NABCO

NABCO Automatic Doors

Sensors & Accessories for Automatic Doors

SENSOR

2016 Vol.1

For comfort and safe pedestrian flow solutions, NABCO's sensors enhance the performance of automatic doors.

Importance of sensors

Sensors are the important elements of automatic doors. Sensors are called the eyes and ears of automatic doors, as they constantly examine the conditions of surrounding areas and send them to the brain of automatic doors.
The performance of the sensor significantly enhances the function of automatic doors.
Even in the high-performance automatic doors, improper sensors may hamper the performance of the entire system. Therefore, the selection of the sensor is important in achieving the full performance of automatic doors.

NABCO sensors

NABCO is the automatic door brand produced by Nabtesco Corporation, which produced the first automatic door in Japan, and has Japan's largest market share.
We have been striving to manufacture the superior products by continuous R & D activities. Our extensive experience ensures the supply of high-quality and high-performance sensors for automatic doors.
With a wide range of high-quality products, our sensors are receiving the reputation as the best solution for automatic doors around the world.

NET System

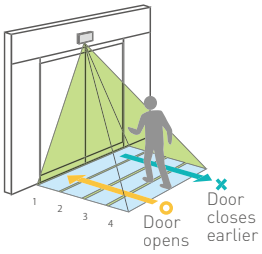
Automatic door units with this logotype support the network system using CAN communication. NABCO is the first door brand that adopted the internationally standardized network technology using CAN communication into automatic door systems.

Information networking among not only automatic door units but also optional devices, such as sensors and electric locks, has improved security and reliability, and we propose the best maintenance plan using the maintenance data that we have accumulated and managed.

Eco Mode

Door opens normally for approaching pedestrians and closes earlier in response to pedestrians moving away.

Due to shorter opening time of the door that pedestrians pass through, this function reduces the influx of wind and dust and enhances air conditioning efficiency.



Symbols

The sensor should be selected in consideration of the type of the automatic door and the site condition.
Please select the best sensor for the site to enhance the safety and performance.

Near-infrared sensor
Detects persons and objects by the reflection of active infrared sensor with new technology.

Ultrasonic sensor
Detects persons and objects by the reflection of ultrasonic wave and can be used as a support sensor.

Photoelectric beam sensor
Is applicable to wide range of usage from an activation sensor to a support sensor.

Program switch
Allows easy selection of the most suitable door operation.

Touch sensor
Operates by placing the hand or object near the sticker.

Electric lock
Secures an entrance with low operation sound.

Sensor for unique door design
Can cover doorway area of circular and folding door by memorizing door's movement.

Emergency operating system
Operates the door at a power failure or when it receives an emergency signal.

Colors

The standard of each color depends on the product.

CL	W	DG	BK	SUS
Clear	White	Dark gray	Black	Stainless Steel

HL	M	S	BZ
Hairline finishing	Mirror	Silver	Bronze

●Actual colors may be different from this brochure.

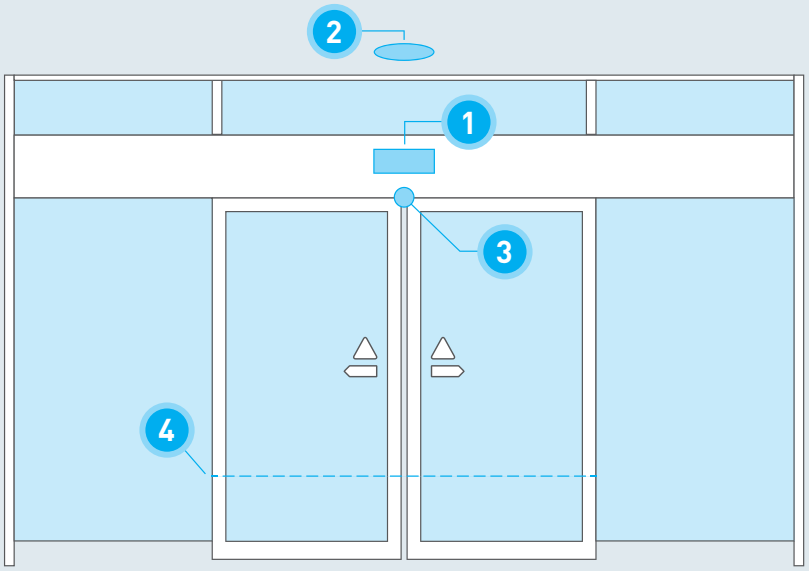
Mounting types

Exposed
Sensors are mounted on the transom.
Body of sensor is observable.

Embedded
Sensors are embedded in the ceiling, wall, or mullion.
Body of sensor is partly observable.

Best suited NABCO sensor can be selected by function,

Products for each mounting place



5 Others

❶ Transom mount

MS-(N)01 M Search ➡P5

NET

❷ Ceiling mount

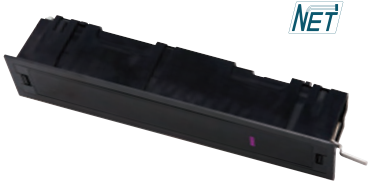
iS-N4000 iSearch ➡P7

NET

❸ Transom embedded / Transom bottom- mount

MS-(N)02 M Search ➡P6

NET



MS-(N)03 M Search ➡P6

NET

NZ-1 ULTRASONIC SENSOR ➡P8

NET

Suitable for circular and folding doors as support sensor

❹ Mullion / Jamb

NH-101 Side Beam Sensor ➡P8

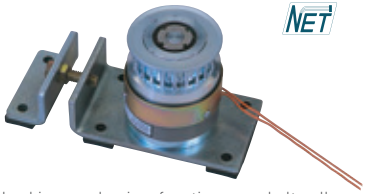
NP-10B / NP-10LB Photoelectric Beam Sensor ➡P8

NET

❺ Accessories

PL-1U Pulley Lock ➡P9

NET



Locking mechanism functions as a belt pulley

EOS Emergency Operating System ➡P9

NET

To operate door in emergency condition

SKD-2 Electric Lock ➡P9

Compact electric deadbolt lock

Adcanced Program Switch ➡P10

APS-N20

APS-N1

mounting type, and design from a wide variety of products.

Sensor list of NABCO automatic door

Mounting position	Product name	Type		Object		Mounting height		Detection area (reference only)						Page
						Height(m)		Width(m)		Depth(m)			at mounting hight of	
		Exposed	Embedded	Motion	Presence	1 2 3 4 m (Max.)		1 2 3 4 m (Max.)		1 2 3 m (Max.)				
Transom mount	MS-(N)01 M Search	●		●	●		4.0		2.9			1.8	2.2	5
Transom embedded	MS-(N)02 M Search		●	●	●		4.0		2.9			1.8	2.2	6
Transom bottom-mount	MS-(N)03 M Search	●		●	●		4.0		2.9			1.8	2.2	6
Ceiling mount	iS-N4000 iSearch		●	●	●		4.0		2.5			1.3	2.4	7
Support Sensor	NH-101 Side Beam Sensor	●		●	●				0.5~1.5			φ0.04		8
	NP-10B Beam Sensor		●	●	●				5.0					8
	NP-10LB Beam Sensor		●	●	●				8.0					8
	NZ-1 Ultrasonic Sensor		●	●	●		2.5		φ1.5			φ1.5		8

Notes concerning sensor detection area for NABCO automatic door

⚠ The detection areas referenced in this brochure are measured by Nabtesco, and their charts are expressed only as an image.
They are not the actual value of the detection areas because the measurements may vary by the installation environment, the detected objects and the adjustment.
Clothes, floor material as well as sensitivity adjustment may affect the detection area.
Please measure and confirm the actual detection area after the adjustment.

MS-(N)01 M Search

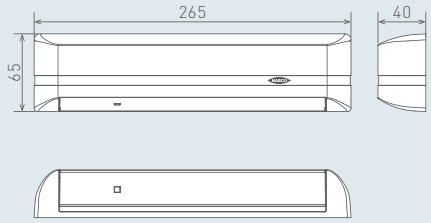
Exposed

Advanced automatic door sensor to enhance safety and comfort

S W M
BZ BK SUS

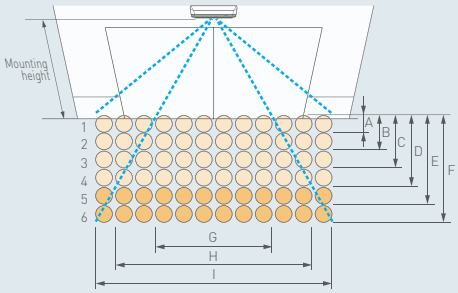
Product name	MS-N01 NET	MS-01
Detection method	Motion / Presence Detection (Near Infrared reflection method)	
Mounting height	2.0m~4.0m	
Detection area	W 2.9m × D 1.8m (Mounting height 2.2m)	
Power supply / Power consumption	120mA or less at 12VDC	24VAC to 100VAC (50 / 60Hz) • 5VA or less (at 100VAC) 12VDC to 100VDC • 150mA or less (at 12VDC)
Output rating	NET-DS connector (CAN Communication)	No-voltage relay contact, Semiconductor relay output
Features	Full color LED display, Replacement time display Self-diagnosis function, Eco mode Anti-snow / insects mode, Anti-vibration mode	
	Independent 72 spots, Doorway area monitoring for unique door design, Contact-free touch sensor function, Measure against insertion mode	——

Dimensions (mm)



Mass : 260g (MS-N01)
280g (MS-01)

Detection area (mm) ※Mounting height shows the height of where sensor is mounted.



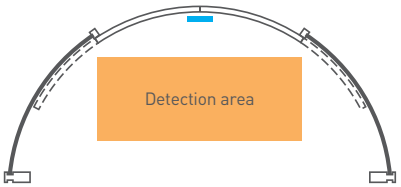
■ Detection area (mm)

Mounting height	2.0m	2.2m	2.5m	3.0m	3.5m	4.0m
A	100	110	120	150	170	200
B	390	430	480	580	670	770
C	650	720	820	980	1,150	1310
D	960	1050	1200	1440	1,680	1920
E	1300	1430	1620	1950	2,270	2590
F	1600	1820	2070	2490	2,920	3320
G	1220	1350	1530	1840	2,150	2450
H	2100	2320	2630	3160	3,690	4210
I	2640	2900	3300	3960	4,620	5280

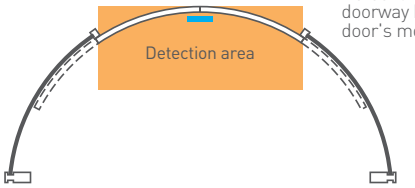
※The above values are obtained when the area adjuster is set at zero degree.

Doorway area monitoring for unique door design

Old types (an example) No detection area on door way



M Search Detection area covers doorway by memorizing door's movement.

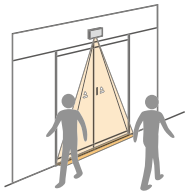


[e.g. Circular sliding door]

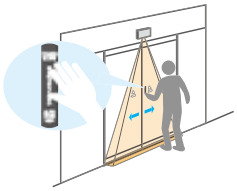
For MS-N01 / N02 / N03 • iS-N4000

Contact-free touch sensor function : How to work

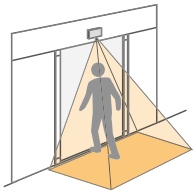
1 When door is closed, the detection area is limited.



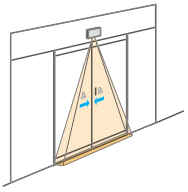
2 When a passenger places his / her hand near the touch-area, the door starts to open.



3 Once the door opens, the detection area is extended as wide as standard mode.



4 After the passenger goes out of the wider detection area, the door starts to close and the detection area returns to be limited again.



⚠ As contact-free touch sensor by near-infrared reflection method, unlike a mechanical touch switch, it may detect an object at other positions than near touch sticker.

For MS-N01 / N02 / N03

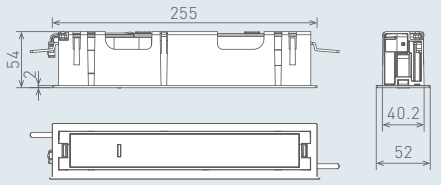
MS-(N)02 M Search

Embedded

Transom embedded type which keeps transom flat and its aesthetic

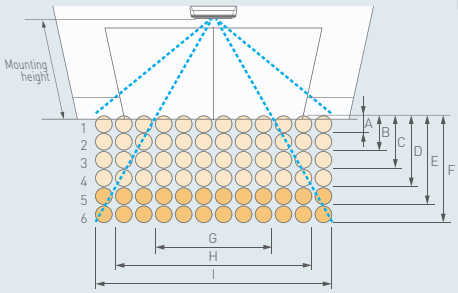
Product name	MS-N02 NET	MS-02
Detection method	Motion / Presence Detection (Near Infrared reflection method)	
Mounting height	2.0m~4.0m	
Detection area	W 2.9m × D 1.8m (Mounting height 2.2m)	
Power supply / Power consumption	120mA or less at 12VDC	24VAC to 100VAC (50 / 60Hz)・5VA or less (at 100VAC) 12VDC to 100VDC・150mA or less (at 12VDC)
Output rating	NET-DS connector (CAN Communication)	No-voltage relay contact, Semiconductor relay output
Features	Full color LED display, Replacement time display Self-diagnosis function, Eco mode Anti-snow / insects mode, Anti-vibration mode	
	Independent 72 spots, Doorway area monitoring for unique door design, Contact-free touch sensor function, Measure against insertion mode	——

Dimensions (mm)



Mass : 275g (MS-N02)
300g (MS-02)

Detection area (mm) ※Mounting height shows the height of where sensor is mounted.



■Detection area (mm)

Mounting height	2.0m	2.2m	2.5m	3.0m	3.5m	4.0m
A	100	110	120	150	170	200
B	390	430	480	580	670	770
C	650	720	820	980	1,150	1310
D	960	1050	1200	1440	1,680	1920
E	1300	1430	1620	1950	2,270	2590
F	1600	1820	2070	2490	2,920	3320
G	1220	1350	1530	1840	2,150	2450
H	2100	2320	2630	3160	3,690	4210
I	2640	2900	3300	3960	4,620	5280

※The above values are obtained when the area adjuster is set at zero degree.

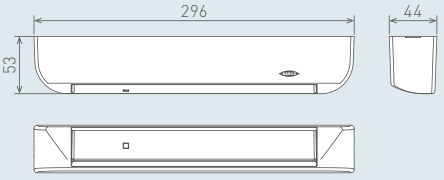
MS-(N)03 M Search

Exposed

Transom bottom-mount type which is applicable to the limited space

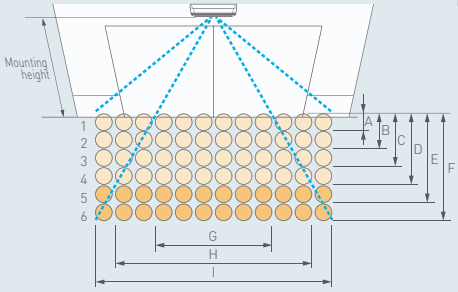
Product name	MS-N03 NET	MS-03
Detection method	Motion / Presence Detection (Near Infrared reflection method)	
Mounting height	2.0m~4.0m	
Detection area	W 2.9m × D 1.8m (Mounting height 2.2m)	
Power supply / Power consumption	120mA or less at 12VDC	24VAC to 100VAC (50 / 60Hz)・5VA or less (at 100VAC) 12VDC to 100VDC・150mA or less (at 12VDC)
Output rating	NET-DS connector (CAN Communication)	No-voltage relay contact, Semiconductor relay output
Features	Full color LED display, Replacement time display Self-diagnosis function, Eco mode Anti-snow / insects mode, Anti-vibration mode	
	Independent 72 spots, Doorway area monitoring for unique door design, Contact-free touch sensor function, Measure against insertion mode	——

Dimensions (mm)



Mass : 280g (MS-N03)
300g (MS-03)

Detection area (mm) ※Mounting height shows the height of where sensor is mounted.



■Detection area (mm)

Mounting height	2.0m	2.2m	2.5m	3.0m	3.5m	4.0m
A	100	110	120	150	170	200
B	390	430	480	580	670	770
C	650	720	820	980	1,150	1310
D	960	1050	1200	1440	1,680	1920
E	1300	1430	1620	1950	2,270	2590
F	1600	1820	2070	2490	2,920	3320
G	1220	1350	1530	1840	2,150	2450
H	2100	2320	2630	3160	3,690	4210
I	2640	2900	3300	3960	4,620	5280

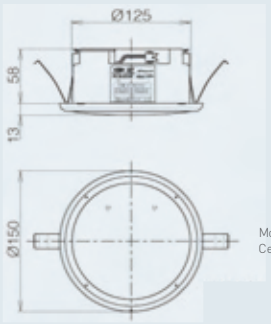
※The above values are obtained when the area adjuster is set at zero degree.

iS-N4000 iSearch

Embedded

Advanced ceiling mount sensor equipped with doorway monitoring function

Dimensions (mm)

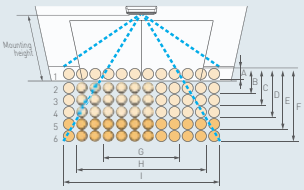


Mounting hole:φ128-130mm
Ceiling thickness : 2-25mm

Mass : 330g

Product name	iS-N4000 iSearch
Detection method	Motion / Presence Detection (Near Infrared reflection method)
Mounting height	Max. 4.0m
Detection area	Max. W 2.5m x D 1.31m [Mounting height 2.4m]
Power voltage	12VDC ± 10%
Current consumption	110mA or less
Output ratings	NET-DS connector

Detection area (mm)



Mounting height (m)		2.0	2.4	3.0	3.5	4.0
Depth (m)	A	95	110	140	160	185
	B	275	330	410	475	545
	C	460	550	690	800	910
	D	660	790	985	1,145	1,310
	E	870	1,040	1,300	1,515	1,730
	F	1,090	1,310	1,635	1,910	2,180
Width (m)	G	860	1,040	1,280	1,490	1,700
	H	1,630	1,950	2,430	2,840	3,240
	I	2,080	2,500	3,090	3,605	4,120

NH-101 Side Beam Sensor

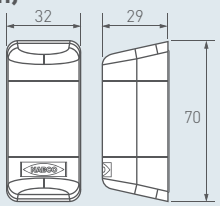
Exposed

A mullion-mount sensor, utilizing a Near-Infrared ray

Product name	NH-101 Side Beam Sensor
Detection method	Presence / Motion Detection (Near Infrared method)
Detection distance	0.5 to 1.5m
Power voltage	12VDC ± 10%
Current consumption	50mA or less
Output ratings	Open collector, 50VDC 0.1A (resistance load)

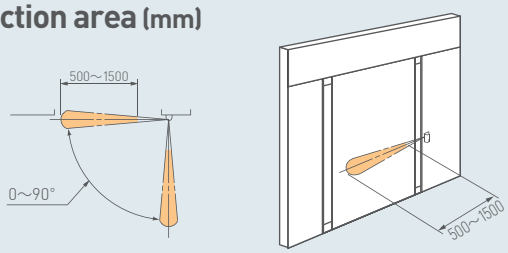
–Useful for a narrow passage or an entrance where a store curtain is hanged, preventing unnecessary door's activation.

Dimensions (mm)



Mass : 120g

Detection area (mm)



NP-10B / NP-10LB Beam Sensor

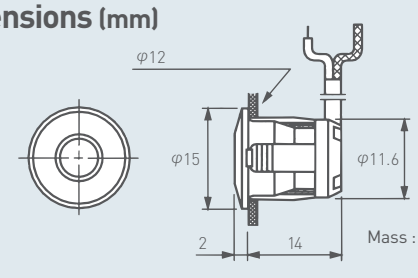
Embedded

Simple and reliable

–The doors open when a photoelectric beam between a transmitter and a receiver in mullions or fixed frames is interrupted by pedestrians or objects.
–The door remains open as long as interrupted.

Product name	NP-10B	NP-10LB
Detection method	Motion / Presence Detection (Near Infrared reflection method)	
Detection range	Between photocells 0.9m to 5.0m	Between photocells 5.0m to 8.0m

Dimensions (mm)



Mass : 120g (NP-10B)
230g (NP-10LB)

※To be used with Beam Sensor controller

NZ-1 Ultrasonic Sensor

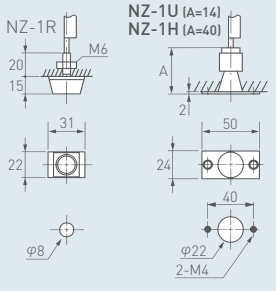
Exposed Embedded

Installed in the transom

–Support sensor monitoring doorway with three dimensional detection area

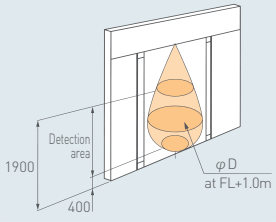
Product name	NZ-1 Ultrasonic Sensor
Detection method	Ultrasonic reflection still object detection method
Mounting height	NZ-1R, NZ-1U : Max. 2.5m NZ-1H : Max. 3.0m
Detection area	NZ-1R, NZ-1U : Max. φ 1.5m NZ-1H : Max. φ 1.3m
Power voltage	100VAC ± 10%
Current consumption	4.0VA or less
Output ratings	No-voltage relay contact 1a, 50VDC/0.1A (resistance load)

Dimensions (mm)



Mass : 50g / 60g / 65g

Detection area (mm)



Model	Detection area (mm)
NZ-1R	D=φ1500
NZ-1U	D=φ1500
NZ-1H	D=φ1300

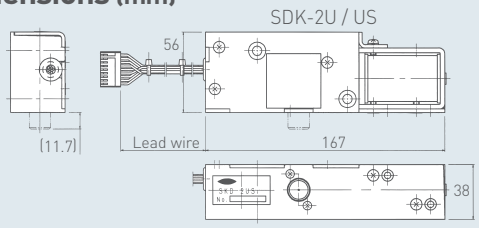
SKD-2 Electric Lock

Compact electric deadbolt lock

Product name	SKD-2U SKD-2US	SKD-2UE SKD-2UES	SKD-2L SKD-2LS
Locking condition	Fail safe (Unlock at power off)		Fail secure (Lock at power off)
Manual release	——	Available	
Hold-locking force	1000N or more		
Operating time	Lock: 2.0s or less / 0.7s or less, Unlock: 0.6s or less / 0.3s or less Lock: 3.0 to 0.7s, Unlock: 0.7s to 0.3s (for NET-DS Lock controller)		
Durability	Over 1,000,000 times		

–Low noise and low vibration
–Fail-safe type and Fail-secure type
–Answer-back function (SKD-2US / UES, SKD-2LS):
Lock / unlock signal and full close signal are output.
–Manual release function (SKD-2UE / UES, SKD-2L / LS):
Available in case of emergency (Wire / handle is necessary.)

Dimensions (mm)

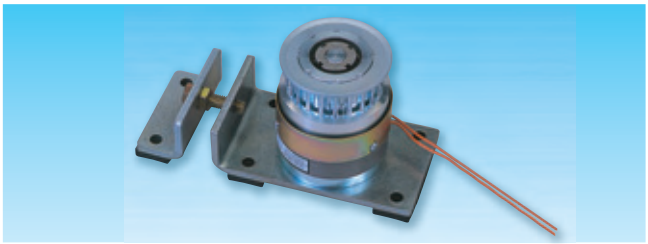


Mass : SKD-2U / SKD-2US : 1,000g
SKD-2L / SKD-2LS : 1,100g

※Lock controller is exclusively required.

PL-1U
Pulley Lock

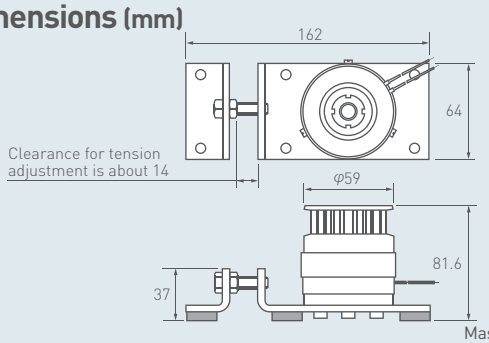
Locking mechanism functions as a belt pulley



–The electrical locking and unlocking devices with the built-in electromagnetic lock within the idler pulley, which seizes the driving belt secured to door panel
–Simple replacement : The installation dimensions are nearly same as those of standard idler pulley.

Product name	PL-1U Pulley Lock
Locking condition	Fail safe (Unlock at power off)
Hold-locking force	Approx. 800N
Mounting	Replaced with idler pulley

Dimensions (mm)



Mass : 1,300g

※To be used with Pulley Lock controller.

EOS
Emergency Operating System

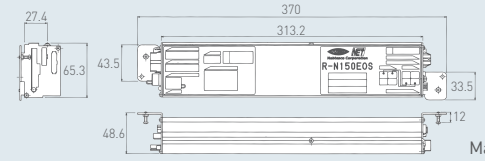
Operates door in emergency condition

–Operates sliding door at power failure or in an emergency condition with EOS controller and battery unit.

Product name	EOS Emergency Operating System
Power voltage	100V AC±10V, 50 / 60Hz, 5A
Emergency power voltage	Ni-Cd rechargeable battery
Ambient tempereature	-50℃ to 50℃
Operation at emergency	Panic-open or panic-close
Emergency input	No-voltage contact input / 24VDC input
Battery capacity	30 times or 30 minutes operation
Battery charging time	Approx. 12 hours

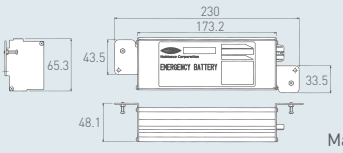
Dimensions (mm)

R-N150 EOS Controller



Mass : 500g

Battery Unit

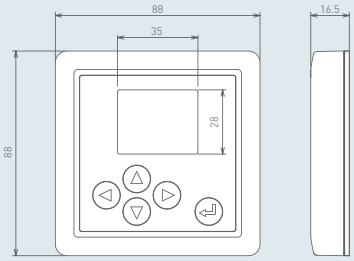


Mass : 600g

APS-N20 Advanced Program Switch

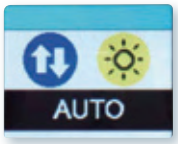
User-friendly advanced program switch for automatic sliding door

Dimensions (mm)

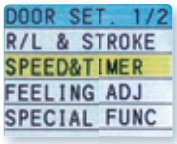


Mass : 250g

–Color LCD offers excellent visibility for switching the automatic door mode and changing the parameter set values.
–Installer can check information related to malfunctioning parts and operation history, which makes maintenance and troubleshooting easier.
–Two types of access codes are programmable to provide different levels of pass to different users.



Operation Mode



Parameter Change

Error and Operation History

Product name	APS-N20
Applicable controller	NET-DS controller
Power voltage	12VDC±10%
Current consumption	Max 80mA@12VDC
Security method	Passcode

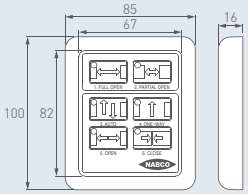
APS-N1 Advanced Program Switch

Allows selection of the optimal door operation

–The operation mode of automatic sliding door can be changed easily.
–Two types of access codes are programmable to provide different levels of pass to different users.

Product name	APS-N1
Applicable controller	NET-DS controller
Power voltage	12VDC±10%
Current consumption	Max 75mA@12VDC
Security method	Passcode

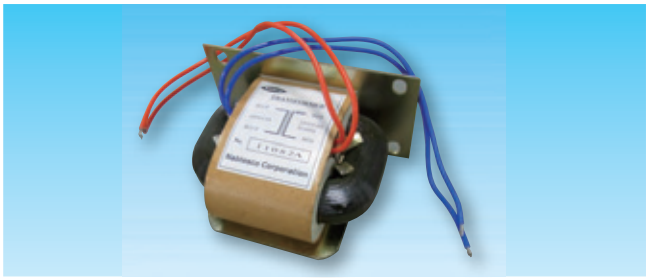
Dimensions (mm)



Mass : 270g

DS Transformer

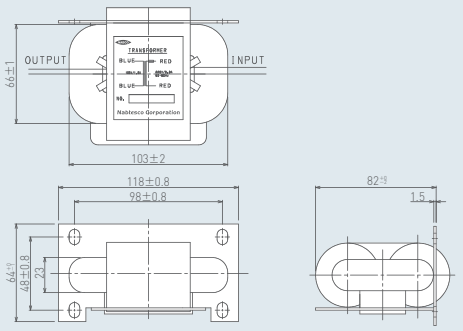
Ideal for NABCO operators



–Compact and reliable
–Perfectly suitable for NABCO automatic door

Product name	DS Down Transformer
Input	220VAC, 50 / 60Hz
Output	100VAC, 1.0A

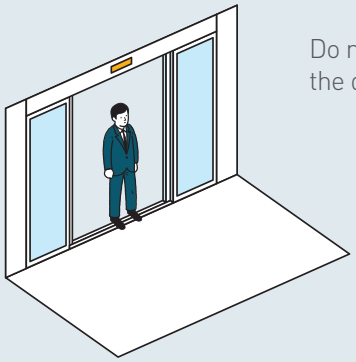
Dimensions (mm)



Mass : 1,500g

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 the handicapped and blind persons in going through the door.

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

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For further details, please contact:

All specifications herein are subject to change without notice

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