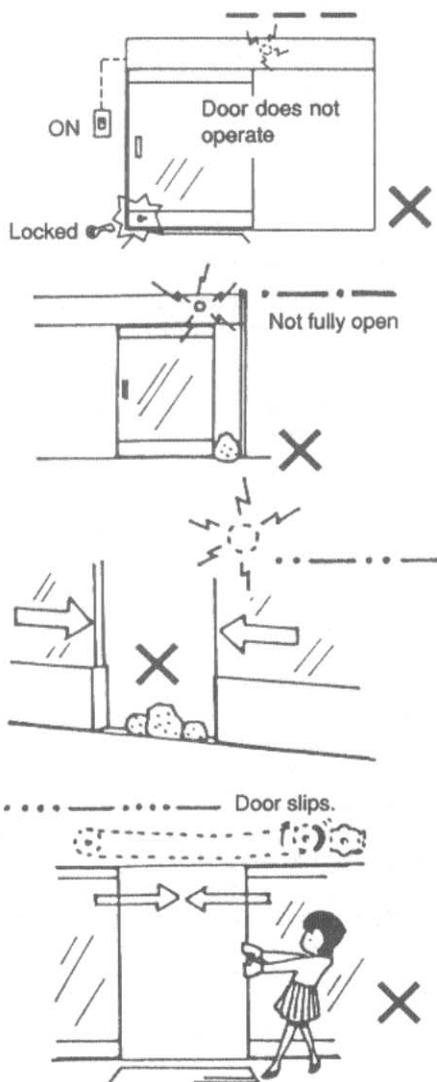
### If an alarm sounds

■ Even if an alarm sounds, it does not necessarily indicate a failure of the Door Operator. Some problems are temporary inconveniences. The microprocessor self-diagnostic function detects problems and triggers an alarm, asking for prompt action. Different alarms sound depending on the type of problem. Check below to identify the problem.

Type of alarm	Description
Long tones — — — — —	→ Door is locked.
Short and long tones, repeating ● — — — ● — — —	→ Safety stop on opening stroke (problem in high-speed section) <ul style="list-style-type: none"> <li>• Door encountered an obstacle on the opening stroke.</li> <li>• Small object(s) or dirt in lower rail groove prevents smooth door opening.</li> </ul>
Two short and one long tone, repeating ● ● — — ● ● — —	→ Safety stop on closing stroke (problem in high-speed section) <ul style="list-style-type: none"> <li>• Door encountered an obstacle on the closing stroke.</li> <li>• Small object(s) or dirt in lower rail groove prevents smooth door closing.</li> </ul>
Four short and one long tone, repeating ● ● ● ● — — ● ● ● ● — —	→ Opening and closing strokes are not equal. (Problem in low-speed section) <ul style="list-style-type: none"> <li>• Door was pushed or blocked, and failed to open or close fully.</li> </ul>

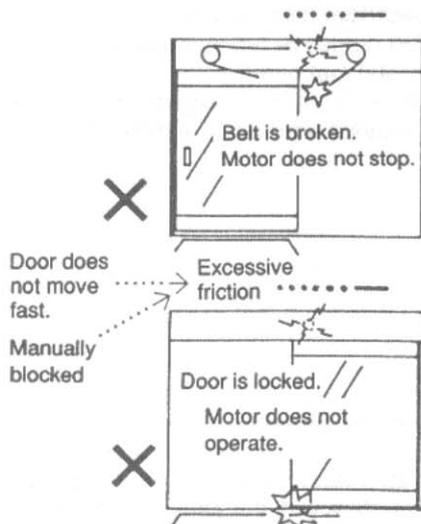
■ The above are temporary inconveniences, and normal operation can be resumed by turning the power off and then on again to initiate the programming procedure; or, by removing the obstacle and activating the sensor switch. The door will resume normal operation automatically 15 seconds after the door stops if no action is taken.

When alarm sounds, the power indicator blinks.



- If either of the following alarms sounds, contact one of our dealers.

Type of alarm	Description
Five short and one long tone, repeating ●●●●●—	→ Belt is broken.
Six short and one long tone, repeating ●●●●●●—	→ Motor is locked or electric lock cannot be released. (Door cannot be opened or closed manually.)
Long tone ————	→ Controller is defective.

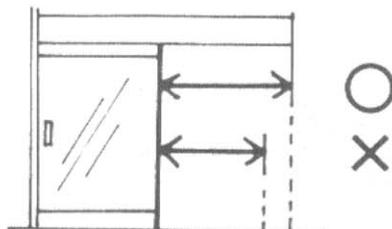
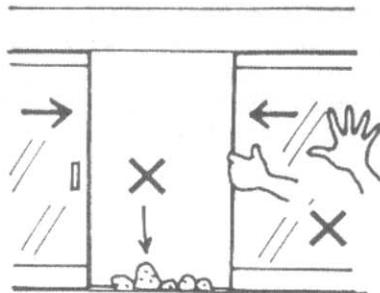


## PRECAUTIONS

### Door operator

- Clean the door rail grooves periodically. Grit or dirt in the rail can prevent smooth door operation, triggering an alarm.
- Do not block or push the door while it is moving, especially during the programming procedure; the microprocessor will not obtain correct data on the door stroke, and it will trigger an alarm.

To change the settings including the opening direction, door stroke, half-open percentage (25%~75%) and operation speed, turn the power switch off, change the settings, and then turn the power switch on.



Alarm is triggered against difference in door stroke.

### Sensor switch

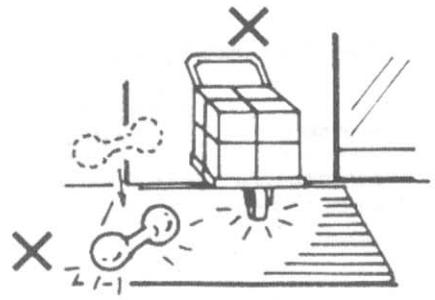
#### Mat switch

- Do not leave any heavy objects on the mat.
- Protect the mat by laying a plate on it when carrying a heavy object over the mat using a hand-cart. Avoid sharp edges, for example the tip of an umbrella.
- Clean beneath the mat periodically. Handle the switch cable carefully when moving the mat.
- Avoid water. If the mat must be placed outdoors or exposed to water, use a cover.



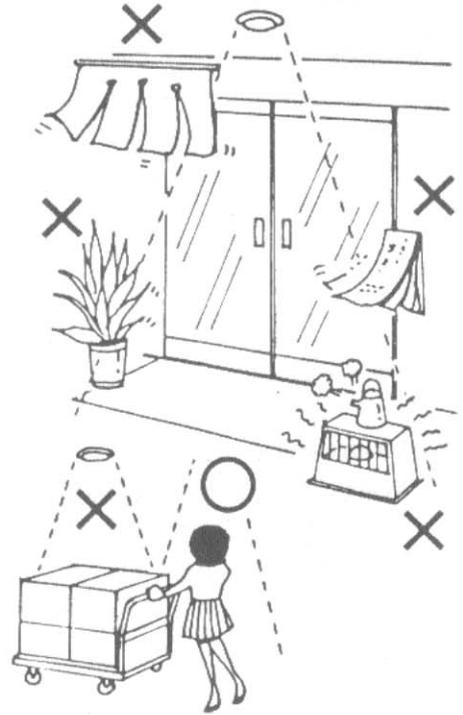
### Electrical mat switch

- Do not leave heavy objects on the mat. Do not place a metal mat over it.
- Avoid water including rain and snow.
- Stationary people are not detected.



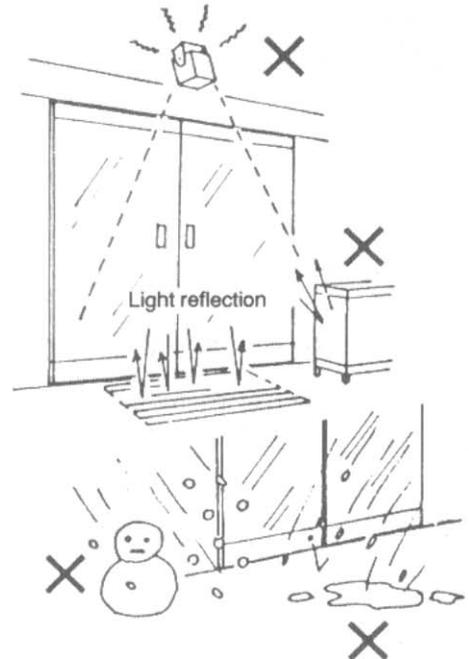
### Infrared switch

- Keep moving items such as curtains, plants, or signboards outside the switch detection range. They can interfere with the sensor operation.
- Keep the door outside the detection range. Otherwise, the sensor detects the door as a passerby, opening and closing repeatedly. This can happen if the switch sensitivity is too high.
- Keep strong heat sources out of the detection range.
- The infrared switch does not detect objects that do not generate heat, such as luggage on a hand-cart. The person must lead the cart to activate the switch.
- An infrared switch will not detect a stationary person.



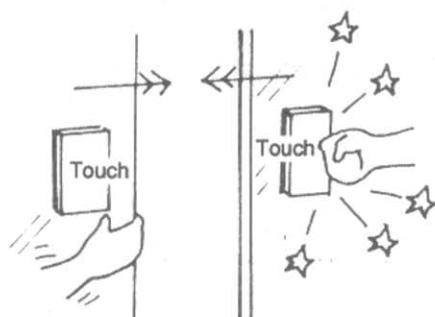
### Radar switch

- Do not install the radar switch in a location constantly exposed to vibration.
- Keep anything that reflects light toward the switch out of the detection range, such as cash registers, curtains, signboards or metallic door mats.
- If the switch sensitivity is too high, the switch may mistakenly detect the door as a passerby, repeatedly opening and closing the door.
- Rain or snow may reflect light, causing switch misoperation.



### Touch switch

- Always install a touch switch together with a photoelectric safety switch.
- Do not hit the actuator plate. The touch switch responds to a light touch.
- Do not block the door operation manually.



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## TROUBLESHOOTING

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If there is any problem, read "SELF-DIAGNOSIS" and "PRECAUTIONS" to identify the cause of the problem and remove it. If the problem persists, consult a Daihatsu dealers.

### After-Sale Service

Your Daihatsu dealer will give you a warranty card. Check that the data written on it is correct, and keep it during the guarantee period.

**Guarantee period is one year from the date of installation.** After this period, you are charged for any repairs. Consult your Daihatsu dealer for information on maintenance contracts.

For details, contact:

INSTRUCTION MANUAL  
FOR  
DAIHATSU MICROPROCESSOR-CONTROLLED  
DOOR OPERATOR

MODEL : EDM18ZII / EDM30ZII

DAIHATSU DIESEL MFG. CO., LTD.

No. 3425

## 1. Features of the Daihatsu Microprocessor-controlled door operator

### (1) High performance

- Continuous opening and closing

Its DC motor that produces a little heat does not stop due to increased temperature of the motor, unlike the conventional AC motors.

- Fast opening and closing

The opening and closing speed is increased to 500 mm/s.

- Silent and durable

Using a brushless molded motor and a highly sealed reduction gear enables silent and maintenance-free operation and improves durability.

### (2) Multiple functions

- Half opening function

A half opening switch facilitates half opening operation.

A half opening stroke can be adjusted in four steps from 25% to 75% of the full opening stroke. With a selector on the control box you can choose automatic half opening and fixed half opening. In the automatic half opening, the door is switched between half opening and full opening depending on the traffic frequency. In the fixed half opening, the door is always opened half regardless of the traffic frequency.

- Trouble detection function

If a problem occurs at the door or the drive system--the door is locked or stops by hitting against an obstacle, or the belt is broken--the door detects the problem, cuts power to the motor, and provides a different alarm depending on the problem.

- Pressing function

When fully closed, the door is pressed against the frame in the closing direction to prevent gap between the door and the frame.

- Emergency opening and closing

The door fully opens or closes and provides an alarm when a signal from the emergency sensor is transmitted to the door controller while 100 VAC is applied to the door.

Opening and closing the door in case of power failure is possible by mounting an optional 24 VDC battery.

(3) Automatic adjustment

- Braking position

The braking position at a closing operation is automatically adjusted so that the door moves at low speed over the same distance, regardless of the door weight and running resistance.

(4) Emergency operation

- Automatic stop

When the door that is opening hits against an obstacle or a person, it stops and then power to the motor is cut. When the door that is closing hits against an obstacle or a person, it stops for a moment, and fully opens. After that the door closes at low speed and power to the motor is cut. An alarm is raised to indicate a problem.

- Emergency stop

A emergency stop button stops the door while it is opening or closing.

- Safety beam sensor

An safety beam sensor can be mounted on the door. The sensor operates only while the door is open; it does not operate while the door is fully closed.

(5) Overload detection and automatic reset

When excessive load is applied on the door for continuous 15 seconds or longer while it is opening or closing, power to the motor is cut and an alarm is raised. Door operation is automatically resumed after about 15 seconds.

(6) Single button operation

Single button input by a pull switch etc. enables opening, closing, and stop operations, suitable for refrigerator doors.

(7) Three-button operation

Three-button operation can be used to perform opening (or half opening), closing, and stop operations, suitable for factory doors. (Each button remembers the previous operations.)

(8) Safety beam sensor amplifier

Types with a beam switch in the control box are also available.

(9) Torque adjustment

You can adjust both of opening and closing forces in four steps.

(10) NC specifications

SB, PS, AS, ES of the NC specifications can be supported.

2. (1) Specifications (EDM18)

		Single sliding	Double sliding
Model		EDM18-S	EDM18-D
Applicable (Maximum	Dimensions	1219 (W) x 2134 (H) mm	1067 (W) x 2134 (H) mm
	Weight	90 kgf	80 kgf x 2
Power source & power consumption		100 VAC±10V, 50/60 Hz, 110 W (max)	
Manual open/close during power failure		24.5 to 39.2 N (2.5 to 4 kgf)	29.4 to 49.0 N (3 to 5 kgf)
Rated operation		Continuous opening and closing	
Door opening speed		250 to 500 mm/sec (adjustable)	
Door closing speed		250 to 500 mm/sec (adjustable)	
Opening & closing power		High speed: 137.2 N (14 kgf) Low speed: 78.4 N (8 kgf)	
Motor		Brushless, molded DC motor	
Reduction gear		Sealed, all-belt system	
Control system		Microprocessor control	
Braking stroke adjustment		Automatic adjustment	
Door opening time		1 to 30 sec (adjustable)	
Door-frame gap elimination		Constant press at a low voltage (pressing force: 39.2 N, 4 kgf)	
Emergency operation		Opening: safety stop (with alarm)	
		Closing: High-speed reverse opening and low-speed closing (with alarm)	
Failure detection		An alarm is raised when a failure is detected. Automatic reset after detection of a sensor switch signal or a lapse of a fixed period of time	
Energy saving		4-step half opening operation from 25% to 75%	
Emergency door opening & closing		Possible when a signal from an emergency signal generator is received. (24 V battery pack is required.)	
Operating environment		Ambient temperature: -20 °C to 50 °C (without condensation or ice) Ambient humidity: 30% to 85% RH (without hazardous materials in the atmosphere)	
Insulation resistance		500 VDC, 10 M Ω or more	
Dielectric strength		1,000 VAC for one minute	

2. (2) Specifications (EDM30)

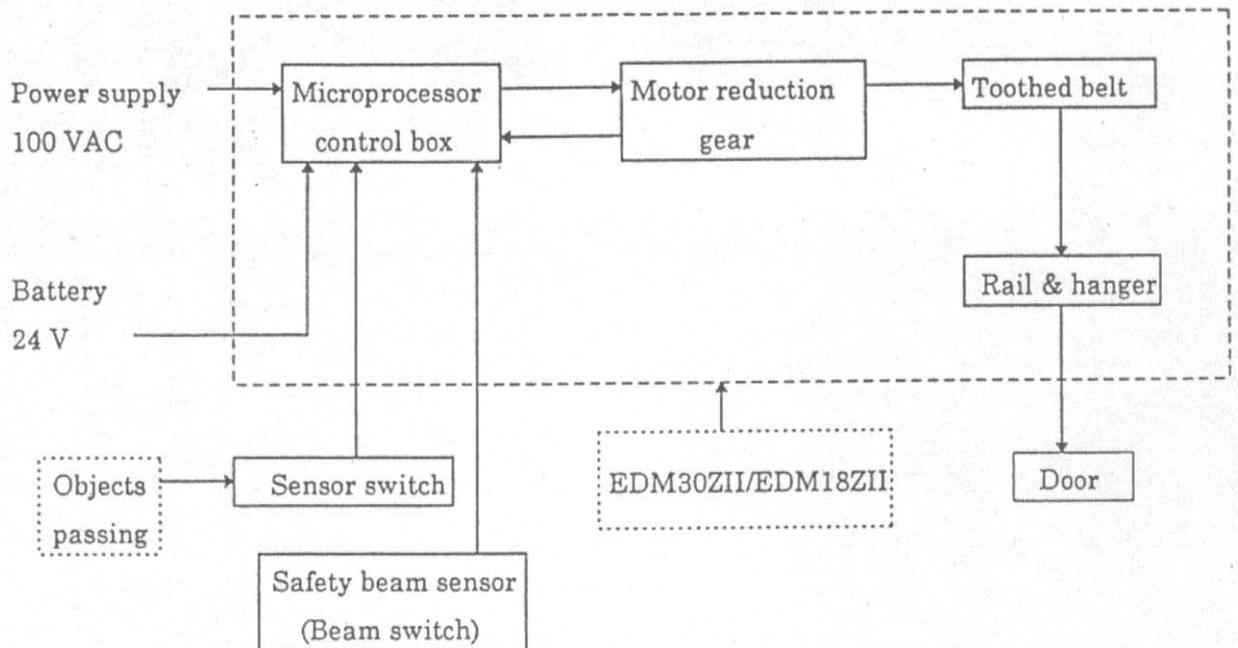
		Single sliding	Double sliding
Model		EDM30-S	EDM30-D
Applicable door (Light weight panel door)	Dimensions	2500 (W) x 4000 (H) mm	2500 (W) x 4000 (H) mm
	Weight	180 kgf (steel roller) 150 kgf (resin roller)	150 kgf x 2
Power source & power consumption		100 VAC+10V, 50/60 Hz, 180 W (max)	
Manual opening & closing during power failure		29.4 to 39.2 N (3 to 4 kgf)	39.2 to 58.8 N (4 to 6 kgf)
Rated operation		Continuous opening and closing	
Door opening speed		250 to 500 mm/sec (adjustable)	
Door closing speed		250 to 500 mm/sec (adjustable)	
Opening & closing power		High speed: 196.0N(20 kgf) Low speed: 117.6N(12 kgf)	
Motor		Brushless, molded DC motor	
Reduction gear		Sealed, all-belt system	
Control system		Microprocessor control	
Braking stroke adjustment		Automatic adjustment	
Door opening time		1 to 30 sec (adjustable)	
Door-frame gap elimination		Constant pressure at a low voltage pressing force: 49.0N(5 kgf)	
Emergency operation		Opening: safety stop (with alarm) Closing: High-speed reverse opening and low-speed closing (with alarm)	
Failure detection		An alarm is raised when a failure is detected. Automatic reset after detection of a sensor switch signal or a lapse of a fixed period of time	
Energy saving (optional selector)		4-step half opening operation from 25% to 75%	
Emergency door opening & closing		Possible when a signal from an emergency signal generator is received. (24 V battery pack is required.)	
Operating environment		Ambient temperature: -20 °C to 50 °C (without condensation or ice) Ambient humidity: 30% to 85% RH (without hazardous materials in the atmosphere)	
Insulation resistance		500 VDC, 10 M Ω or more	
Dielectric strength		1,000 VAC for one minute	

### 3. Construction

The EDM30Z/EDM18Z consists of a motor to move a door, control box to control a reduction gear and motor, a drive belt to convert rotary motion of the motor into reciprocating motion, rollers, door rails, and door hanging parts. These are enclosed in a engine box installed at the top of the door.

A sensor switch that detects passage of persons and cars is installed near the door. Signals from the sensor switch are sent to the control box, which opens and closes the door.

The following figure shows the flow of driving power and control signals.



#### (1) Motor and reduction gear

The brushless molded DC motor is quiet, robust, and durable.

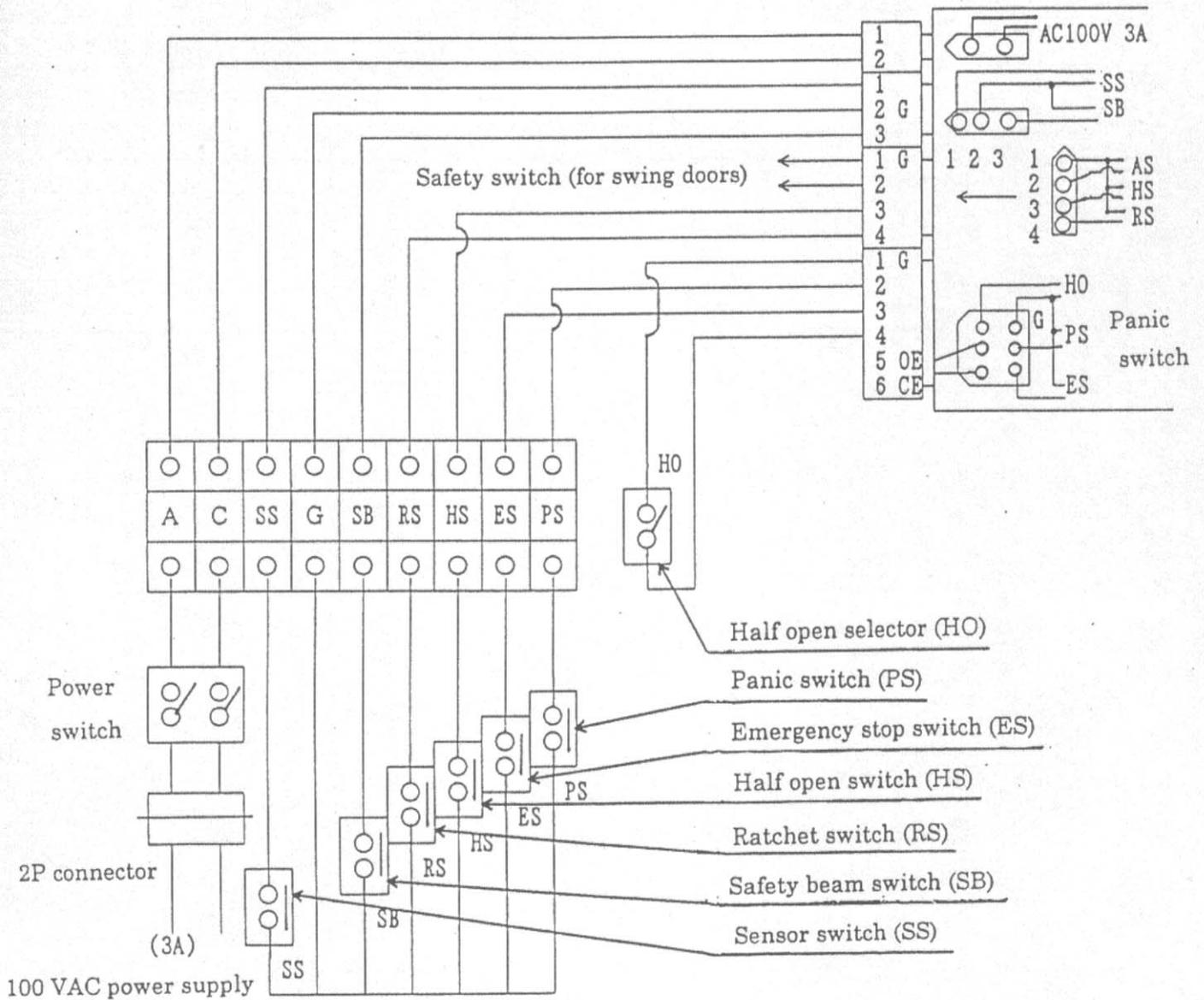
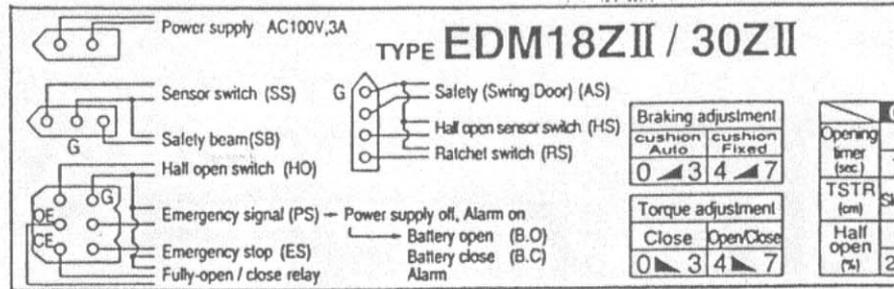
The reduction gear is a durable double reduction type, highly sealed in an aluminum die-cast case. It is connected to the motor with a flange to provide silent operation.

#### (2) Control box

An aluminum control box contains a motor circuit board to put the motor into high-speed, low-speed, and braking modes, and the control circuit board to control these modes.

These circuit boards are equipped with ICs. The control circuit board is equipped with a microcomputer that performs failure detection, half opening and many other operations.

Connections to the control box



## Detection switches

### - Half open selector (HO)

Switches between full and half opening operations. This switch is used for double-sliding or long-stroke doors.

### - Panic switch (PS)

Generates an alarm and opens or closes the door when an emergency signal is turned on at contact a of the emergency sensor relay while 100 VAC is supplied. When an optional battery is installed, opening or closing the door is possible in case of power failure. In this case this switch generates an alarm of seven short beeps and one long beep.

(Support of contact b is possible.)

### - Emergency stop switch (ES)

When this self-holding push button switch is turned on, the door that is opening or closing stops. The door operation is resumed by turning off this switch.

(Support of contact b is possible.)

### - Half open switch (HS)

When this switch is in the on position, the door is always opened partially. Use this switch when you use both of the full open switch and half open switch. For large, long-stroke doors.

### - Ratchet switch (RS)

Performs ratchet operation, opening with a switch ON pulse and closing the next ON pulse. While opened, this switch does not accept any pulses. Used in kick, foot, and push-button switches.

### - Safety beam switch (SB)

Provides a safety beam near the door. While the door is closing, this switch is activated to open the door. This switch does not operate when the door is closed.

(Support of contact b is possible.)

### - Sensor switch (SS)

When this switch is turned on, the door opens. When this is turned off, the door is closed. Light, heat, radar, ultrasonic switches are available for switches installed on the ceiling or upper door frame. Rubber mat and electric mat switches are available for floor switches. Also available are touch switches, pull switches, and push button switches to install on the door.

## (3) Drive unit

A toothed belt is used at the reduction gear output pulley to prevent slippage. The coupling between the belt and the door is made of galvanized iron plate.

## (4) Door hanging brackets

The door hanging brackets made of iron plate are connected to the door with bolts. The rollers are equipped with grease-filled ball bearings and resin tires. The rails are made of extruded aluminum. The roller tires and rails for fire doors are made of iron. (EDM-30)

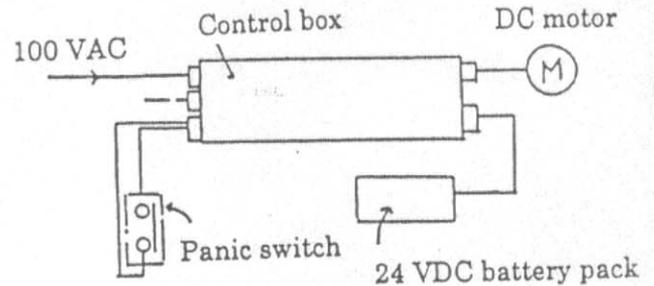
(5) Sensor switch

The sensor switch is available in light, heat, radar, ultrasonic, electronic mat, rubber mat, touch, loop coil, push button switches. Select the one best suited for your requirements.

(6) Options

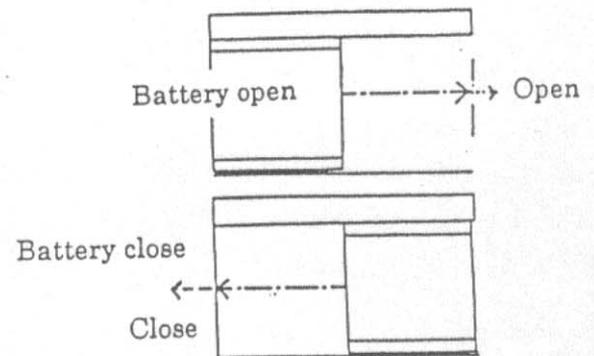
- Battery open system (BO)

This opens the door with an alarm when power failure occurs or the emergency signal is turned on. (Power supply to the motor will last for the first 25 seconds.)



- Battery close system (BC)

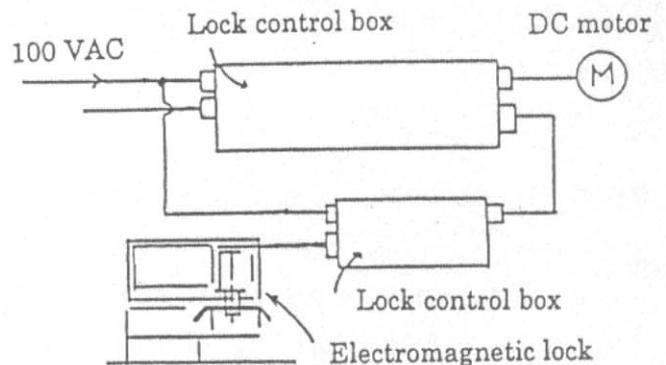
This closes the door with an alarm and presses the door against the frame until the battery is discharged (for about 30 minutes) when power failure occurs or the emergency signal is turned on. This system is suitable for fire doors.



- Electromagnetic lock unlocking system (L1)

This unlocks the electromagnetic lock to open the door when a signal of the sensor switch is turned on. The lock is locked when the door is fully closed.

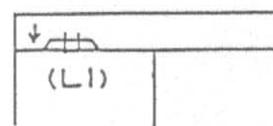
The door remains locked in case of power failure and when the power is turned off.



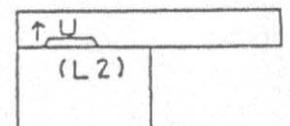
- Electromagnetic lock locking system (L2)

This unlocks the electromagnetic lock to open the door when a signal of the sensor switch is turned on. The lock is locked when the door is fully closed.

The door is unlocked in case of power failure and when the power is turned off.



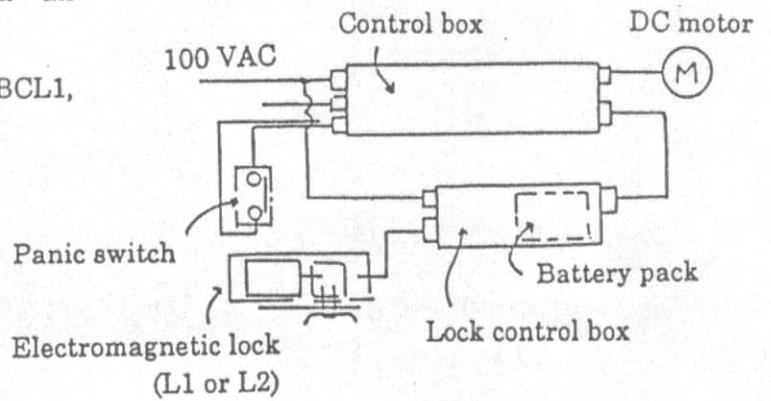
Locked when power is off



Unlocked when power is off

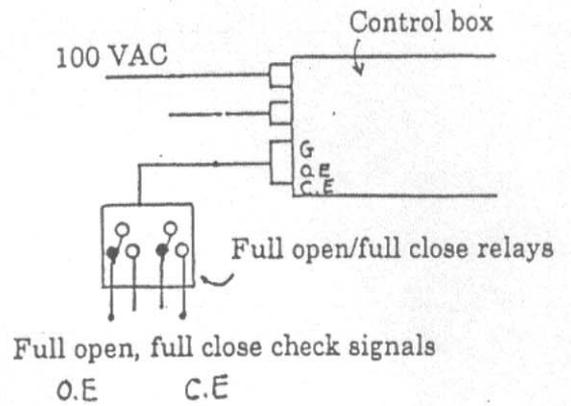
- Battery open/close system with an electromagnetic lock

Four combinations of BOL1, BOL2, BCL1, BCL2 are possible.



- Full close/full open relays

Suitable for interlock automatic doors of air shower rooms. These relays can activate indicators and buzzers only while the door is opening or closing.



#### 4. Operation

The EDM18ZII/EDM30ZII does not detect the door stroke and braking position with a position detecting switch like the conventional automatic doors, but reads the number of pulses from the motor by the microcomputer, memorizes the door stroke, and automatically adjusts the braking position and half open position based on the door stroke, which eliminates the need for a position detecting switch and adjustments of the braking position etc.

The following shows the operation of the EDM18ZII/EDM30ZII from power on.

##### (1) Teaching operation (door stroke reading)

(a) About three seconds after the power switch is turned on, the EDM18ZII/EDM30ZII fully closes the door that is opened at low speed and presses it against the door frame. (When the door is fully closed, it is pressed against the door frame about three seconds later.)

(b) When receiving the first ON signal from the sensor switch, the EDM18ZII/EDM30ZII opens the door about 70% of the stroke at high speed, then after applying a brake, moves it to the full open position at low speed.

(c) After the time set by the open timer has lapsed, the EDM18ZII/EDM30ZII closes the door at high speed, applied a brake just before the full open position, and moves it at low speed until the door fully closes.

The EDM18ZII/EDM30ZII has read the door stroke and memorized it with these steps.

The memory is cleared when the power is turned off. Every time the power is turned on, these steps are performed.

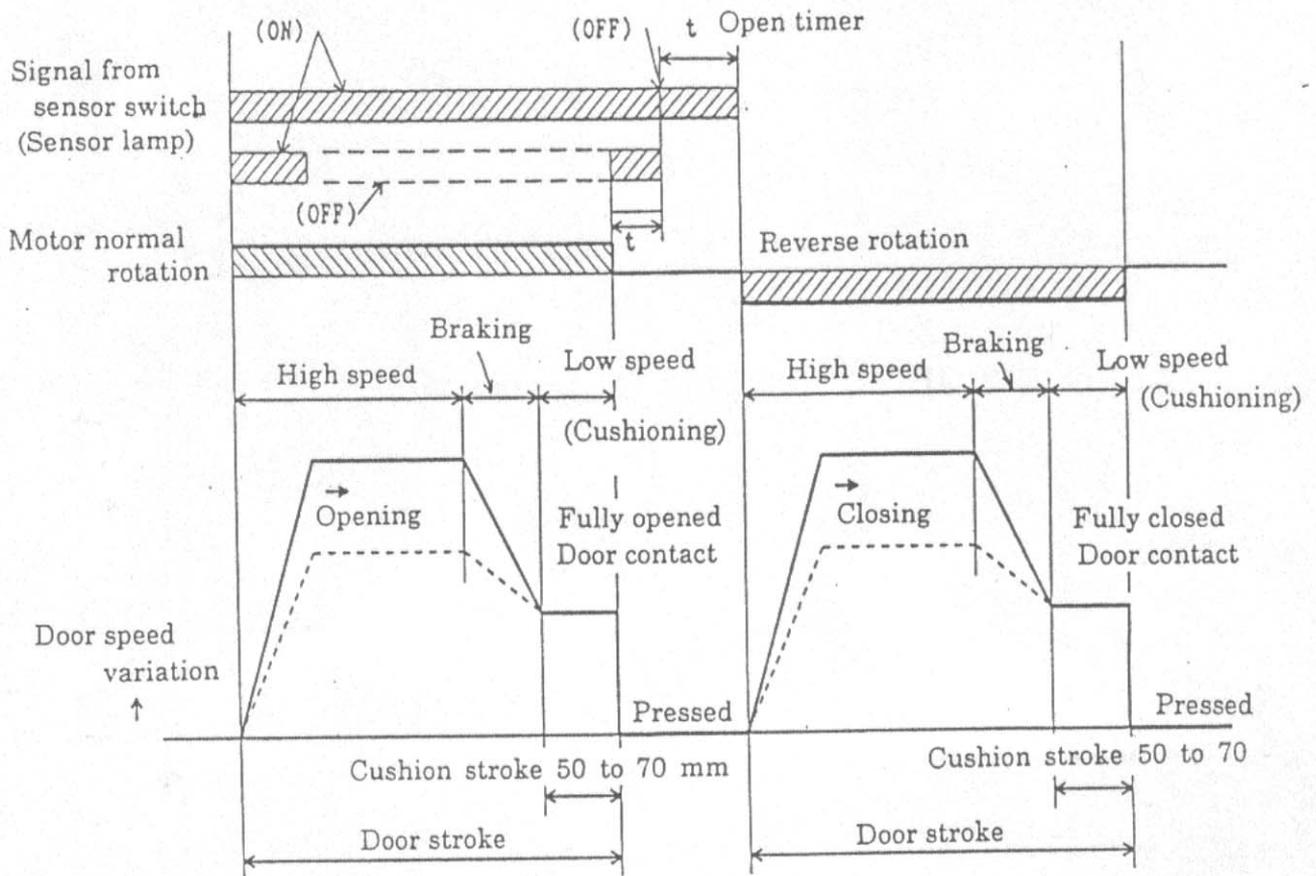
##### (2) Opening/closing operation (normal door operation)

After the teaching operation is completed, the EDM18ZII/EDM30ZII starts normal operation.

(a) Opening: When the sensor switch is turned on, the door opens at high speed, slows down immediately before the full open position. When it reaches the full open position, it is pressed against the door frame.

(b) Closing: When the sensor switch is turned off, the door closes at high speed, slows down immediately before the full close position. When it reaches the full close position, it is pressed against the door frame.

The braking position is adjusted automatically so that the low speed section is 50 to 70 mm. If the sensor switch is turned on while the door is being closed, it quickly opens.



### (3) Half open operation

Use the selector on the control box to select the half open stroke in 4 steps from 25% to 75% of the full stroke and to select fixed half open or automatic full/half open. Then turn the half open selector to the ON position to enter the half open mode.

**Opening:** When the sensor switch is turned on, 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.

**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 ON for seven seconds or longer, the door that was half opened fully opens.
- While the door that was half opened is being closed, it returns to the half open position when a signal is received from the sensor switch. When another signal comes from the sensor switch, the door fully opens.

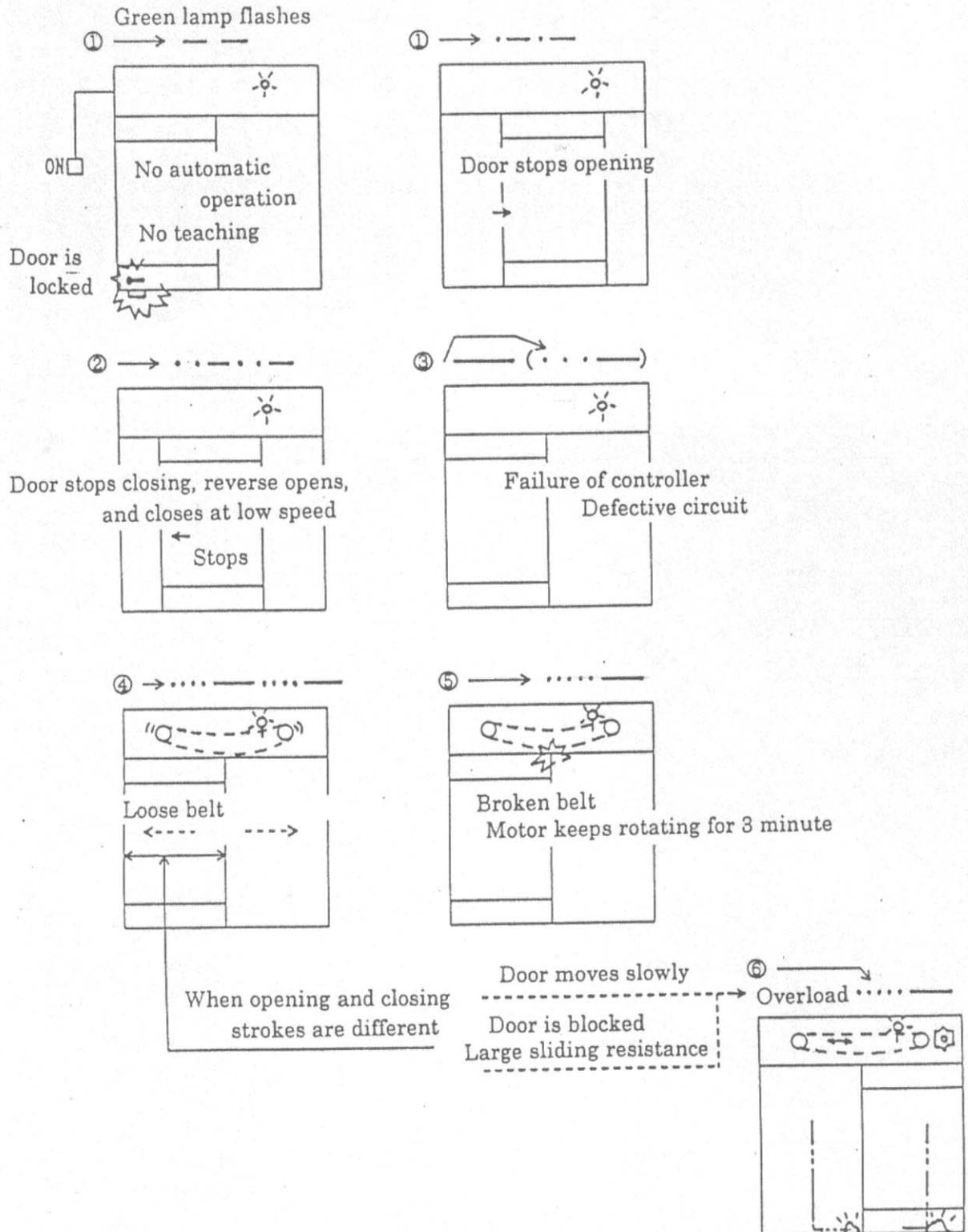
### (4) Trouble detection

When a trouble occurs at the door or drive system—the door is locked, stops by hitting against an obstacle, or the belt is broken—the EDM18ZII/EDM30ZII detects the problem, cuts power to the motor, and raises an alarm by using lamps. Alarm display by the lamps is different depending on the problem.

(5) Load detection and automatic reset

When the door is kept overloaded for continuous 15 seconds or longer while it is being opened or closed, the EDM18ZII/EDM30ZII cuts power to the motor and the power lamp (green) flashes.

The EDM18ZII/EDM30ZII is automatically reset after about 15 seconds.



These are temporary problems. After removing the problems, turn the sensor switch ON and OFF or wait for about 15 seconds to reset the EDM18ZII & EDM30ZII.



(2) Adjustment before automatic operation

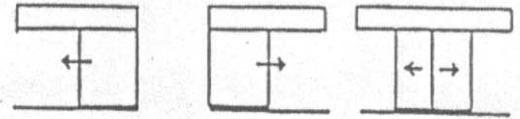
Adjust the following items before turning on the power (100 VAC, 3A).

1) Opening time and direction selector

Use this to select the door opening direction.

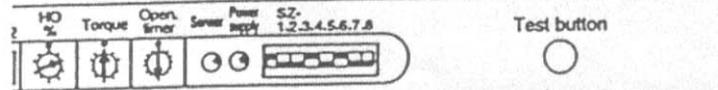
- Single sliding, left opening: Set at the "L" position.
- Single sliding, right opening: Set at the the "R" position.
- Double sliding: Set at the "D" position.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Opening time (sec)	L								R · D							
	1	2	3	5	7	10	20	30	1	2	3	5	7	10	20	30



2) Mode selector

The mode selector from S1,S2,SZ1 to SZ8 is set at delivery. To change the setting, follow the instructions below.



	S-1	2	SZ-1	2	3	4	5	6	7	8
Upper	Braking point EDM30	Press open	B.O	DC Swing	Input signal N.C	AS FIXED	-	E. lock No	One-contact button	3-point pushbutton
Lower	EDM18	Off	B.C	Sliding	N.O	DOOR	-	Yes	Ratchet	No 3-point pushbutton

- S1: Braking position change

Set this at the lower position to set the braking position for 250 mm standard doors.

Set this at the upper position for heavy or long-stroke doors.

- S2: Pressing of door opened

Set this at the upper position to press the door opened. Use this setting for swing doors.

- SZ1: Switching battery open and close

When using an optional battery system, set this at the upper position to open the door; set at the lower position to close the door.

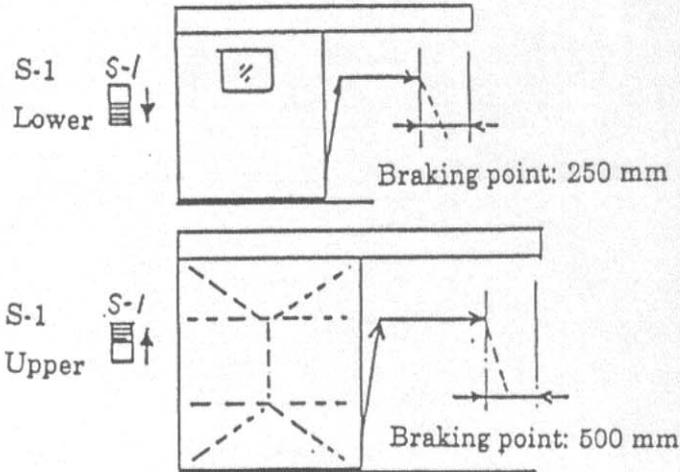
This open or close operation is the same as when using the PS signal.

- SZ2: Switching swing doors with a door check and without springs

Set this at the upper position for doors that automatically closes when the power is off.

Use the setting at right. →

The door moves very slowly toward the opening direction for half opening and stop operations.



High speed closing: "0" (min)  
 Brake: "7" (fixed, max)  
 Opening press: SZ2 upper ("ON")  
 Low speed: "4" or higher  
 (The door may stops while opening if you select a speed slower than this.)

- SZ3: Switching NO and NC for input signals

Use this to select operations for the SB, ES, PS, AS signals.

Set this at the upper position (NC) to operate when the input becomes open. (Contact b input)

Set this at the lower position (NO) to operate when the input becomes close. (Contact a input)

Operations for the four signals are changed at the same time.

- SZ4: Switching operation of safety beam switch for swing doors (valid only when using the AS signal)

Set this at the upper position for ceiling or floor mount types. Set at the lower position for door mount types.

- SZ5: Unused

- SZ6: Switching electromagnetic lock

Set this at the lower position when you use an electromagnetic lock and at the upper position when you do not use it.

- SZ7: Switching operations of the RS signal

i. Set this at the upper position when you need ratchet and stop operations.

One RS pulse opens the door. After the door is fully opened, it is kept open. The next pulse closes the door.

When one pulse is input while the door is opening, it stops. When one pulse is input while the door is at a standstill, it closes.

When one pulse is input while the door is closing, it reverse opens.

This is suitable for refrigerator doors.

ii Set this at the lower position for normal ratchet operation.

One RS pulse opens the door. After the door is fully opened, it is kept open.

The next RS pulse closes the door. The EDM18ZII/EDM30ZII does not accept any signals when the door is opening.

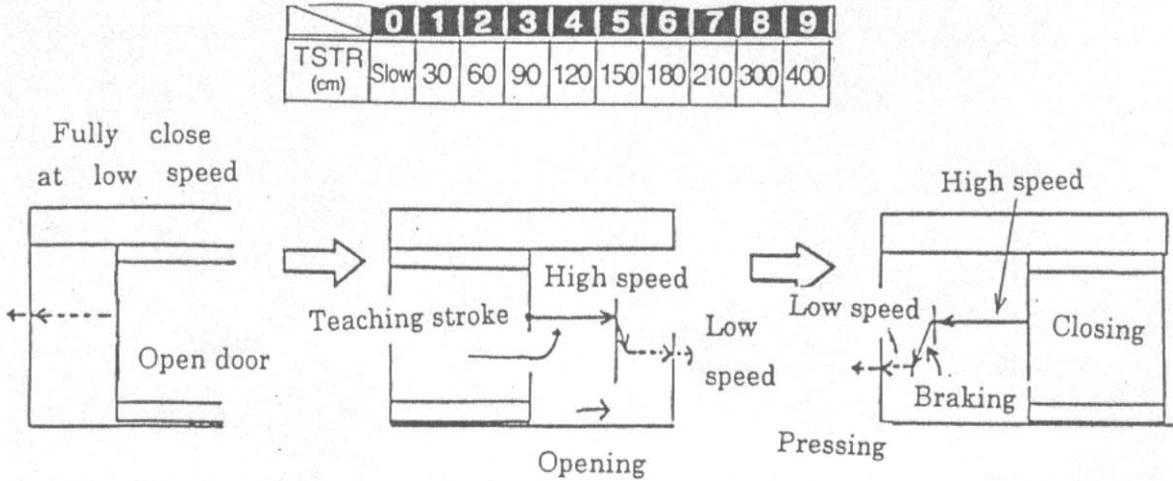
- SZ8: Switching push button operations

i. Set this at the upper position to use SS, HS, ES, AS inputs for open, half open, stop, close push buttons. These push buttons have a data holding function. The data in memory are cleared by pressing another button. This setting is suitable for factory doors.

ii. Set this at the lower position to let the above inputs perform normal operations.

### 3) Teaching stroke selector

This adjusts a high speed section during teaching. Use this to adjust the high speed section so that it does not exceed 70% of the door stroke. If the section exceeds 70%, the door may hit at the door stop at high speed.



### (3) Automatic operation

1) Turn on the power switch.

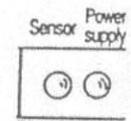
After about three seconds, if the door is open, the EDM18ZII/EDM30ZII closes it at low speed and presses it against the door frame.

2) The power indicator (green) illuminates.

3) Press the test button to check door operation.

When the button is pressed, the teaching process starts. The door opens at high speed and, after slowing down, opens fully. Then it closes at high speed and, after slowing down, closes fully, and is pressed against the door frame.

4) Pressing the test button illuminates the sensor indicator (red).



Test button



5) Adjust braking force.

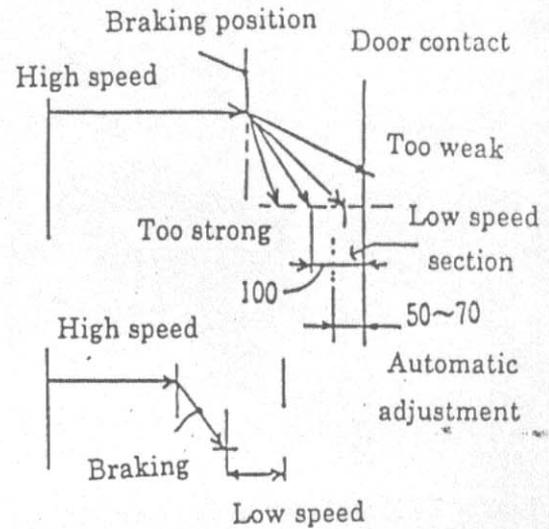
Adjust the braking force from the braking point (adjustable) to the low speed section. After two or three door operations, set the braking force so that the low speed section lasts 50 to 100 mm.

If the braking force is too weak, the door hits against the door stop and goes beyond its proper stop position when it stops to move in the reverse direction. If the braking force is too strong, the door bounces upward.

Set this from 0 to 3 to adjust the low speed section automatically to 50 to 70 mm. Set this from 4 to 7 when you fix the low speed section. (Do not set at 8 or 9.)

When the low speed section is fixed, the EDM18ZII/EDM30ZII uses the braking position specified at S1. The low speed section is determined by the relation between the high speed and braking force.

Braking adjustment	
cushion Auto	cushion Fixed
0 ▲ 3	4 ▲ 7



6) Adjust opening speed

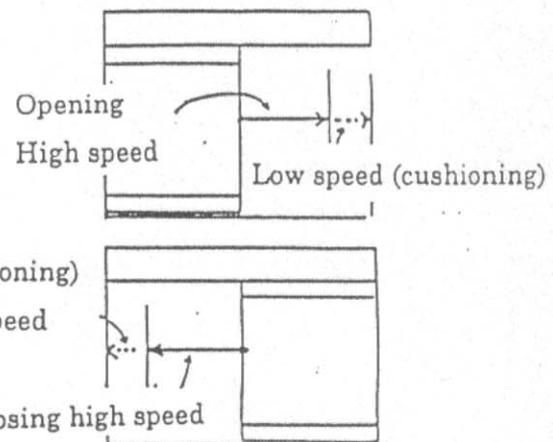
7) Adjust closing speed

Adjust high speed of opening and closing. Start with low speed and gradually increase the speed so that the low speed section after braking continues least 50 mm. Normally use the closing speed slower than the opening speed.

8) Adjust cushioning speed (low speed)

Adjust low speed after brake is applied. Normally set this at 50 to 60 mm/sec. An excessively low speed results in slow door operation. Set this after checking the slow speed section during teaching process.

Clos.sp.	Cushion	Open.sp.
0 ▲ 9	0 ▲ 9	0 ▲ 9



9) Adjust open timer (open time) (This switch also performs opening direction switching.)

Adjust the door open time after the sensor switch is turned off until the door begins to close. You can select from 1 to 30 seconds in eight steps.

Normally set this at one to two seconds. However, the open time is ignored for a ratchet push button (RS) types.

10) Opening and closing power adjuster

- The door opening and closing force can be adjusted from 60% to 100%.

- Set at 0 to 3 when reducing only the closing force. Set at 4 to 7 when reducing both the opening and closing forces. (Do not set at 8 or 9.)

- Using the weak closing force alleviates the shock when the door should hit against an obstacle. However, this slows start-up.

- When light-weight doors bounce at starting, reduce both the opening and closing forces for smooth move. Braking may also provide a shock; so use a weak braking force.

11) Half open operation switch

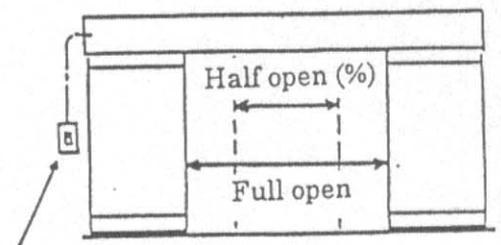
The half open stroke can be selected from 25% to 75% in four steps. You can choose automatic mode and fixed mode with this switch. In automatic mode the EDM18ZII/EDM30ZII automatically switches full open and half open depending on the traffic density. In fixed mode the EDM18ZII/EDM30ZII always opens the door partially regardless of the traffic. Set this switch at 0 to 3 for automatic mode, and at 4 to 7 for fixed mode. (Do not set at 8 or 9.)

However, for half open operation, set the external full open/half open selector (HO).

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Opening timer (sec.)	L								R · D							
	1	2	3	5	7	10	20	30	1	2	3	5	7	10	20	30

Torque adjustment	
Close	Open/Close
0 ▲ 3	4 ▲ 7

	0	1	2	3	4	5	6	7	8	9
Half open (%)	Auto				Constant				-	-
	25	38	50	75	25	38	50	75		



Half open selector (HO)

12) Alarm ON/OFF switch

Set this switch at the off position when you do not need an alarm buzzer.

Even if this switch is off, the power indicator (green) flashes to indicate an alarm.

13) Sensor switch indicator

The red indicator illuminates when the sensor switch is turned on.

(This illuminates when the EDM18ZII/EDM30ZII receives the SS, HS, or RS signals and when the door is reverse opened at the SB signal.)

You can check adjustment and operation of the sensor switch at maintenance.

14) Safety beam switch (only for types with a built-in amplifier)

- The built-in amplifier can use one beam or two beams.

Connect the amplifier with the lead from the control box using the relay sleeve that comes with. For one beam operation, cut the white wire that is not used.

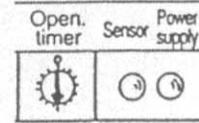
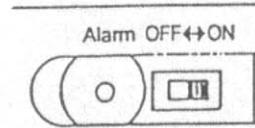
- When the control box is installed at the front, you can remove the lid of the safety beam section and connect the amplifier directly with the terminal block inside.

- Turning the power on illuminates the monitor lamp.

When the lamp flashes or does not illuminate, adjust the sensor head.

Illuminating . . . Light transmission and reception are normal.

Flashing . . . The axis of light is displaced. Or light transmission and reception planes are displaced or too far apart. (Adjust the

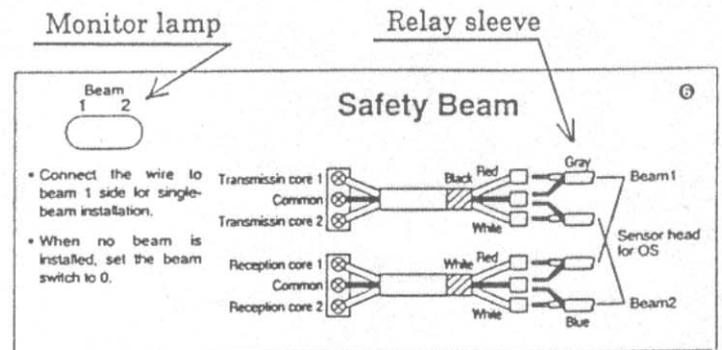


sensitivity selector on the printed circuit board inside.) It is set at M at delivery. Going out . . . This shows that the light is detected.

- For two-beam operation, adjust the selector on the printed circuit board to two beam mode. (This is set at one beam mode when delivered.)

- Cautions:

1. Only sensor heads for OS can be used. (You cannot use reflective OS1PR or touch switching OT-2RS.)
2. The head plate is optional.
3. The standard sensor head is 5 m long. Also available is a 10-m-long sensor head as an option.



## 6. Application suited for the Z type series

The Z type series is a microprocessor-controlled automatic door operator with many functions. We recommend the following applications besides normal automatic doors.

- (1) When requiring an electromagnetic lock system
- (2) When requiring battery open/close operation
- (3) When combining sensor switches

Full open sensor switch, half open sensor switch, ratchet switch, safety beam, emergency stop switch, emergency signal (fire signal), etc.

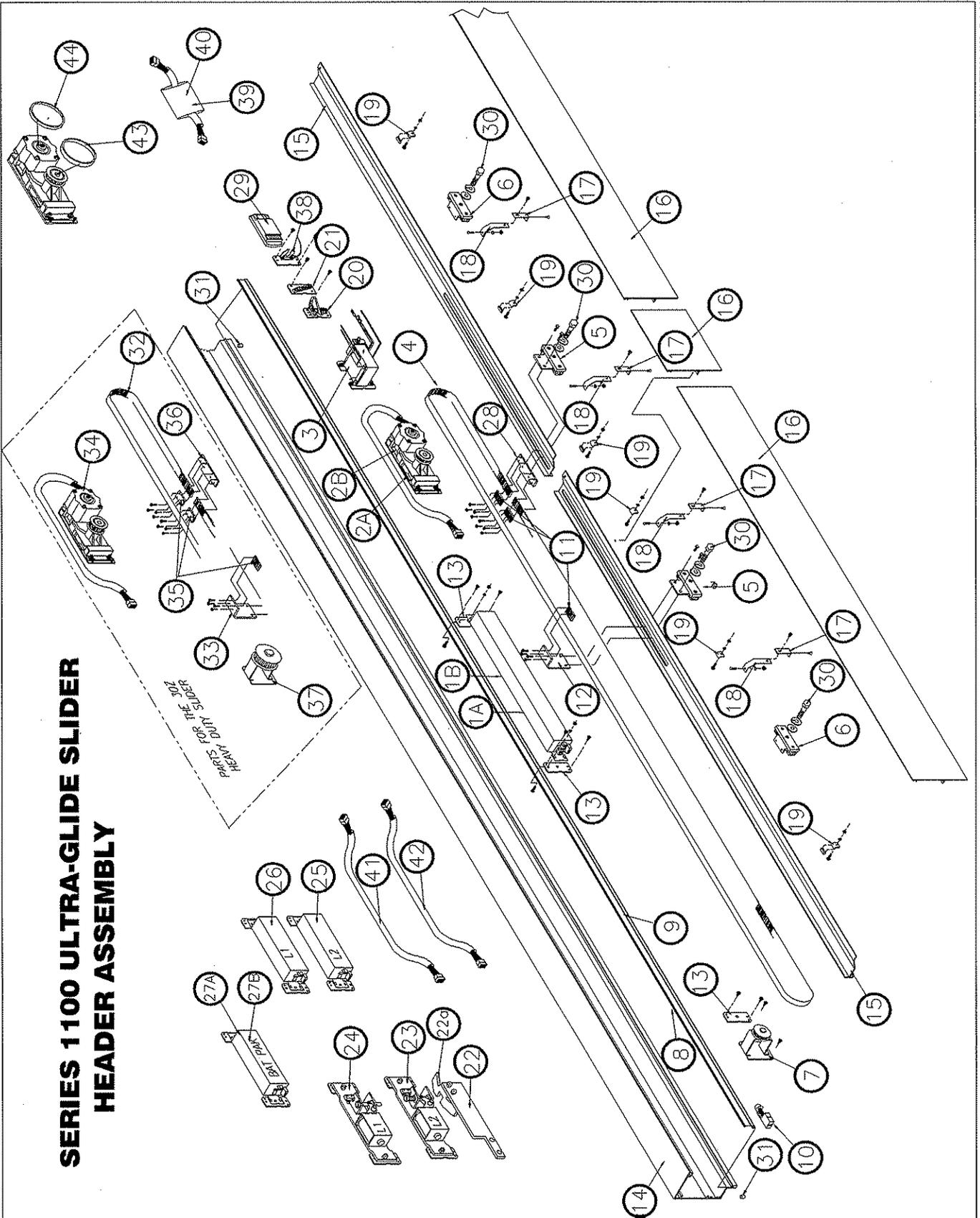
- (4) Microprocessor-controlled swing doors (with a safety circuit)
- (5) Swing doors with a door check or spring
- (6) Microprocessor-controlled sliding doors with a counter balance
- (7) Long-stroke (30 m or longer) microprocessor-controlled doors with a limit switch
- (8) Microprocessor-controlled sliding doors
- (9) When requiring full open and full close check signals

## 7. Switch settings at delivery

Closing speed	"7"	Motor rotation instruction: about 3,000 min-1
Low speed	"3"	Motor rotation instruction: about 350 min-1
Opening speed	"7"	Motor rotation instruction: about 3,000 min-1
TSTR	"2"	Teaching stroke: 60 cm
Braking power	"3"	Automatic cushioning, maximum braking
S1	Lower	Braking position: about 250 mm
S2	Upper	Open pressing
Half open	"2"	Automatic half open, 50% of the full stroke
Torque	"0"	Closing torque adjustment, 100% torque
Open timer	"8"	Opening direction: Right sliding Open timer: 1 second

SZ1	Upper	Battery open
SZ2	Lower	Standard sliding door
SZ3	Lower	NO (contact is on during operation)
SZ4	Upper	Fixed AS switch (for swing doors)
SZ5	-----	-----
SZ6	Upper	Without electromagnetic lock
SZ7	Lower	Standard ratchet
SZ8	Lower	Standard open/close input

# SERIES 1100 ULTRA-GLIDE SLIDER HEADER ASSEMBLY



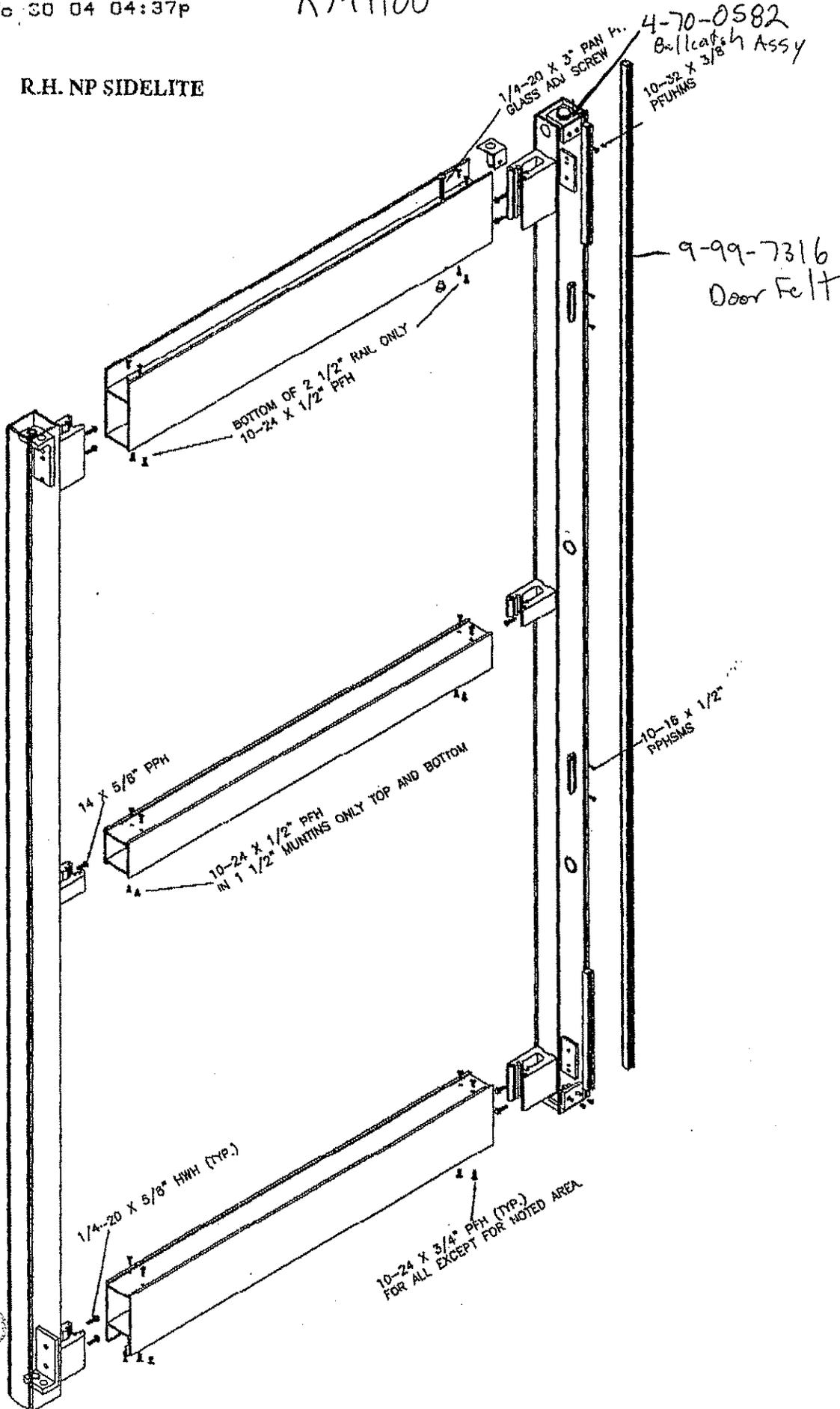
PARTS BOX FOR THE SLIDER  
PARTS BOX FOR THE SLIDER

KEANE MONROE

# 1100 SERIES SLIDER HEADER ASSEMBLY PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY. REQD.	LIST PRICE	ITEM	PART NUMBER	DESCRIPTION	QTY. REQD.	LIST PRICE
1a	9-99-1311	CONTROL, 18Z	1	N/A 	31	9-99-0238	NP TOP PIVOT BEARING	2	4.80
1b	9-99-1314	CONTROL, 18ZII	1	1,540.00	32	9-09-0009	30ZII TIMING BELT	**	24.00/ft.
2a	9-99-2124	MOTOR GEARBOX ASSY. EDM18Z	1	N/A 	33	4-71-0018	UPPER BELT BRACKET ASSY.-30ZII	1	36.00
2b	9-99-2140	MOTOR GEARBOX ASSY. EDM18ZII	1	1,596.00	34	9-99-2141	30ZII GEARBOX	1	2,170.00
3	4-11-0600	TRANSFORMER ASSEMBLY	1	360.00	35	9-99-0455	BELT RETAINER CLAMP EDM30ZII	3	9.12
4	9-99-0008	TIMING BELT	**	13.00/ft.	36	4-71-0019	LOWER BELT BRACKET-30ZII	1	42.00
5	4-11-0023	BELT CARRIER ASSEMBLY	2	148.80	37	4-71-0022	IDLER PULLEY ASSY.-30ZII	1	120.00
6	4-11-0024	SLAVE CARRIER ASSEMBLY	2	144.00	38	4-11-0453	CONDUIT BRKT.ASSY.	1	14.40
7	4-11-0022	IDLER PULLEY ASSEMBLY	1	100.80	39	9-99-2146	CONVERTOR, ZII control to Z gearbox -- "B"	1	70.00
8	9-11-0001	TRACK CAP	**	4.00/ft.	40	9-99-2147	CONVERTOR, Z control to ZII gearbox --"A"	1	70.00
9	5-11-4004	TRACK	**	4.80/ft.	41	9-99-5581	LOCK CABLE ZII	1	47.60
10	4-11-0457	DOOR STOP ASSY.	2	36.00	42	9-99-5583	LOCK CABLE, Z	1	56.00
11	9-99-0454	BELT RETAINER CLAMP	3	28.80	43	9-09-0010	LARGE BELT, Gearbox	1	53.20
12	4-11-1003	UPPER BELT CARRIER PLATE,	1	31.20	44	9-09-0011	SMALL BELT, Gearbox	1	53.20
13	4-11-1009	equipment mounting	7 *	24.00	**	9-07-0014	CARRIER ROLLER	*	30.00
14	5-11-4001	HEADER EXTRUSION	**	36.00/ft.					
15	5-11-4003	CLOSE-OUT SHELF	**	12.00/ft.					
16	5-11-4002	COVER EXTRUSION	**	19.20/ft.					
17	4-11-1026	LOWER SHELF SUPPORT BRKT.	4 *	6.24					
18	4-11-1016	UPPER SHELF SUPPORT BRKT.	4 *	5.40					
19	4-11-1002	TRACK CLAMP	8 *	4.20					
20	4-11-0601	TERMINAL BAR 24v. Access.	1	40.80					
21	4-11-0602	TERMINAL BAR-Signal	1	28.80					
22	4-11-1012	ELECT. LOCK BRACKET	1	16.80					
22a	9-99-5565	STRIKE PLATE	1	19.20					
23	9-99-5563	FAIL-SAFE LOCK (L2)	1	700.00					
24	9-99-5566	FAIL-SECURE LOCK (L1)	1	700.00					
25	9-99-5580	FAIL-SAFE LOCK CONTROL (L2)	1	400.00					
26	9-99-5579	FAIL-SECURE LOCK CONTROL (L1)	1	400.00					
27a	9-99-5578	BATTERY PACK (Z11)	1	616.00					
27b	9-99-5571	BATTERY PACK (1100)	1	N/A 					
28	4-11-1004	LOWER BELT CARRIER	1	36.00					
29	9-61-0022	SAFETY BEAM SET (OPTEX OS-10C) (module shown)	1	408.00					
30	81-0068-3724	DOOR CARRIER BOLT	*	4.80					
									
					*	QUANTITY WILL VARY BASED ON SIZE/TYPE OF UNIT			

R.H. NP SIDELITE



L.H. SLIDING DOOR  
NP/PP UNIT

