



NABCO Automatic Door

NATRUS

V-60/85/150/250/500SL [Sliding Door Series]

Highest level of safety



Future-standard automatic door
with a priority on safety



NABCO × TRUST = NATRUS



※ Picture for illustrative purposes only.

Solid technologies and quality open the future

Based on the relationship of trust we have developed with our customers, we have been providing innovative and high quality Pedestrian Flow Solutions that create a more comfortable environment. To prove worthy of our customers' trust, we have developed "NATRUS," which further enhances safety, by drawing on our past experience and accumulated know-how.

Products conform to EN16005 and JIS A 4722

NATRUS offers a safer passage environment based on European and Japanese safety standards.



Responsible for safety

As modern society becomes an aging society, products that can offer a higher level of safety are becoming more sought after.

"Safety" is the key element that everyone needs to consider.

Although safety is incorporated into conventional automatic doors, the improvement of safety performance is a never-ending task.

Automatic doors must be safe for all people including pedestrians as well as building managers and owners.

Everyone desires a safe future.

Toward “Doors for everyone” based on technologies, services, and experience

In the future society, entrances providing safety and comfort are required for all people, from children to the elderly, as a matter of course (Doors for everyone).

In order to build such a society, NABCO has launched a new product, NATRUS.

NATRUS is a true “in-a-class-of-its-own” product developed by NABCO, based on over 60 years of experience in technologies, services and safety standards.

NATRUS

Technology

- NABCO network system
- Long-life design

Service

- Precise maintenance

Experience

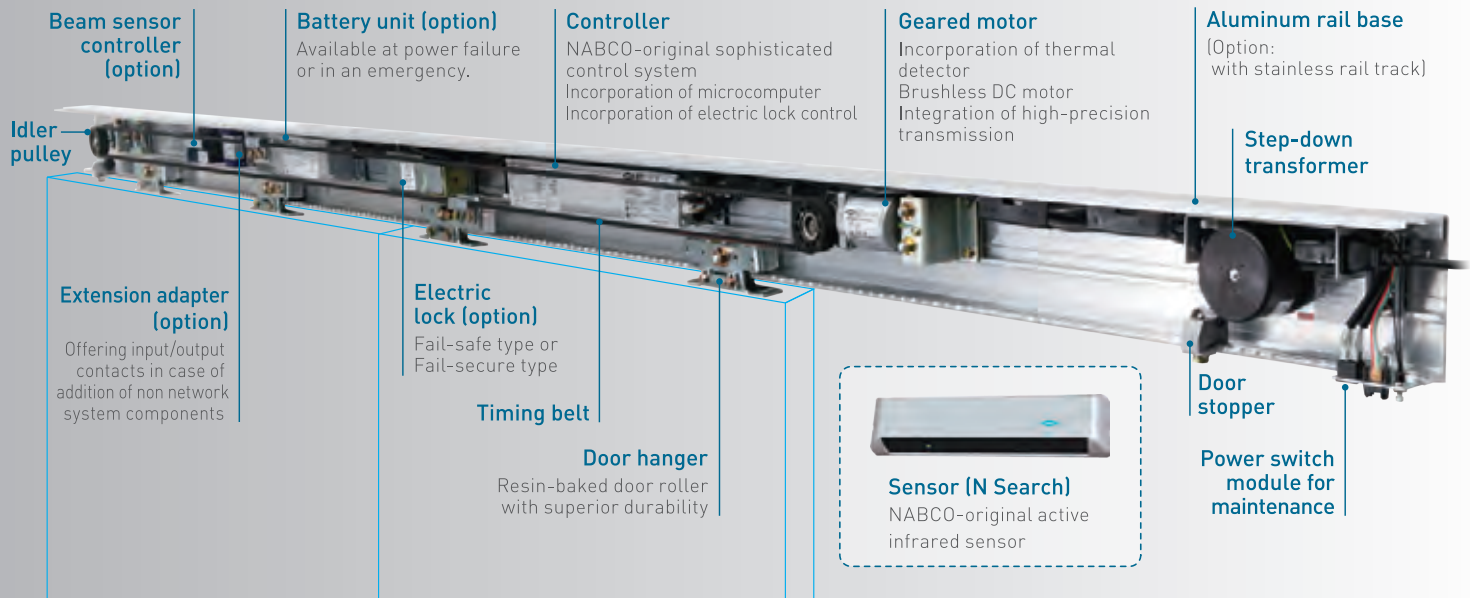
- Experience and sales performance for over 60 years
- Solutions proposals

Safety

- NABCO original safety standards
- Conformance to EN 16005 and JIS A 4722

Toward achievement of
“Doors for everyone”

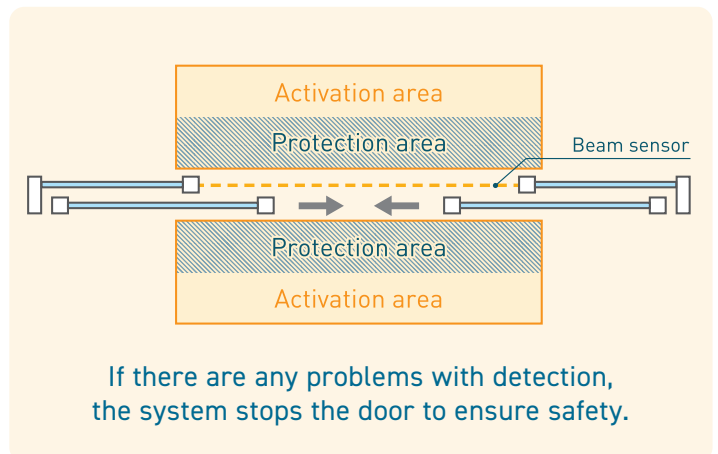
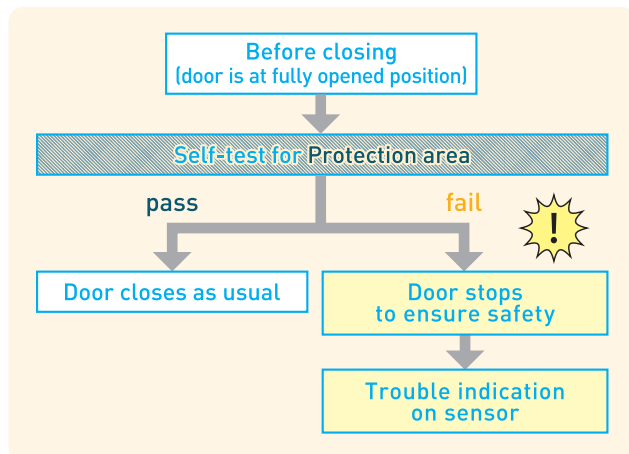
1. Full model change for top level of safety



※ This is an image diagram of the V-60/85/150SL drive unit.

Self-test feature for sensors

The door system conducts a self-test in every operation to check whether sensors are working in order to correctly detect the protection area.



Trouble indication on sensor

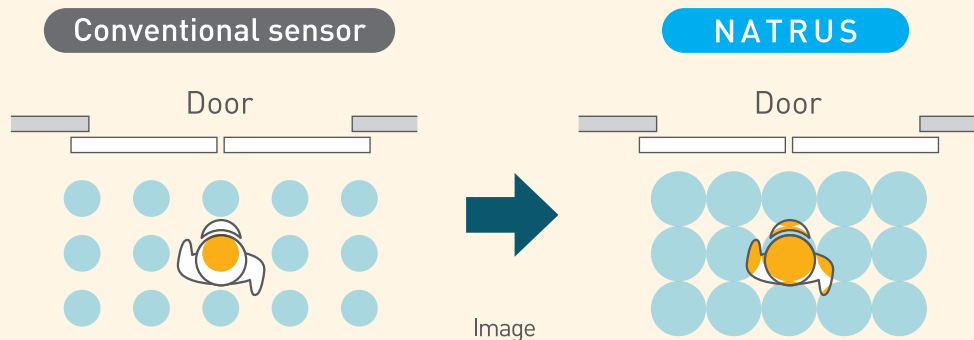


LED blinks to show occurrence of trouble



If there are any problems with the components including the sensors, the fail-safe mechanism works and the LED starts blinking to show "network component error" so that building owners can easily comprehend the current situation. In the case the sensor shows the LED blinking, please contact your local distributor of NABCO.

Higher density of sensor area

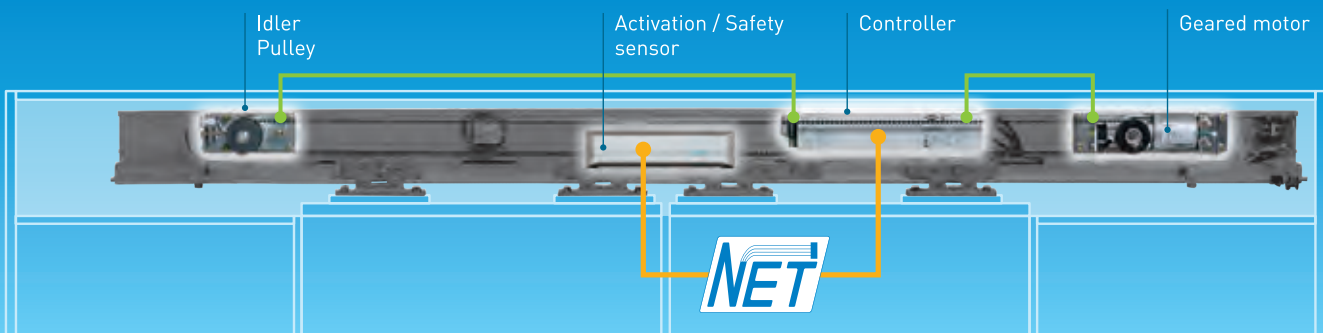


Densifying the sensor area results in greater certainty of detection and better reaction to potential risks near the door, in order to prevent collisions between the door and pedestrians.

NABCO network system based on CAN communication

NABCO network system

Self-diagnosis function allows the automatic door to monitor safety autonomously. If a problem occurs, it can be identified immediately and the fail-safe mechanism will work to prevent an accident.



What is CAN (Controller Area Network)?

The CAN technology used in NATRUS is the ISO international standard network technology. Since this technology offers high reliability, noise resistance and superior fault-detecting features in information communications, it has been widely used to transfer important information in various fields including transportation equipment such as automobiles, aircraft, railroad vehicles and ships; medical equipment; and industrial equipment.

Fail-safe design

Troubles with components are detected by the self-diagnosis and automatically trigger the fail-safe mechanism to ensure the safety of pedestrians.



Occurrence of trouble involving a component



The door system detects the faulty components to provide optimal operation.

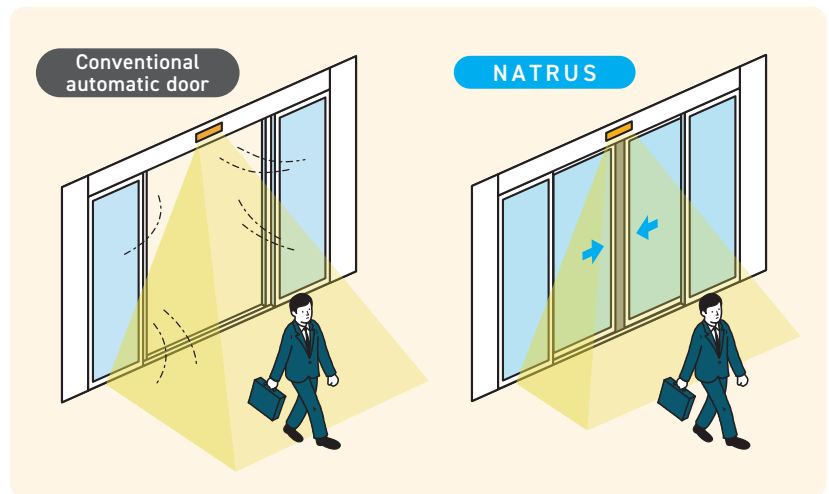
For example:

- (1) If trouble with the geared motor is detected, the door stops.
- (2) If trouble with the sensor is detected, the door is fully opens.
- (3) If a wire break is detected, the door stops.

2. Various setups for a comfortable environment

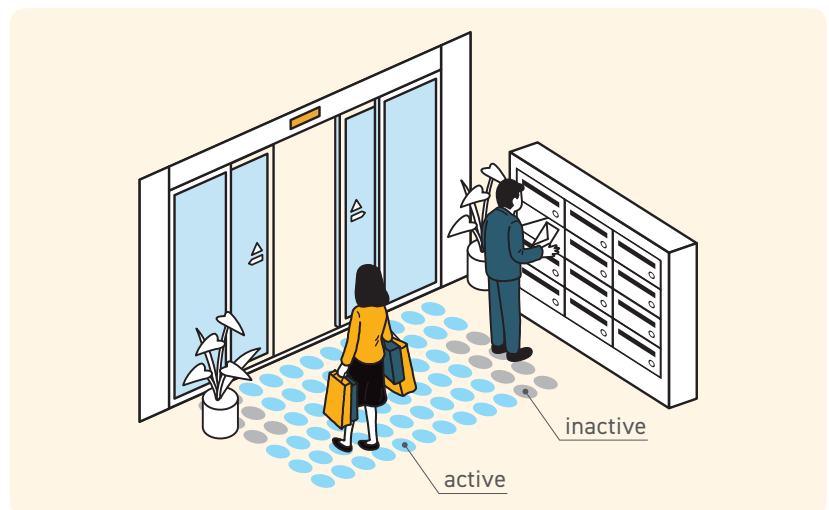
ECO mode Advantage

The door system judges pedestrian's movement and, after the pedestrian passes through the door, starts the closing action earlier, contributing to energy saving.



Spot-by-spot setup of sensor Advantage

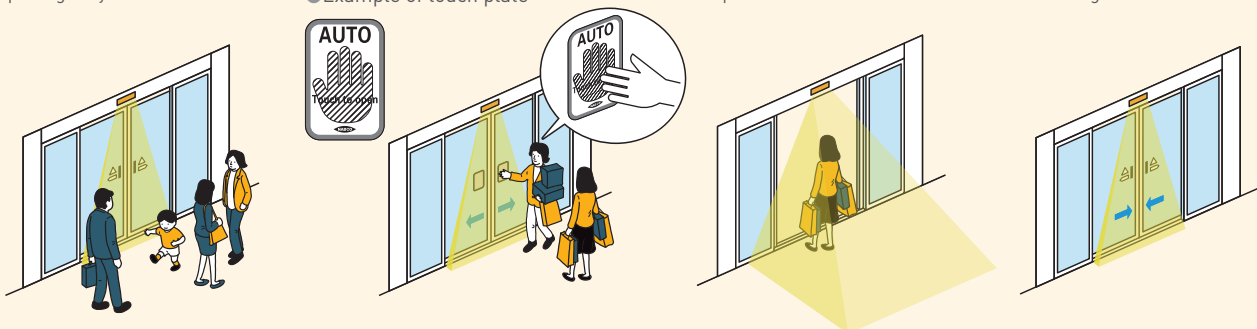
Since sensor detection spots can be set one by one according to the actual site environment, it is possible to reduce unnecessary door operation. The interior environment is improved and operational efficiency is maintained.



Touchless switch mode Advantage

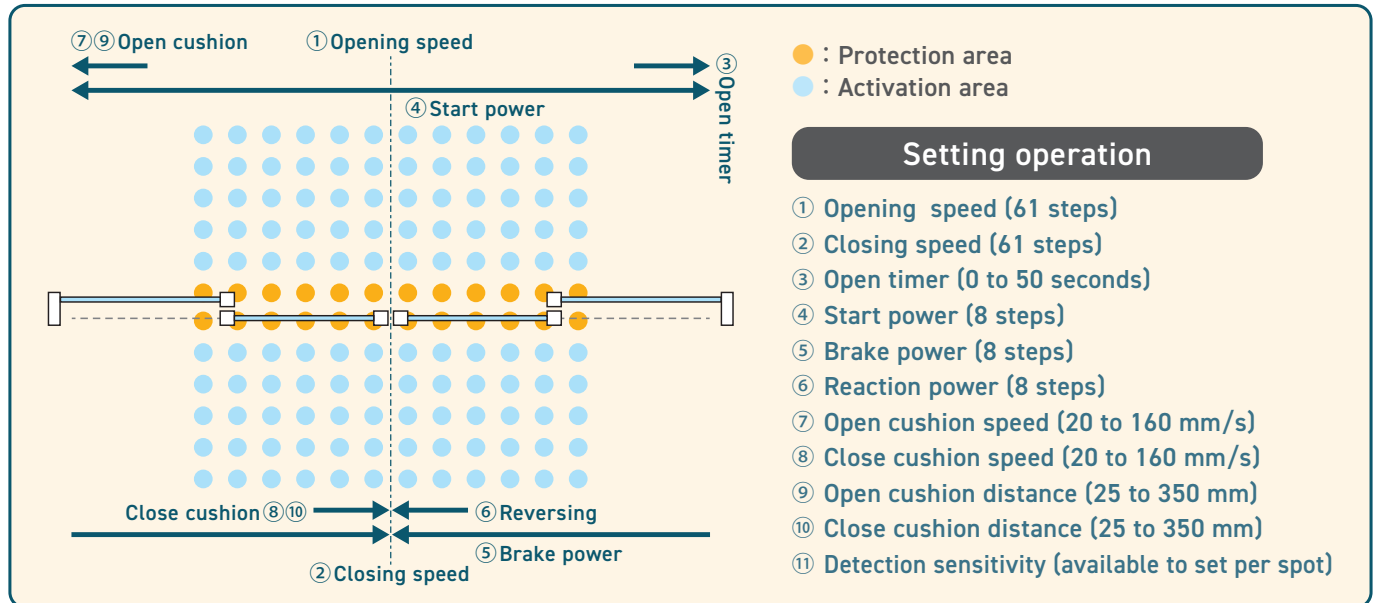
In case the door keeps opening unnecessarily due to continually passing by the door, the setting can be changed to Touchless switch mode (only NS-A01/02/03 sensor).

- 1 In the case of Touchless switch mode, pedestrians walking or objects moving pass the passageway are not detected.
- 2 When a hand is placed near the touch plate, the door opens.
●Example of touch plate
- 3 After the door opens, the detection area is enlarged around the door to detect pedestrians.
- 4 When no more pedestrians are detected, the door closes and the detection area returns to be limited again.



Touchless switch mode works by means of near infrared reflection of active infrared sensor. Therefore, unlike a mechanical touch switch, this sensor may detect pedestrians or objects outside the detection area of the touch plate.

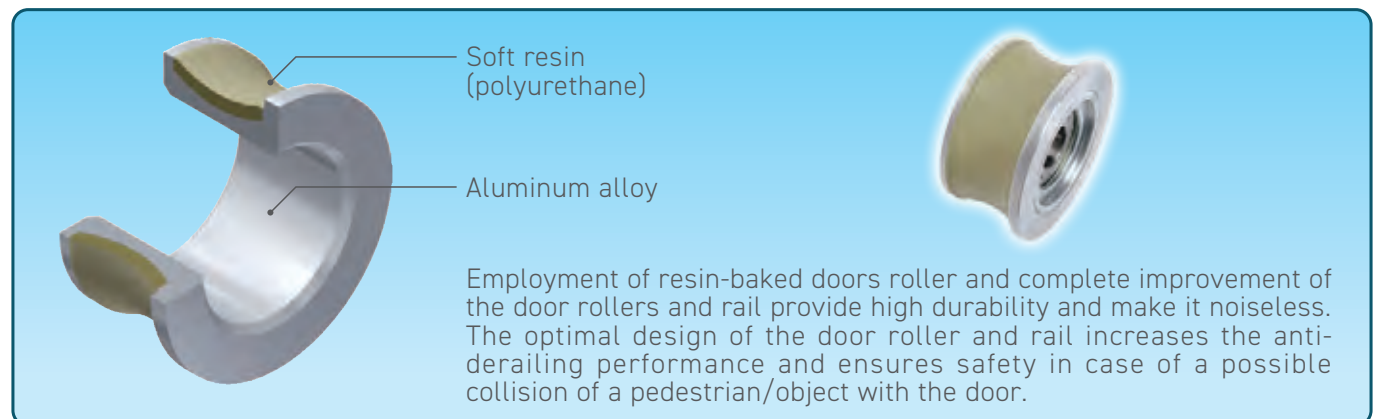
Example of setting operation



※ Note: Depending on the site environment, some features and settings may not be available.

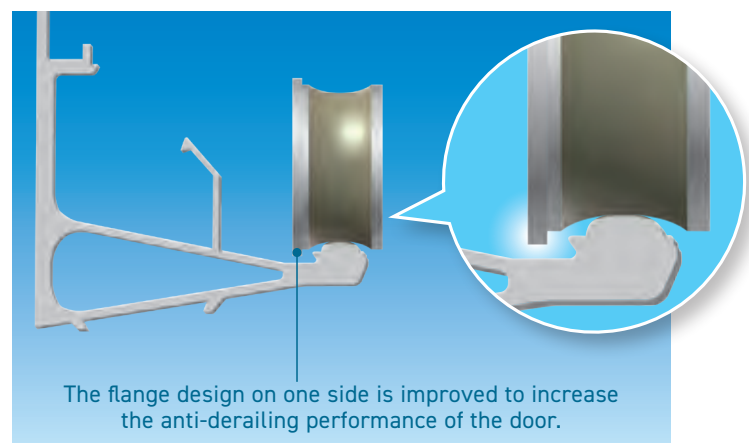
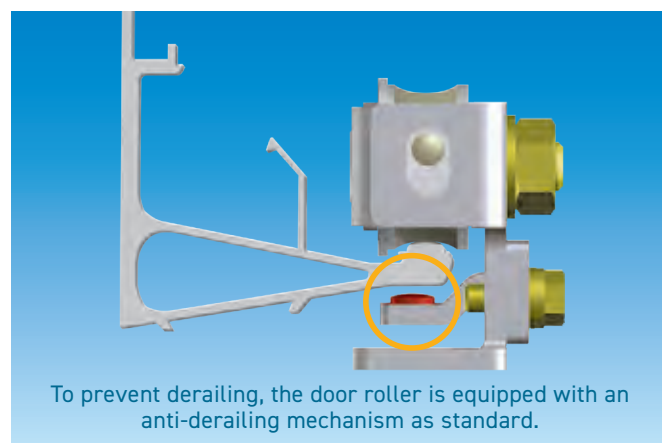
3. Long-life design and low running costs

Special design based on our abundant experience provides high durability.



※ For the drive unit of V-60/85/150SL.

Anti-derailing performance



4. New standard for automatic doors-pedestrian flow solutions.

Equipped with two sensors, NATRUS⁺e W doors precisely detect the movement of people in the **Wide** detection area. Through the reduction of **unnecessary door opening** and provision of **excellent accessibility**, the automatic doors will contribute to improving the indoor environment and **Well-being** of people. In addition to providing both excellent accessibility and comfort, the automatic doors also contribute to curbing global warming.

Energy conservation
Improvement of the
indoor environment



NATRUS⁺e

W

Comfort
Accessibility

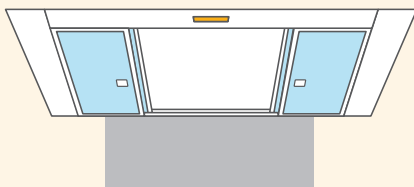


Image Sensing W



Infrared
raysensor

Conventional NATRUS doors
(NATRUS)



■ Conventional detection area

The NATRUS⁺e W doors will open by predicting the vector (speed and direction) of approaching people and objects. The doors monitor the movement of people to provide them with excellent accessibility by opening at a better timing.

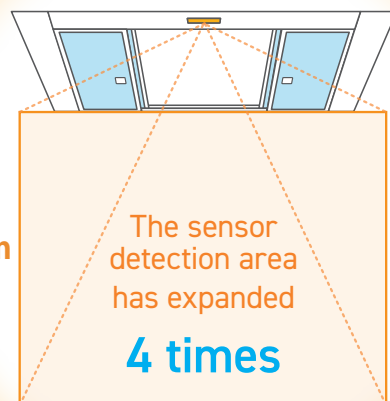


Infrared
raysensor



Image
sensor

NATRUS⁺e W



4m

The sensor
detection area
has expanded

4 times

5m

Reducing unnecessary openings



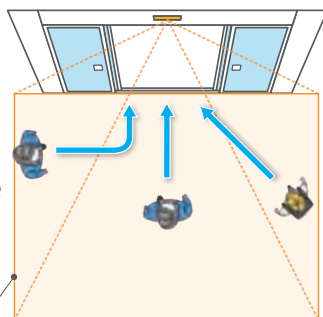
Pedestrian flow detection to determine if the doors will open or not.

Within the wide pedestrian flow detection area (5 m in width x 4 m in depth), the state-of-the-art sensing technology detects the movement of people to provide greater detection performance. That allows automatic doors to discern who is intending to pass through and who is just standing by or passing by. The doors then open only for people wanting to pass through.

The doors will open.

↑ Movement of people who will head toward the doors

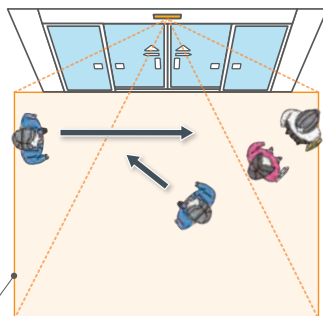
Sensor detection area



The doors will not open.

→ Movement of people who will not head toward the doors

Sensor detection area



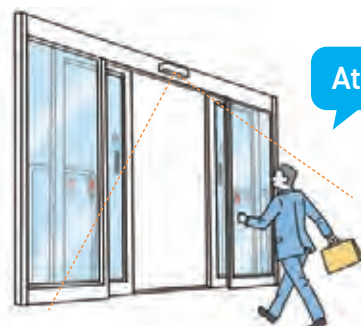
Note : When a person approaches the doors from the front, the doors will open at the right time based on the person's vector (speed and direction) of approach. When a person approaches the doors from different angles, for example, from the side, the doors may open at a different timing.

Providing accessibility according to the movement



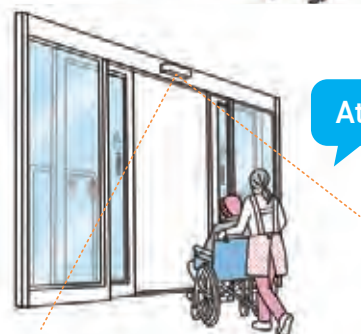
The doors will predict the pedestrian's flow for smooth opening

The Image Sensing W system appropriately estimates walking speed. By predicting the time required for the person to reach the doors, the doors will open in a timely fashion both for people walking at a normal pace and those approaching more slowly. Even for a person using a wheelchair or a cart, the doors will open at the right time to allow the person to pass through without any fuss.



At a normal speed

The doors will open by predicting the vector (speed and direction) of people and objects



At a slow speed

Easily expand functionality by just replacing the sensors

The newly developed NATRUS⁺e W sensor is the same size as that of the conventional NATRUS sensor, so you can easily replace the conventional sensor with the new one.

NATRUS
NATRUS Sensor



265 mm

NATRUS⁺e W
NATRUS⁺e W Sensor



265 mm



Improvement of the indoor environment

Reducing unnecessary automatic door openings helps reduce the inflow of hot/cold air from outside into the indoor space, thereby contributing to providing users with a stress-free and comfortable indoor environment.



Better Accessibility

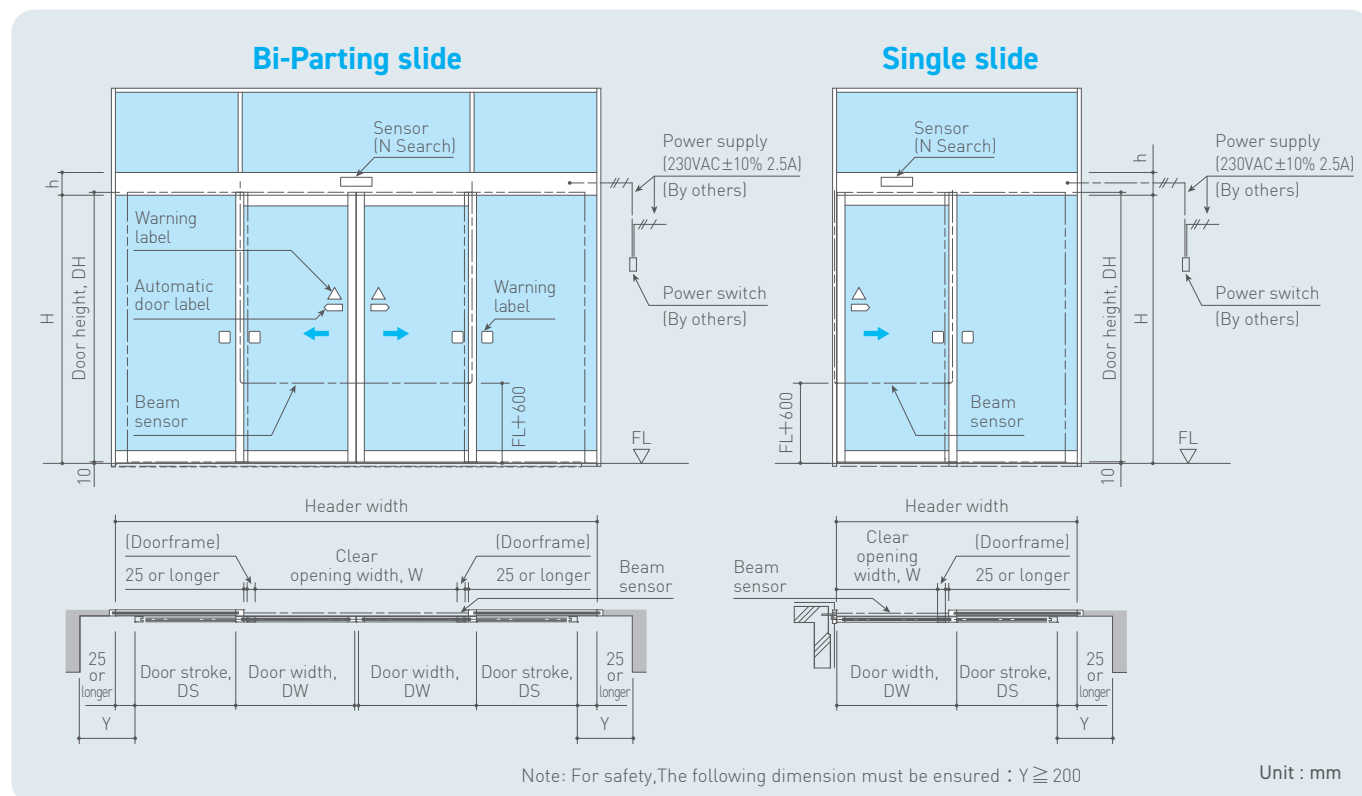
Based on the prediction of the vector (speed and direction) of approaching people and objects, the doors will open in a right time, even for those using a wheelchair or a cart.



Barrier-free

No need to press the button to open the door, making it easier for the wheelchair users and cart users to pass through the doors. The doors are thus suitable for use at facilities that need to be barrier-free, such as stations, station buildings, commercial facilities and educational institutions.

● Front View



● Specifications of Bi-parting and Single sliding doors

Door Type	Bi-Parting					
Product Name ※ 1	V-60SL	V-85SL	V-150SL		V-250SL	
Gear Motor Type	VS-60	VS-85	VS-150		VS-250	
Header Type	S / HM / F		S / HM / F	M / F ※4	M	F
Applicable Door Mass (kg) × Door Quantity ※2	60 × 2	85 × 2	120 × 2	150 × 2	250 × 2	250 × 2
Applicable Door Width : DW (mm)	650 – 2500				1200 – 2700	900 – 2700
Ratio of Door Height / Width : DH / DW ※3	Max. 4				Max. 3	
Required Power Capacity	230VAC ± 10% 2.5A ※5					
Door Operation Speed (m/sec)	0.1 – 0.7 ※6					
Wind Load (m/sec)	15m/s or less					

Door Type	Single					
Product Name ※ 1	V-60SL	V-85SL	V-150SL		V-250SL	
Gear Motor Type	VS-60	VS-85	VS-150		VS-250	
Header Type	S / HM / F		S / HM / F	M / F ※4	M	F
Applicable Door Mass (kg) × Door Quantity ※2	75 × 1	100 × 1	120 × 1	150 × 1	250 × 1	500 × 1
Applicable Door Width : DW (mm)	650 – 2500				1200 – 2700	1200 – 2700
Ratio of Door Height / Width : DH / DW ※3	Max. 4				Max. 3	
Required Power Capacity	230VAC ± 10% 2.5A ※5					
Door Operation Speed (m/sec)	0.1 – 0.7 ※6					
Wind Load (m/sec)	15m/s or less					

※ 1 Product name is combined with header type.

※ 2 The door should be used under conditions where the door unit weight will not exceed the value defined in the specification.
If the weight exceeds the specification, malfunction or accident will occur.

※ 3 The unit door aspect ratio should not exceed the value defined in the specification.

If the aspect ratio exceeds the specification, the specified performance will be impaired.

※ 4 Not applicable to V-150SL-F (N rail base design).

※ 5 With a transformer specified by NABCO

※ 6 The speed varies according to the door weight or site environment.

■ VS-150SL-N (Bi-parting)

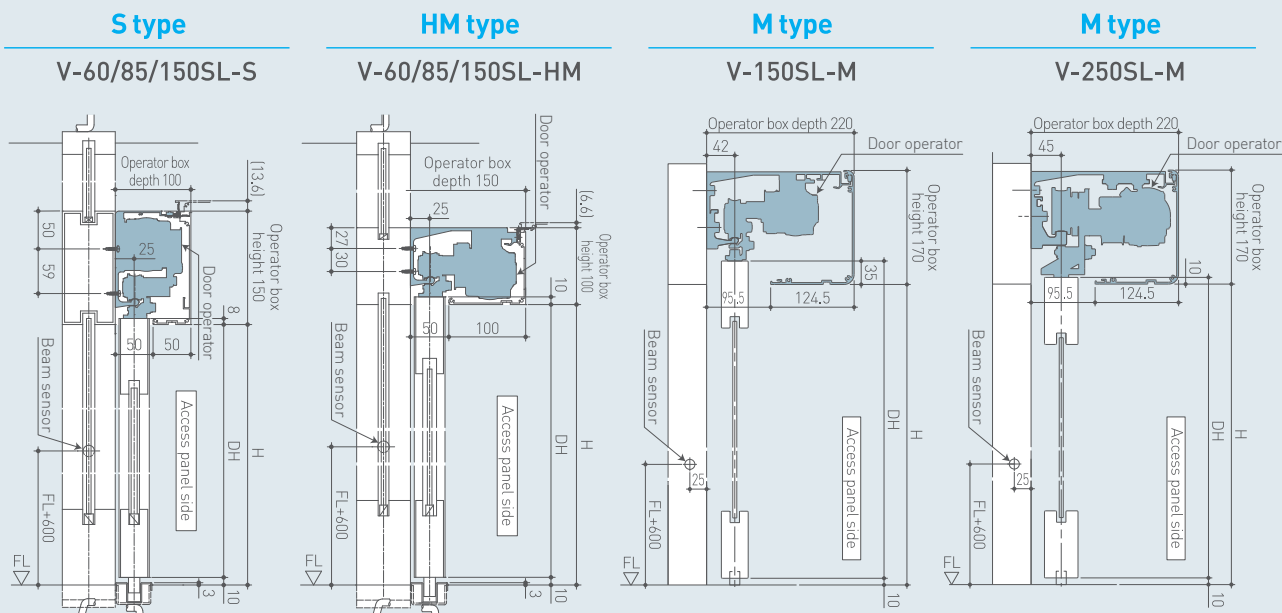


■ VS-150SL-S (Bi-parting)

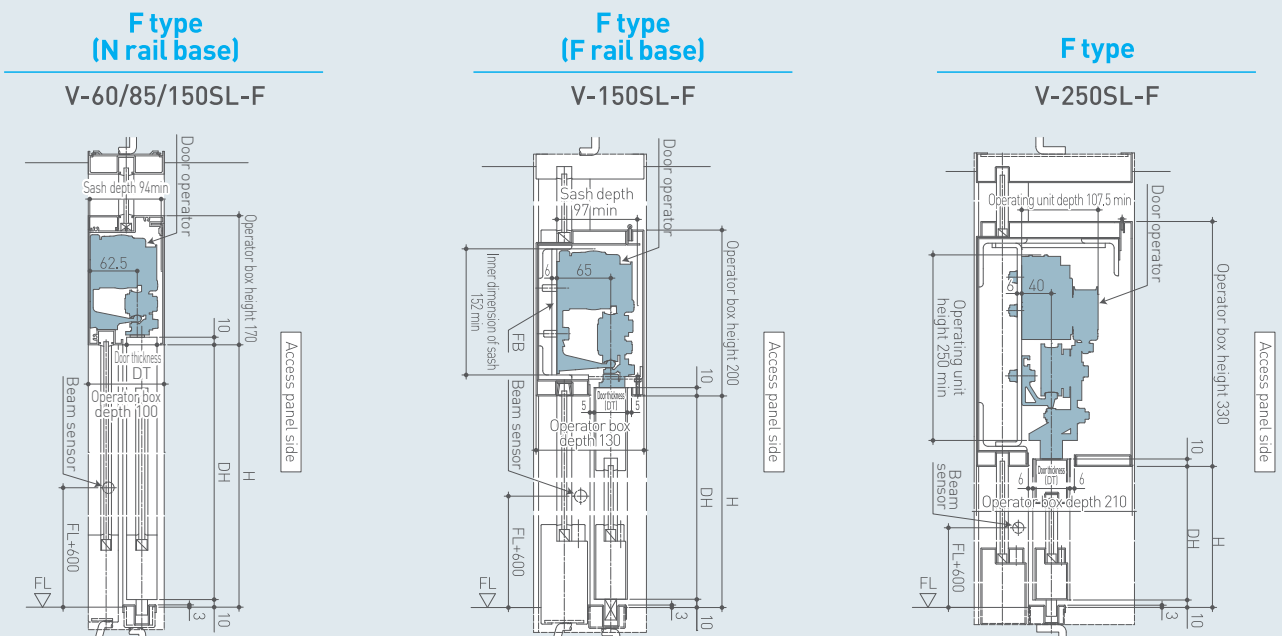


Sectional view

Surface mounted type



Flat bar mounted type



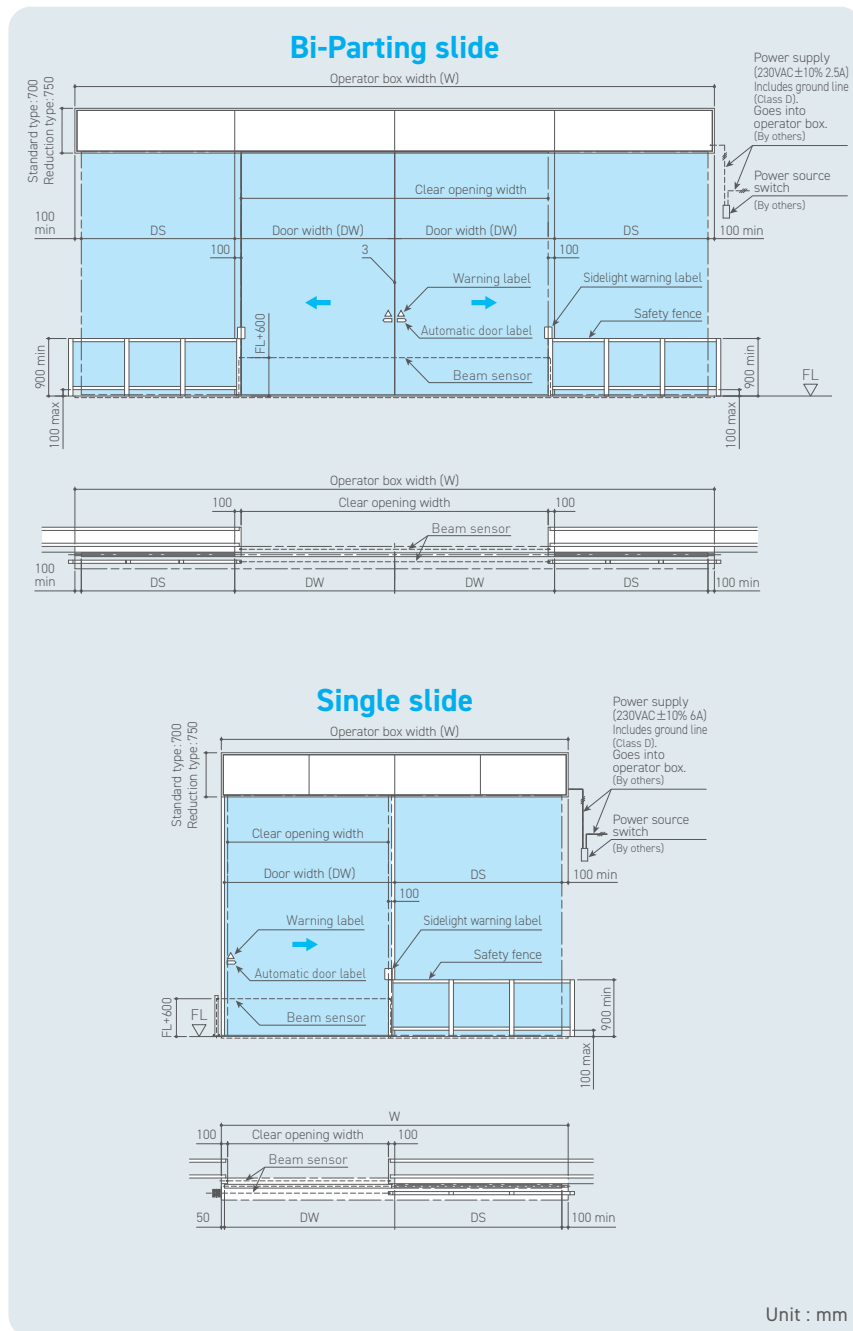
Unit : mm

Measures for further improvement of safety

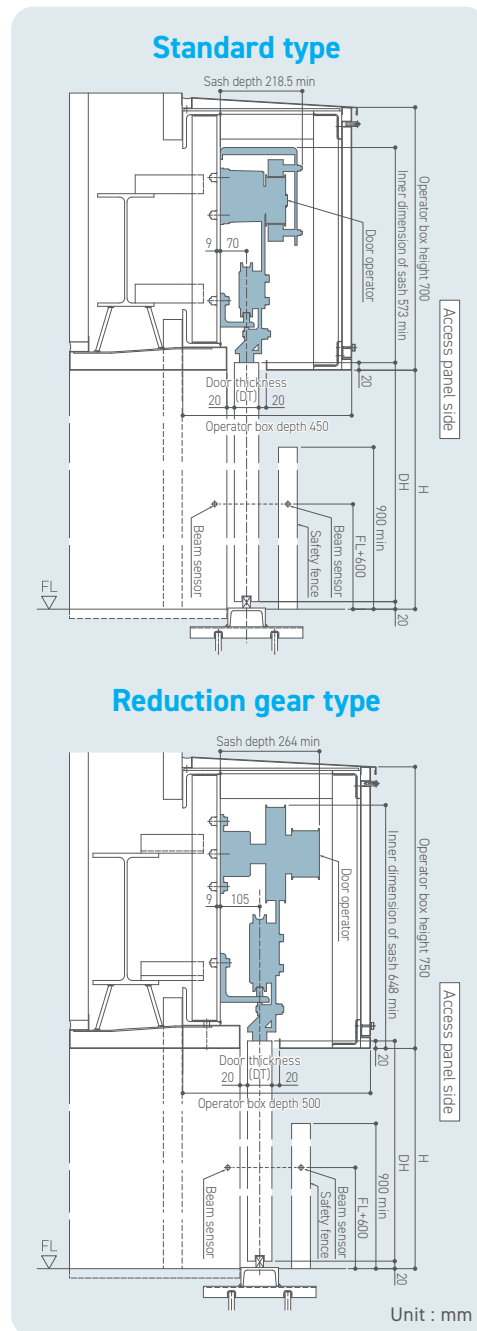
- Use safety glass such as tempered glass or laminated glass
- Install a guard (protection door) or safety fence near the fixed panel
- Mount a beam sensor

※ An maintenance hatch should be prepared when installing the drive unit in the ceiling.

● Front View



● Sectional view



● Specifications of Standard type and Reduction gear type

Product Name		V-500SL			
Geared Motor Type		V-500			
Openable Type		Standard type (Elevation)		Reduction gear type (Elevation)	
Door Type		Bi-Parting	Single	Bi-Parting	Single
Applicable Door Mass (kg) × Door Quantity ※ 1		500 × 2	1000 × 1	1000 × 2	2000 × 1
Applicable Door Width : DW (mm)		3100	6100	6100	10100
Applicable Door Height : DH		4500		4500	
Required Power Capacity		200VAC ± 10%, 50/60Hz, 6A ※ 2		200VAC ± 10%, 50/60Hz, 6A ※ 2	
Door Operation Speed (m/sec)		0.1 – 0.5 ※ 3		0.1 – 0.3 ※ 3	
Available ambient conditions	Ambient temperature		-10 to 50℃		
	Ambient humidity		20 to 85% RH (no icing or condensation)		
	Electromagnetic field immunity		Industrial environment (IEC/JIS C 61000-6-2)		

※1 The door should be used under conditions where the door unit weight will not exceed the value defined in the specification.
If the weight exceeds the specification, malfunction or accident will occur.

※2 With a transformer specified by NABCO

※3 The speed varies according to the door weight or site environment.

● Header mount sensor, Header recessed sensor, Header bottom-mount sensor, and ceiling mount sensor



Type	N Search	
	NS-A01 / A02 / A03	NS-A04
Detection characteristics	Motion & Presence Detection (active infrared sensor)	
Mount height	When used as activation sensor : 2.0 to 4.0 m When used as safety sensor : 2.0 to 3.5 m	When used as activation sensor : 2.0 to 4.0 m When used as safety sensor : 2.0 to 4.0 m
Detection area	When mount height is 2.5 m : 3.05 m (width) × 2.09 m (depth) (reference)	When mount height is 3.0 mm : 3.04 m (width) × 2.37 m (depth) (reference)
Sensor cover color (type 01 and 03)	Silver / Bronze / White / Black / Mirror / Stainless steel color	—
Sensor color (type 02 and 04)	Black	Black
Remarks	Function: Spot-by-spot setup, Safety test before closing, Trouble indication, Full-color LED display, Eco mode, Snow/Insects mode, Touchless switch mode, Available for Circular/Folding door as well	Function: Spot-by-spot setup, Safety test before closing, Trouble indication, Full-color LED display, Eco mode, Snow/Insects mode, Available for Circular/Folding door as well

● Beam sensor

Type	Photoelectric sensor
	NP-01
Detection characteristics	Motion / Presence Detection
Mount height	Standard height: Floor level + 600 mm
Maximum detection distance	Between photocells: 5 m (8 m: when using with NP-A001 controller)
Remarks	2 units of NP-01 are available with NP-A001 controller

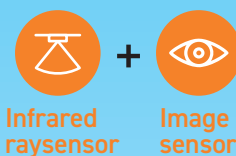


Equipped with the **Image Sensing W** technology

● Header mount sensor, Header recessed sensor, and Header bottom-mount sensor



Header mount sensor NSW-A01



Infrared
raysensor

Image
sensor



Header recessed sensor NSW-A02



Header bottom-mount sensor NSW-A03

Type	N Search W		
	NSW-A01	NSW-A02	NSW-A03
Mounting position	Motion & Presence Detection		
Detection method	Motion & presence detection (Image Sensing W) Pedestrian flow detection ※1,2 using both infrared and image sensors Adoption of near infrared reflectance method in the protection area near the door		
Mounting height ※3	2.0 to 3.5 m		
Detection area ※4	5 m in width x 4 m in depth (fixed regardless of the mount height)		
Sensor cover color (type 01 and 03)	Silver / Bronze / White / Black / Mirror / Stainless steel color	—	Silver / Bronze / White / Black / Mirror / Stainless steel color
Sensor color (type 02)	Black		
Remarks	Functions to: prevent snow, rain, fog, etc. from causing erroneous operations; to prevent the doors from being kept open due to changes made to the floor; to conduct a safety test for each opening & closing; to signal a machine problem; to monitor the doorway; full-color LED display		

※1 Images captured by the product are used only for the purpose of predicting movement, speed and direction based on the size of the target object. Data derived from the images does not contain any information pertaining to personal characteristics or that could be used to identify individuals. Captured images are deleted immediately.

※2 The movement detection timing may vary depending on the brightness of the surrounding area.

※3 The mount height may be limited depending on the installation environment.

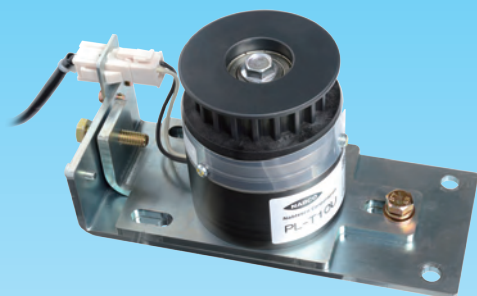
※4 For the detection area for which the near infrared reflectance method is adopted, specifications set for the N Search sensor will be applied.



● PL-type electric lock (option)

The PL-type electric lock is a device that keeps the door closed by restraining the driving belt firmly coupled to the door with the electromagnetic lock built into the idler pulley.

PL-type electric lock



Locking /unlocking condition	Fail safe (unlock at power off)
Structure of locking mechanism	Electromagnetic brake with tooth
Locking /unlocking monitor output	When the power is on : Make or Break can be selected.
Forced unlocking input	Non-voltage a / b contact

● SKD-type electric lock (option)

The SKD-type electric lock operates the dead bolt by supplying power to the solenoid to lock and unlock the door. It is possible to provide the locking/unlocking monitor output even during a power interruption (option).

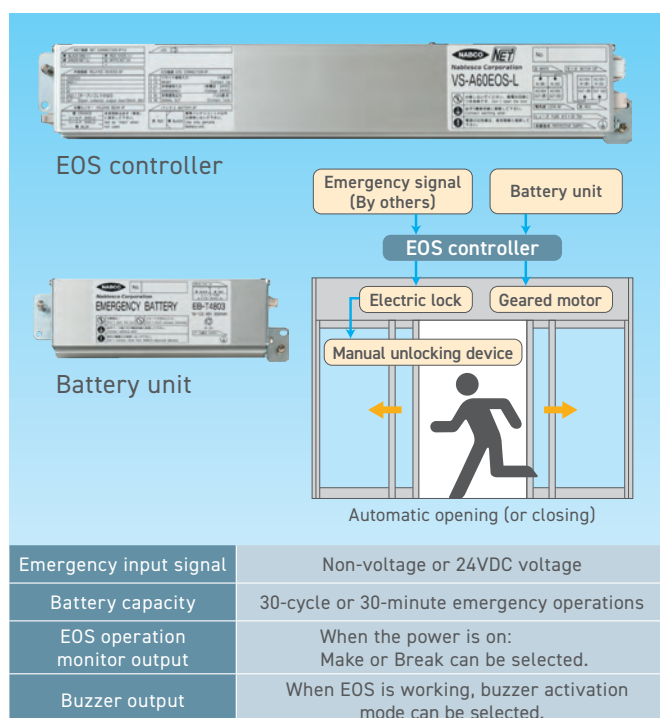
SKD-type electric lock



Locking /unlocking condition	Fail secure /safe (lock/unlock at power off)
Structure of locking mechanism	Dead bolt
Locking /unlocking monitor output	When the power is on: Make or Break can be selected When the power is off: Non-voltage 1c contact (option)
Forced unlocking input	Non-voltage a / b contact
Manual unlocking device	Option for unlocking at power off

● EOS Emergency Operation System (option)

The EOS Emergency Operation System is a control unit that detects the emergency signal or the interruption of power to open (or close) the door in an emergency. When the door is manually opened while in emergency closing mode, it is automatically closed again. (This function is excluded from the requirements of escape routes and emergency exits in EN 16005.)



● APS-type Program Switch (option)

Color LCD offers excellent visibility for switching the automatic door mode.

APS-A10



Application operators	NATRUS / NET-DS
Program mode	Auto, Hold open, One-way, Manual, Night (Lock)
Languages	English, Chinese, Korean, Thai, Vietnamese, Indonesian, Russian
Security Code	Passcode

Specifications

● Applicable doors

		Max. door weight		Max. area of a single door	Max. ratio of door height / width	Door width
V-60SL-S/HM/F	Single	75 kg × 1		2.2 m ²	4	650 – 2500 mm
	Bi-parting	60 kg × 2		1.8 m ²		
V-85SL-S/HM/F	Single	100 kg × 1		2.8 m ²		
	Bi-parting	85 kg × 2		2.6 m ²		
V-150SL-S/HM/F	Single	120 kg × 1		3.3 m ²		
	Bi-parting	120 kg × 2		3.0 m ²		
V-150SL-M/F ※1	Single	150 kg × 1		3.3 m ²	3	1200 – 2700 mm
	Bi-parting	150 kg × 2		3.0 m ²		900 – 2700 mm
V-250SL-M/F	Single	250 kg × 1		9.3 m ²		
	Bi-parting	250 kg × 2		5.0 m ²		
V-500SL	Standard type	Single	1000 kg × 1	27.45 m ²	—	6100 mm ※2
		Bi-parting	500 kg × 2	13.95 m ²		3100 mm ※2
	Reduction gear type	Single	2000 kg × 1	45.45 m ²	—	10100 mm ※2
		Bi-parting	1000 kg × 2	27.45 m ²		6100 mm ※2

※1 Not applicable to V-150SL-F (N railbase design)

※2 Max door height 4500 mm

● Technical data

	V-60/85/150/250SL	V-500SL
Header height	V-XXSL-S : 150 mm V-XXSL-HM : 100 mm V-XXSL-M : 170 mm	Standard type : 700 mm Reduction gear type : 750 mm
Header depth	V-XXSL-S : 100 mm V-XXSL-HM : 150 mm V-XXSL-M : 220 mm	Standard type : 450 mm Reduction gear type : 500 mm
Opening / closing speed	0.1 – 0.7 m/s	Standard type : 0.1 – 0.5 m/s Reduction gear type : 0.1 – 0.3 m/s
Hold-open time	0 – 50 sec.	0 – 50 sec.
Required power capacity	230 VAC ± 10% 2.5A	230 VAC ± 10% 6A
Power consumption	39Wh (V-60SL) , 42Wh (V-85SL), 52Wh (V-150SL) * reference	120 Wh reference
Ambient temperature	–20°C to 50°C	–10°C to 50°C
Ambient humidity	20 to 90% RH (no icing or condensation)	20 to 85% RH (no icing or condensation)
Wind load	15 m/s or less	15 m/s or less
Complying with	EN 16005, JIS A4722	IEC/JIS C 61000-6-2

● Basic module

Microcomputer control	✓
CAN transmission network	✓
Connections with controller	✓* Input: 2, Output: 1, Beam sensor: 1
Self-diagnosis function	✓* trouble indication on sensors
Self-test for safety sensors	✓* trouble indication on sensors
Wireless setting	✓* with Android device
Saving history data of operation	✓
Brushless DC motor	✓* no need to replace brush
Thermal protector	✓
Anti-derailing performance	✓
ECO mode (for activation device)	✓
Spot-by spot setup of sensor	✓
Touchless switch mode	✓
Interlocking mode	✓
Hand-move mode (semi-automatic)	✓
Simultaneous mode	✓

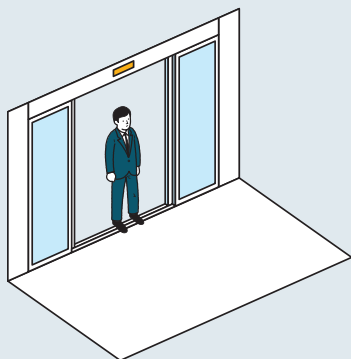
● Optional module

Electric lock (lock with dead bolt)	✓
Electric lock (lock with idler pulley)	✓
2 units of Beam sensor	✓
Emergency operation	✓* with battery unit
Program switch	✓
Additional connections	✓* Input: 3, Output: 2

Cautions

For safe operation when using automatic doors

1. Don't halt !



Do not stop on the door way.

2. Don't run in !



Do not rush through the door.
Do not cross the door diagonally.

3. Don't play near automatic door !



Do not stand talking near the door.
Do not let children play near the door.

4. Don't lean on the automatic door !



Do not lean on the door, the screen or the wall nearby nor step on them.

5. Accompany your children !



For small children, grownups should take their hands when passing through the door. Extra care should be taken for people with visual or physical disabilities.

6. Pay attention to the door !



Be careful so that fingers will not be caught in the leading or rear edge of the door.



Nabtesco Corporation

Accessibility Innovations Company

Address : JA Kyosai Bldg., 7-9,
Hirakawacho 2-chome,
Chiyoda-ku, Tokyo,
102-0093, Japan

Phone : +81(0)3-5213-1156
Fax : +81(0)3-5213-1173



ISO9001 • ISO14001 Certified



For further details, please contact:

<https://nabco.nabtesco.com/en/>

All specifications herein are subject to change without notice

©2024 Nabtesco Corporation All Rights Reserved.

CAT. No. D683 2006 2408 03GT (Rev.2 Aug. 2024)