



Acusensor C Installation Manual

P/N C-00576 Rev 3-14-24

Nabco Entrances Inc. 582 W18717 Gemini Drive Muskego, Wisconsin 53150
Phone: (877) 622-2694 Fax: (888) 679-3319 www.nabcoentrances.com
NABCO hours of Operation: Monday to Friday 8:00 a.m.- 4:30 p.m. (Central Time)

WARNING

- Turn OFF all power to the Automatic Door if a Safety System is not working.
- Instruct the Owner to keep all power turned OFF until corrective action can be achieved by a NABCO trained technician. Failure to follow these practices may result in serious consequences.
- NEVER leave a Door operating without all Safety detection systems operational.

Attention:

- Because the Acusensor C is a sensor that is installed inside of the header, always make sure that the sensor and door do not bind before turning on the power (Refer to CHAPTER 7:).
- When replacing Hanger Rollers, check the hex-head set screw length in advance.

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CHAPTER 1: SAFETY

SECTION 1.1: Warning Labels

Warning labels are universal and used to alert an individual of potential harm to oneself or to others. The following warning labels are listed in a hierarchy order that defines the most potential danger first, and the least potential danger last.

DANGER Indicates potentially dangerous situations. Danger is used when there is a hazardous situation where there is a high probability of severe injury or death. It should not be considered for property damage unless personal injury risk is present.

WARNING Indicates a hazardous situation which has some probability of severe injury. It should not be considered for property damage unless personal injury risk is present.

CAUTION Indicates a hazardous situation which may result in a minor injury. Caution should not be used when there is a possibility of serious injury. Caution should not be considered for property damage accidents unless a personal injury risk is present.

Attention: A situation where material could be damaged or the function impaired.

Notice: Indicates a statement of company policy as the message relates to the personal safety or protection of property. Notice should not be used when there is a hazardous situation or personal risk.

Note: Indicates important information that provides further instruction.

SECTION 1.2: General Safety Recommendations

DANGER Do not place fingers or uninsulated tools inside the electrical controller. Touching wires or other parts inside the enclosure may cause electrical shock, serious injury or death.

WARNING Disconnect power at the fused disconnect during all electrical or mechanical service. When uncertain whether power supply is disconnected, always verify using a voltmeter.

CAUTION If the door appears broken or does not seem to work correctly, it should be immediately removed from service until repairs can be carried out or a qualified service technician is contacted for corrective action.

Attention: Check for total current consumption of Devices being connected to the Motor/Operator. If current consumption is exceeded, malfunction or failure may occur.

Notice: Read, study, and understand the operating instructions contained or referenced in this manual before operating. If you do not understand the instruction, ask the installing qualified technician to teach you how to use the door.

Notice: This manual must be given to and retained by the purchasing facility or end user.

Notice: Advise the purchasing facility or end user to make regular safety checks and all other duties that may apply.

Notice: All electrical troubleshooting or service must be performed by qualified electrical technicians and must comply with all applicable governing agency codes.

Note: To prevent misunderstanding, explain to Owner in advance: When [Doorway 1] or [Doorway 2] is used, the door may open and close several times to learn the door condition after power-up or if the environment has changed significantly.

CHAPTER 2: SCOPE

SECTION 2.1: To the Installer

The purpose of this manual is to familiarize the installer and purchaser with the proper installation and operation of the Acusensor C. It is essential that this equipment be properly installed and operational before the door is used by the public. It is the installer's responsibility to inspect the operation of the entrance system to be sure it complies with any applicable standards. In the United States, ANSI Standard 156.10 (Full Energy) covers these types of doors. Other local standards or codes may apply. Use them in addition to the ANSI standard.

Instruct the building owners and end users on the essentials of the operation of the door and this device. The owner should follow these instructions to determine whether the door is operating properly and should immediately call for service if there is any malfunction. All installation changes and adjustments must be made by qualified NABCO trained technicians.

If after troubleshooting a problem, a satisfactory solution cannot be achieved, refer to "SECTION 13.3:".

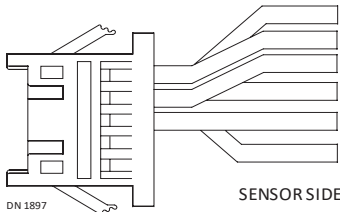
SECTION 2.2: Objective

Acusensor C is mounted into the Header and/or the Header Cover for the GT1175 Slider. The Acusensor C is used to detect changes of multiple near-infrared rays that beam from the Sensor downward to various points on the floor. The Acusensor C can detect a moving pedestrian or object, or a stationary pedestrian or object. Upon Detection, the Acusensor C outputs a detection signal to the Control. The Control automatically sends a signal to the Motor/Operator, the Motor/Operator opens the automatic door.

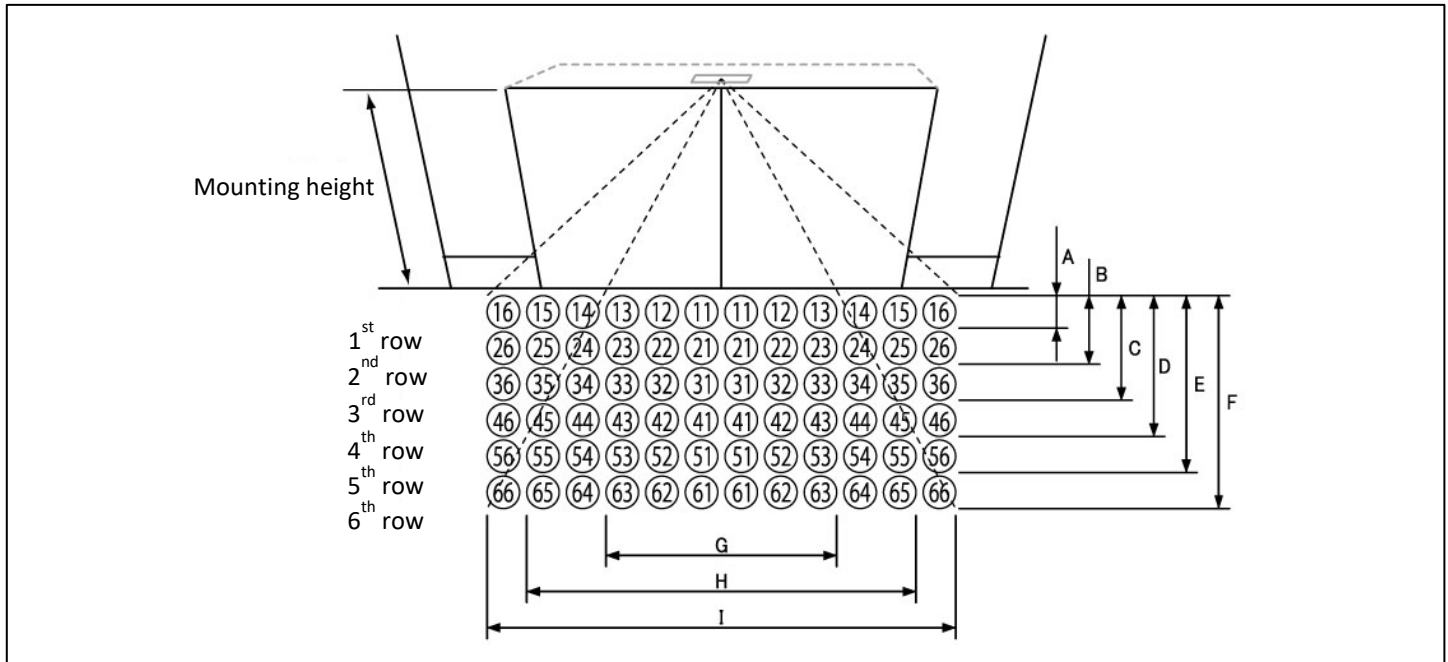
The Acusensor C was developed based on the multipurposed concept of safety and reliability.

CHAPTER 3: SPECIFICATIONS

SECTION 3.1: General Specifications

Specification	Description		
Sensing System	Active reflective near infrared system		
Applicable door	Sliding door (GT1175 Slider)		
Power Input	24VAC $\pm$ 10% (50/60Hz), 12VDC to 24VDC $\pm$ 10%		
Power Consumption	3VA or less (at 24VAC) / 150mA or less (at 12VDC) / 80mA or less (at 24VDC)		
Mounting Height	78 inches to 118 inches (2.0m to 3.0m)		
Detection Area	Width: 114" (2.9m) x Depth 72" (1.8m) (at mounting height: 87" (2.2m)) The width and depth of a Detection Area varies with mounting height and angle. For details, please refer to SECTION 3.2:.		
Input	Opto coupler input 12VDC to 24VDC, input current 10mA (at 12VDC).		
Output	Non-polarized, No-voltage, Semi-conductor relay output 30VAC/50VDC, 0.1A (resistance load).		
Weight	Approximately 10.6 ounces (300g)		
Color	Black only		
Full Color LED	Displays operating status (For detail, refer to CHAPTER 12:)		
Life Expectancy	(5) years. LED illuminates a: ► White or Green light (blinks twice every (5) seconds) • Flashing LEDs do not indicate that the Sensor is failing. • Flashing LEDs indicate that the Sensor has been in use for a period of time, and replacement is recommended. This is done to ensure continued safe operation of the door.		
ECO Mode	Closes door earlier for a pedestrian moving away from door.		
Wiring		Supply	Wire
		Power	Brown: + / ~ Red: - / ~
		Output	Black Green
		Input	Gray: INPUT + Yellow: INPUT -

SECTION 3.2: Detection Area



The Sensor is used to detect changes of multiple near-infrared rays that shoot from the Sensor down to various points on the floor. These various points reflect the near-infrared rays to form a grid. To more accurately monitor a Detection Area, the grid is broken into invisible rows (Depth), and columns (Width).

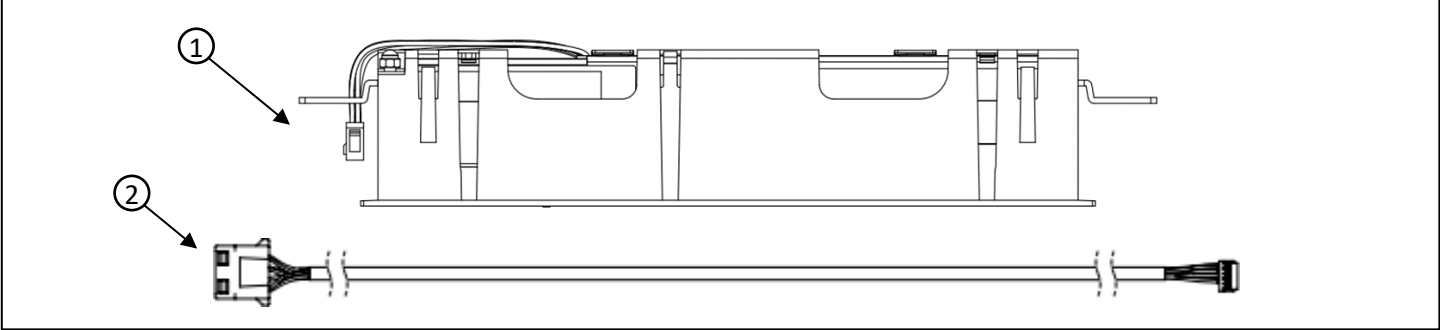
Notice: Width and depth of Detection Area must comply with ANSI Standards.

Note: The Detection Area may change depending on the color and material of the floor.

Area Adjuster set at 0 degrees					
Mounting Height		78" (2.0m)	87" (2.2m)	98" (2.5m)	118" (3.0m)
Depth	A	4" (100mm)	4" (100mm)	5" (120mm)	6" (150mm)
	B	15" (390mm)	17" (430mm)	19" (480mm)	23" (580mm)
	C	26" (650mm)	28" (720mm)	32" (820mm)	39" (980mm)
	D	38" (960mm)	41" (1,050mm)	47" (1,200mm)	57" (1,440mm)
	E	51" (1,300mm)	56" (1,430mm)	64" (1,620mm)	77" (1,950mm)
	F	63" (1,600mm)	72" (1,820mm)	82" (2,070mm)	98" (2,490mm)
Width	G	48" (1,220mm)	53" (1,350mm)	60" (1,530mm)	72" (1,840mm)
	H	83" (2,100mm)	91" (2,320mm)	104" (2,630mm)	124" (3,160mm)
	I	104" (2,640mm)	114" (2,900mm)	130" (3,300mm)	156" (3,960mm)

SECTION 3.3: Outline and Name of Each Part

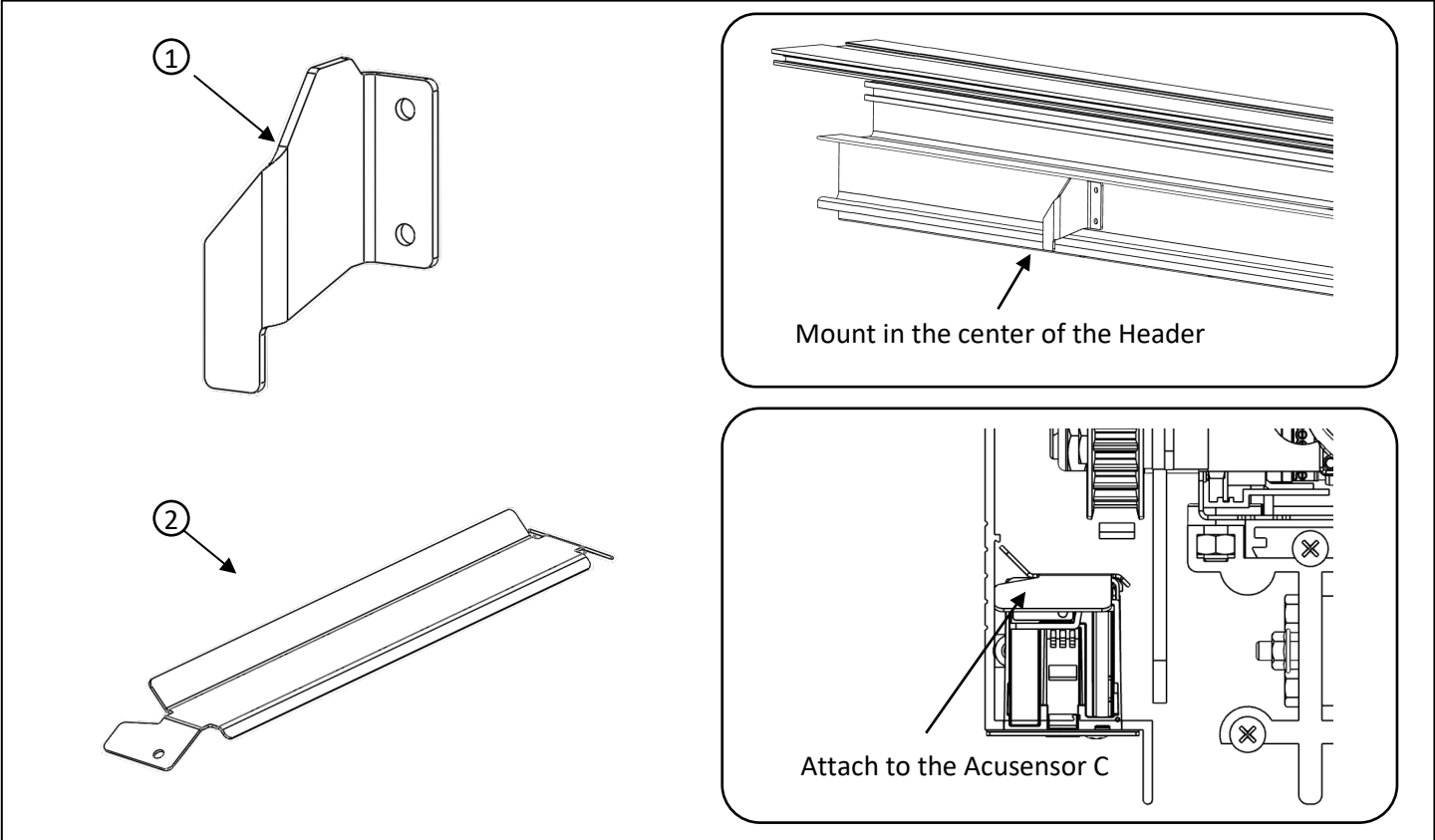
3.3.1 General Part Number



No.	Part Number	Description
1	V-01016	Sensor, Acusensor C
2	A-01292*1	HARNESS, ACUSENSOR M

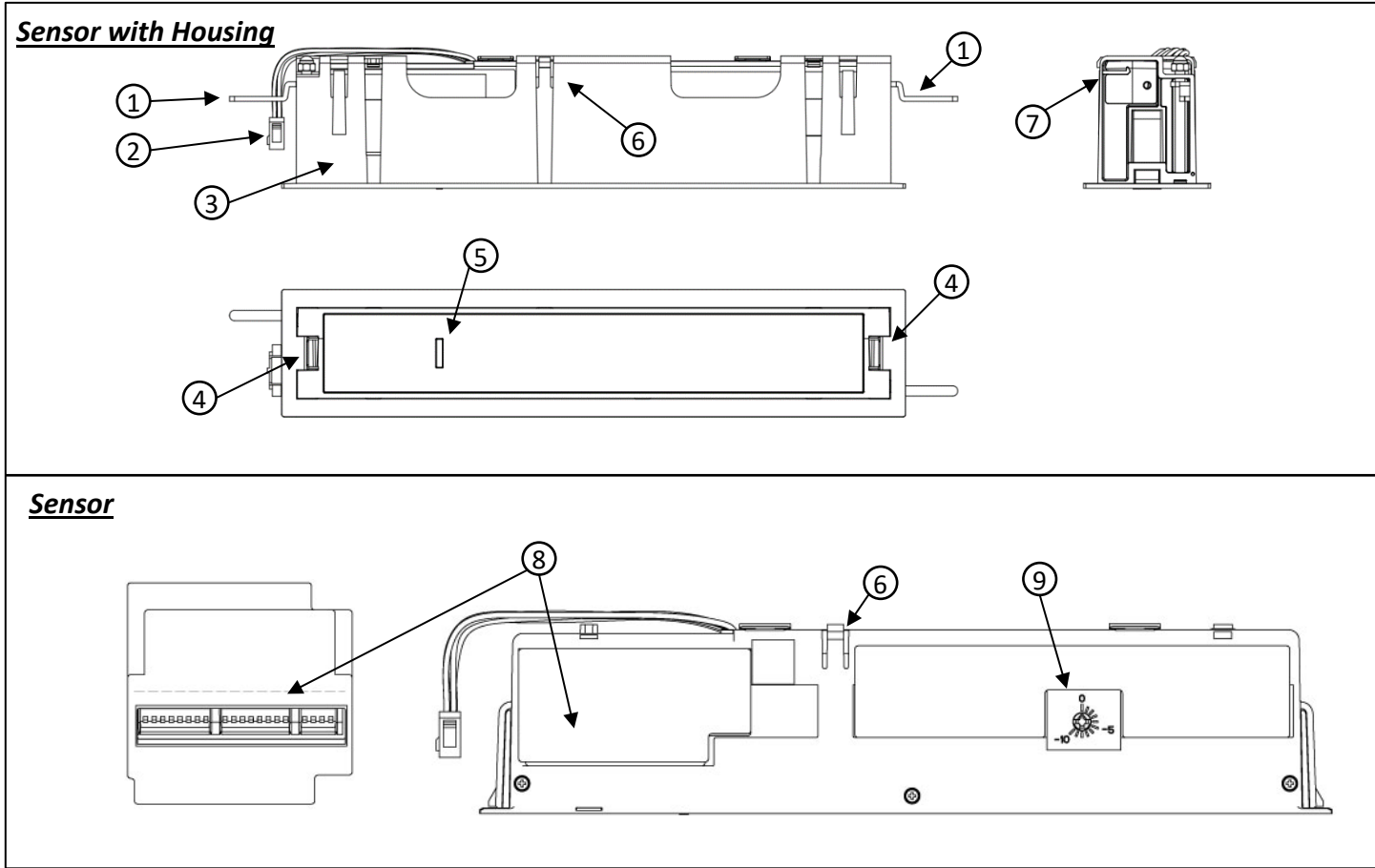
*1 Acusensor C uses the same harness as Acusensor M.
* Acusensor C CANNOT be Retrofitted because it will require a large rectangular hole to be cut in .

3.3.2 General Part Number



No.	Part Number	Description	Note
1	M-02363	BRKT, CENTER SUPPORT, 1175, ACUSENSOR C	Only for GT1175 Standard Bi-part with header length exceeds 144". To prevent the header cover from bending.
2	M-02364	GUARD, BELT, ACUSENSOR C, TELE	Only for the Trail side of a Telescopic door, to protect the sensor from the belt.

3.3.3 Name of Each Part



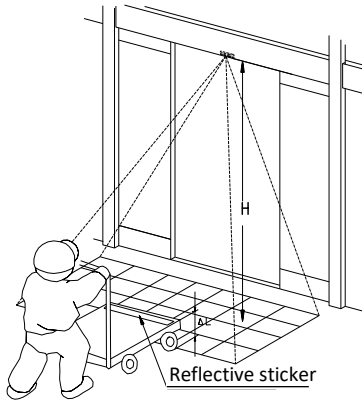
No.	Description	No.	Description
1	Mounting Plates (Both Sides)	6	Tip
2	Sensor Connector	7	Harness Support
3	Housing	8	Label & Switches
4	Levers (Both Sides)	9	Area Adjuster
5	LED		

CHAPTER 4: CAUSES FOR MALFUNCTIONS

Illustrated examples shown below are meant to display some (not all) causes for malfunction **that may** occur within the Detection Area.

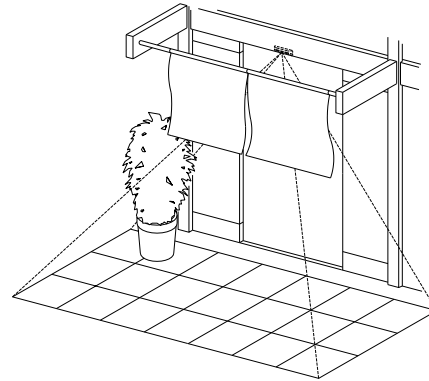
The bed of a trolley is too close to the floor surface. It is not reflective enough to be detected.

- Reflective tape or stickers can help.



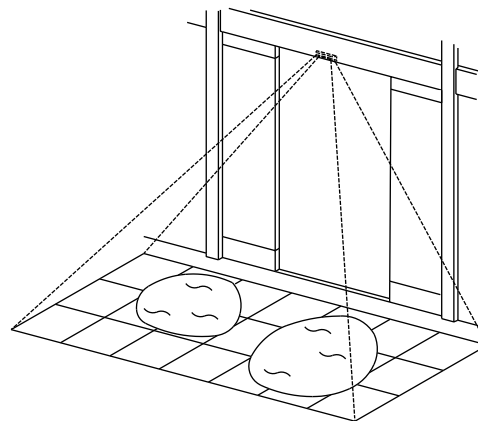
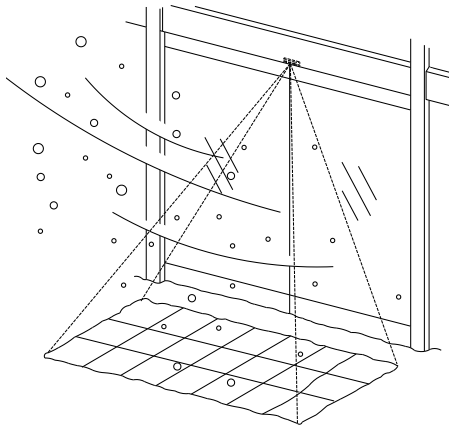
An object placed inside the Detection Area that may be moving within the detection area (due to wind, air pressure, etc.).

- Adjust Detection Area (Refer to CHAPTER 9:) or move object out of the Detection Area.



Sensor is exposed to Steam / Exhaust fumes / Insects / Heavy rain / Heavy snow / Puddling.

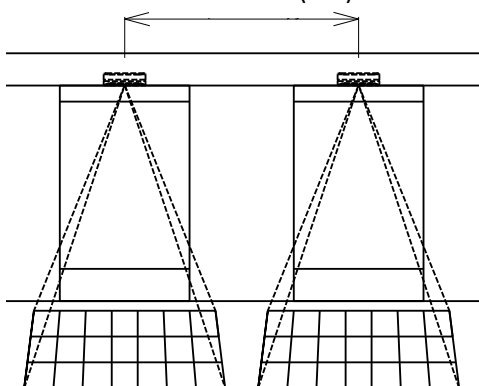
- "Anti-Environment" setting can help (Refer to SECTION 10.4:).



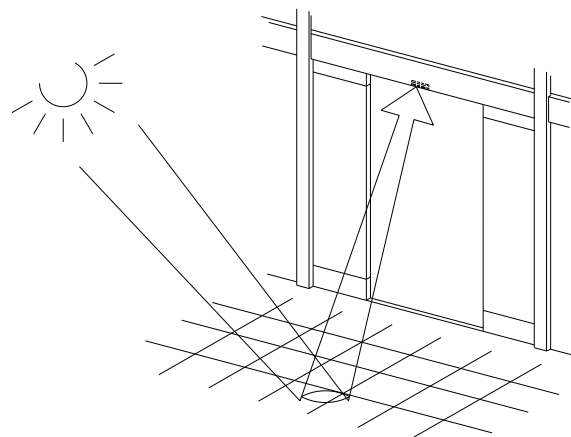
Multiple Sensors installed close to each other or facing each other. Ex. each sensor is installed within 197".

- "IP Mode" setting should be set to values different from each other (Refer to SECTION 10.5:).
- If the manufacturers of these sensors are different, change sensor to one from the same manufacturer.

Within 197" (5m)



The Detection Area is exposed to direct or strong reflected sunlight / strong artificial light, or lighting fixtures that are placed too close to the sensor.



CHAPTER 5: INSTALL THE ACUSENSOR C

WARNING Shut OFF the installation site, branch Circuit Breaker. Failure to do so may result in serious personal or fatal injury. When uncertain whether power supply is disconnected, always verify using a voltmeter.

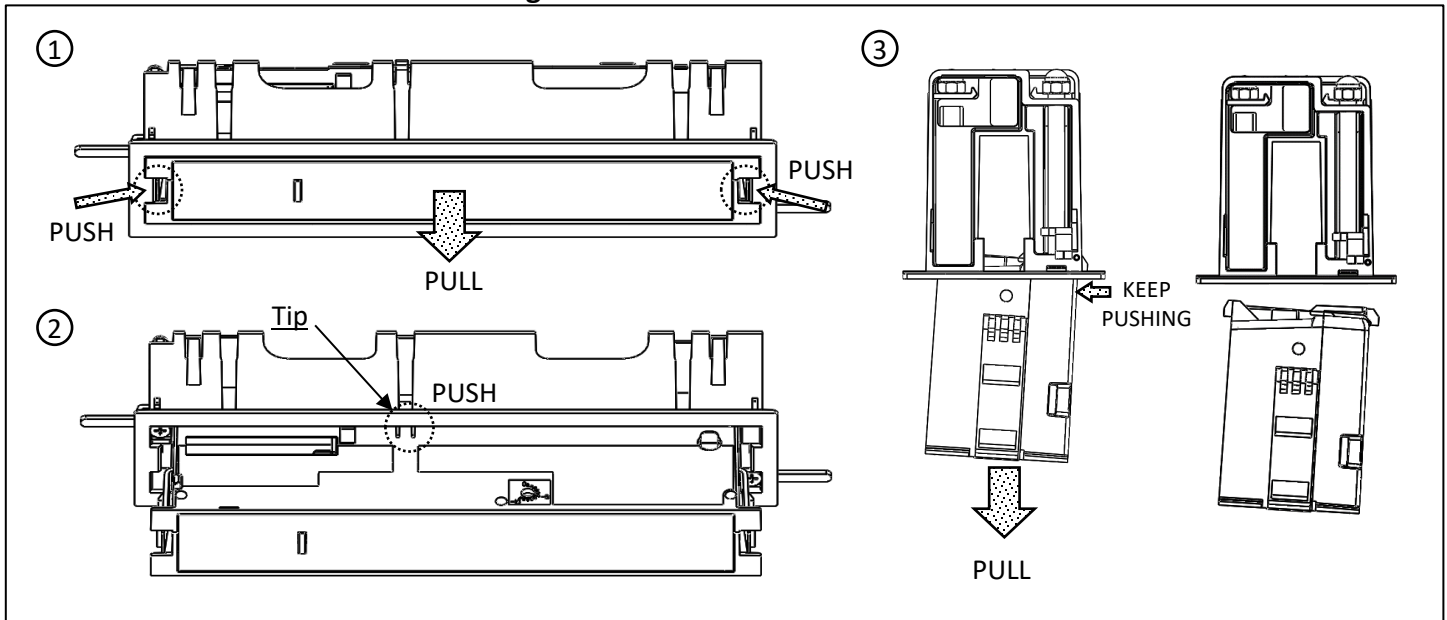
WARNING All high voltage electrical connections must be made by licensed electricians according to National and Local electrical codes/regulations.

CAUTION Permanent wiring shall be employed as required by local codes.

CAUTION Keep all Incoming 120 VAC wiring separate from low voltage wiring within Header. 120 VAC power wires must be routed (separate from other wiring) inside Header, near the top.

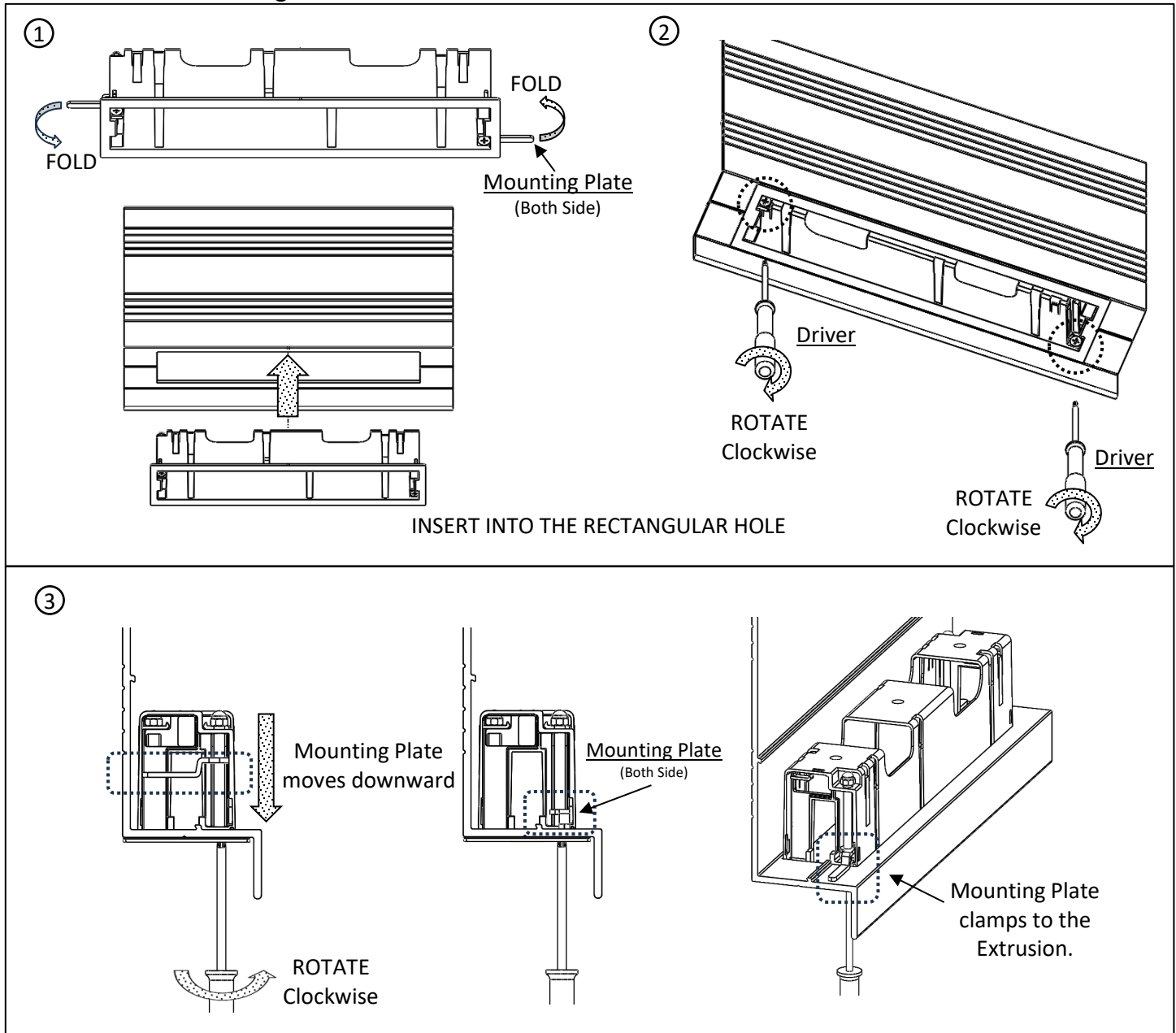
SECTION 5.1: Secure Sensor to Header

5.1.1 Remove Sensor from the Housing



1. Push levers at both sides of the sensor inward, then pull out the sensor to the lower side.
2. Pushing the tip on the surface of the sensor, rotate the sensor at the back pivot.
3. Keep pushing the tip and pull the Sensor from the Housing.

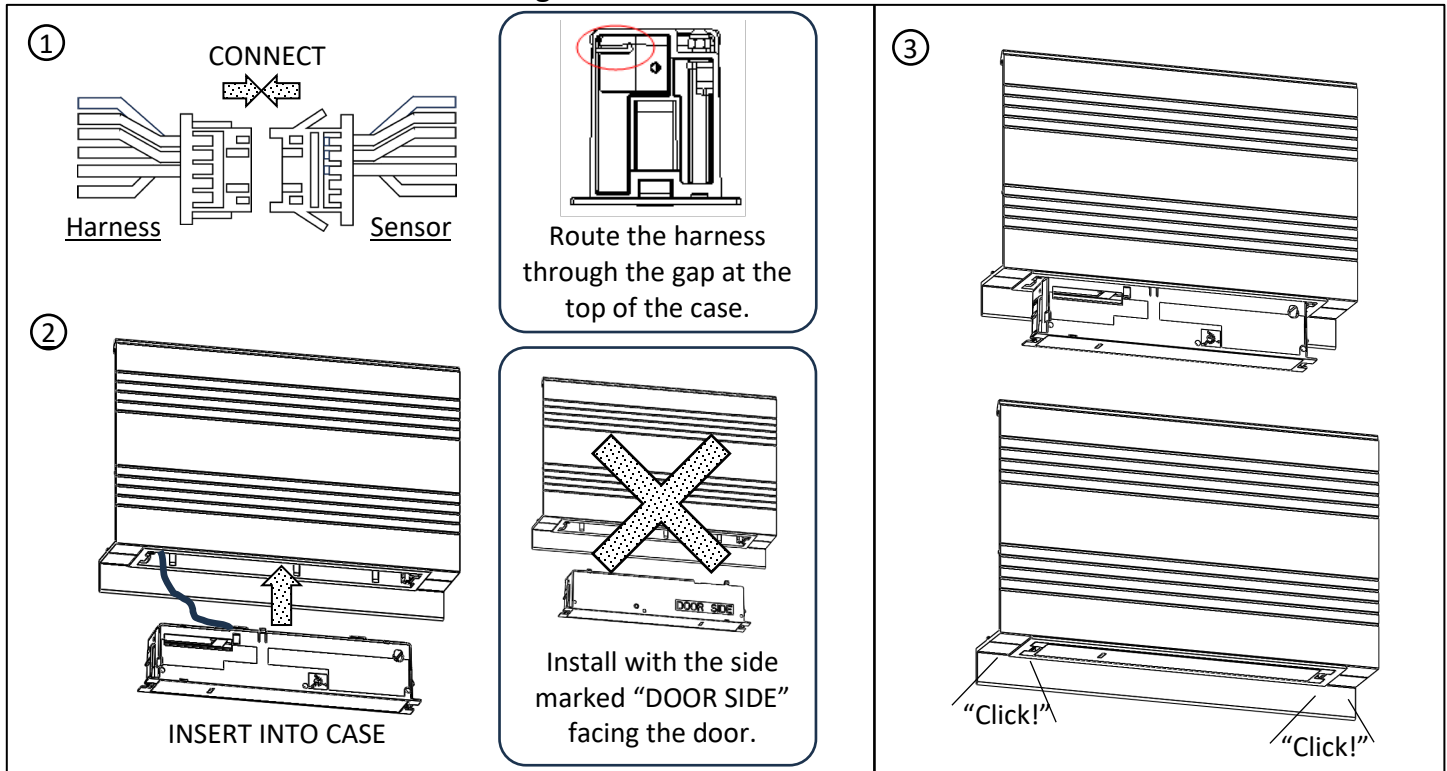
5.1.2 Secure the Housing into the Header



Attention: Tighten the screws enough to prevent the housing from falling out of the header. Do not overtighten. Turn the screws manually and slowly.

1. Fold the mounting plates on both ends of the Housing and insert it into the rectangular hole in the Header or Header Cover.
2. Turn the screws on both ends of the Housing Clockwise.
3. Continue to turn the screws Clockwise until the Case is firmly secured.
 - ▶ Turning the screw Clockwise will lower the Mounting Plate, then clamp it to the Extrusion.
 - ▶ To remove the Housing, turn the screws Counterclockwise.

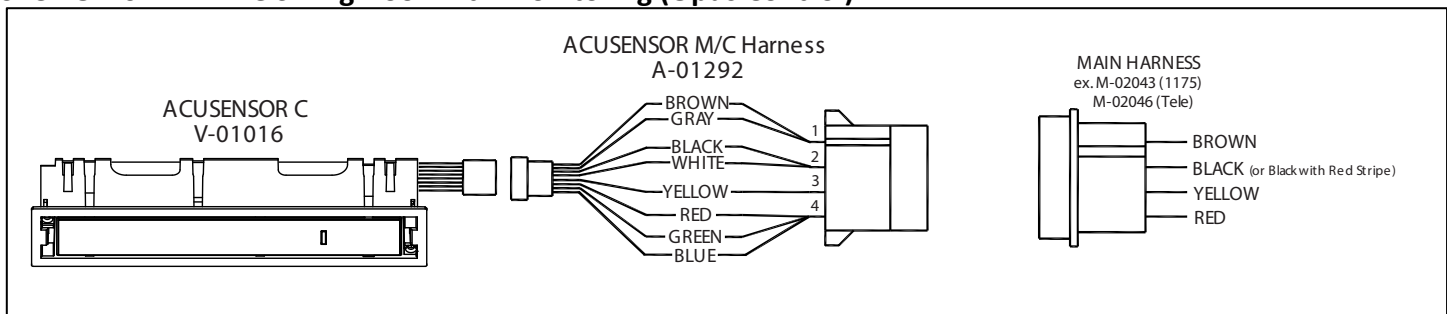
5.1.3 Insert the Sensor into the Housing



1. Connect the sensor connector to the harness.
 - ▶ Harness is the same as Acusensor M.
 - ▶ Ensure that the wires do not come in contact with moving objects. If necessary, pass the harness through the wiring space in the upper part of the housing.
 - ▶ If the wiring route of the sensor connector is incorrect, the sensor will not be seated properly for step3.
2. Insert the sensor into the housing with the side marked "Door Side" facing the door.
 - ▶ The insertion procedure is the reverse of "5.1.1".
3. Push the sensor in until you hear a clicking sound.
 - ▶ If there is no clicking sound, the wiring may be pinched between the Case and the Sensor. Remove the sensor again and change the wiring method of the harness.
 - ▶ Manually move the door to ensure the door does not hit the sensor or pinch the cable.

CHAPTER 6: WIRE THE ACUSENSOR C

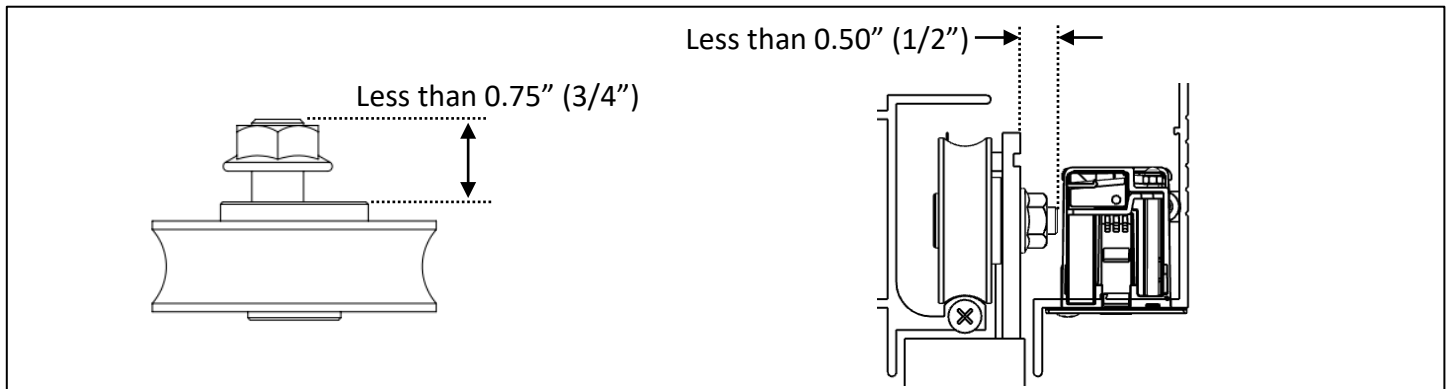
SECTION 6.1: Wire Swing Door with Monitoring (Opus Control)



CHAPTER 7: CHECK BEFORE TURNING ON THE POWER

SECTION 7.1: Check Screw Length of the Hanger Roller

Attention: If the Screw Length of the Hanger Roller is too long, it may collide with or break the Acusensor C.

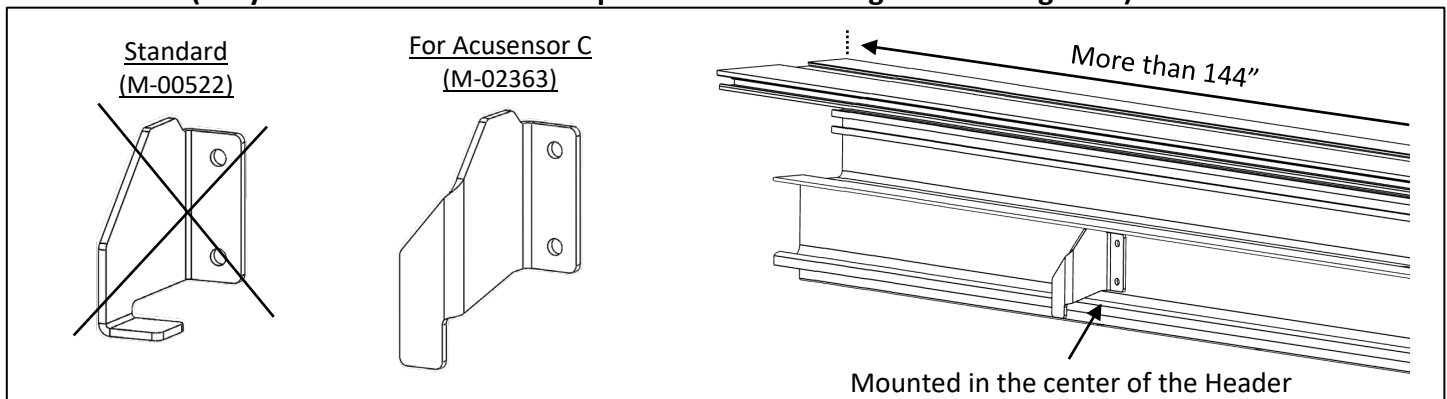


Before moving the door, ensure the distance from the End of Hex-Head set screw to:

- The Hub of Hanger Roller is **less than 0.75 (3/4) inch**.
- The Surface of Carrier is **less than 0.50 (1/2) inch**.

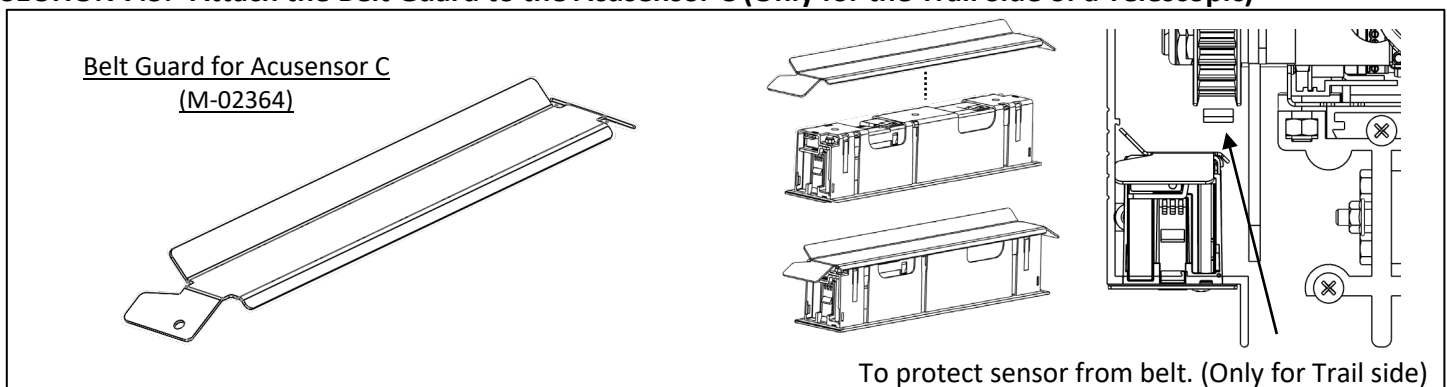
After checking the length, manually move the door to ensure that the Hanger Roller Screw and Acusensor C do not hit.

SECTION 7.2: Check if the Center Support Bracket is for the Acusensor C (NOT THE STANDARD BRACKET) (Only for GT-1175 Standard Bi-part with header length exceeding 144")



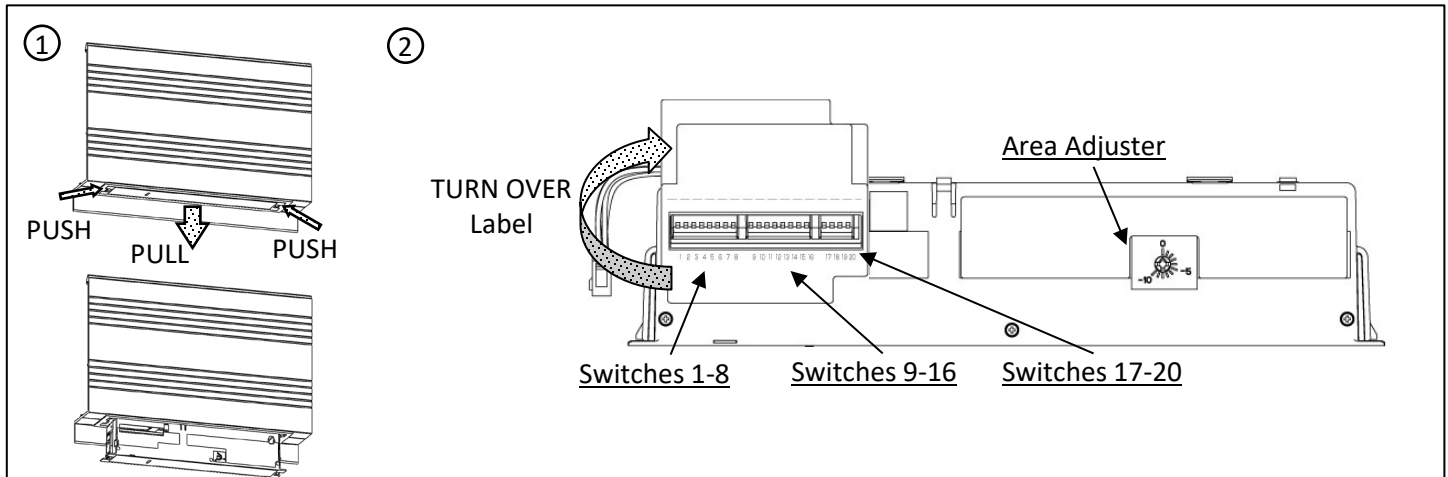
If the header length exceeds 144", use a Center Support Bracket to prevent the header cover from bending. The Standard bracket is the M-00522 bracket, but if using Acusensor C, the M-02363 bracket will be required.

SECTION 7.3: Attach the Belt Guard to the Acusensor C (Only for the Trail Side of a Telescopic)



The Trail Side of a Telescopic Door uses a guard due to the close distance between the belt and the sensor.

CHAPTER 8: SWITCH SETTINGS



1. Push levers inward at both sides of the sensor, then pull out the sensor to lower it.
2. Flip the label and rotate the Area Adjuster as needed.

SECTION 8.1: Overview of the Settings

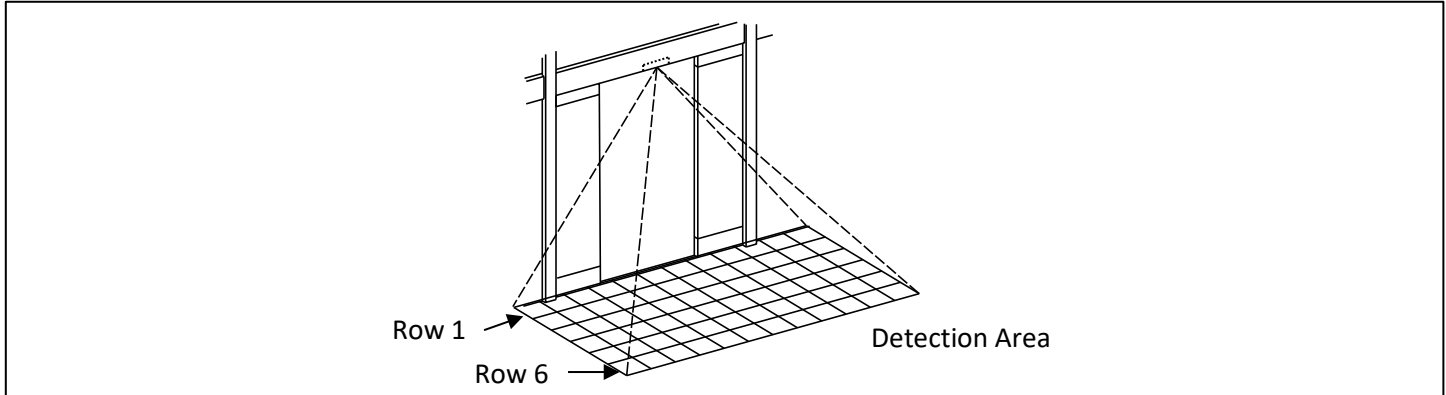
The following table shows the settings available for Acusensor C. Subsequent chapters will provide details on how to use each item.

Parameter	Switches	Range*	Description	For Detail
ADJUST THE DETECTION AREA				
Operation Mode	1 and 2	Normal / Doorway2 / Doorway1 / 1st Row OFF	Determines settings based on which row the Presence Area is in and whether or not the door passes through the first row.	SECTION 9.1:
Width (L)	5 and 6	# 6 / 5 / 4 / 3	Adjusts width of Detection Area on the LEFT Side of the Door.	SECTION 9.2:
Width (R)	7 and 8	# 6 / 5 / 4 / 3	Adjusts width of Detection Area on the RIGHT side of the Door.	SECTION 9.2:
Depth	9 thru 11	# 6 / 5 / 4 / 3 / 2 / 5-6 eco / 4-6 eco / Area Check	Adjusts depth of Detection Area. It also can be used to activate the "eco mode" or "Area Check" functions.	SECTION 9.3:
ADJUST THE DETECTION ACCURACY				
Sensitivity	17 and 18	# H (High) / M (Medium) / L (Low) / SH (Super High)	Determine the sensitivity of detection depending on Mounting height & floor condition.	SECTION 10.1:
Learn time	12 and 13	# 30 sec. / 15 sec. / 60 sec. / 300 sec.	The amount of time it takes for the sensor to learn (or re-learn) the area if a normally stationary object is moved. ANSI requires minimum 30 sec.	SECTION 10.2:
Anti-Noise	14	# Normal / Special	Helps prevent false detection caused by electrical noise or nearby light sources.	SECTION 10.3:
Anti-Environment	15 and 16	# Normal / Anti-Vibration / Anti-Snow I / Anti-Snow II	Helps prevent false detection caused by vibration, insects, snow.	SECTION 10.4:
IP Mode	19 and 20	# A / B / C / D	Helps prevent interference caused by sensors near each other.	SECTION 10.5:
ADJUST THE OUTPUT AND INPUT LOGIC				
Output Logic	3	# Normally Open / Normally Close	Determine the logic for output from the sensor to the controller.	SECTION 11.1:
Input Logic	4	# High / Low	Determine the logic for input (Monitoring Test input) from the controller to the sensor.	SECTION 11.2:
* "#" means default, Gray means DO NOT USE.				

CHAPTER 9: ADJUST DETECTION AREA

WARNING After changing Detection area or settings, make sure ANSI standards can be satisfied.

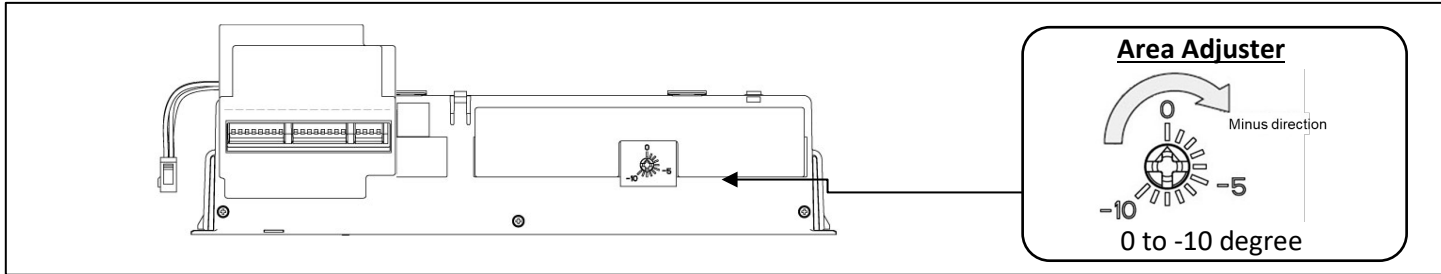
SECTION 9.1: Operation Mode (Switch 1 and 2)



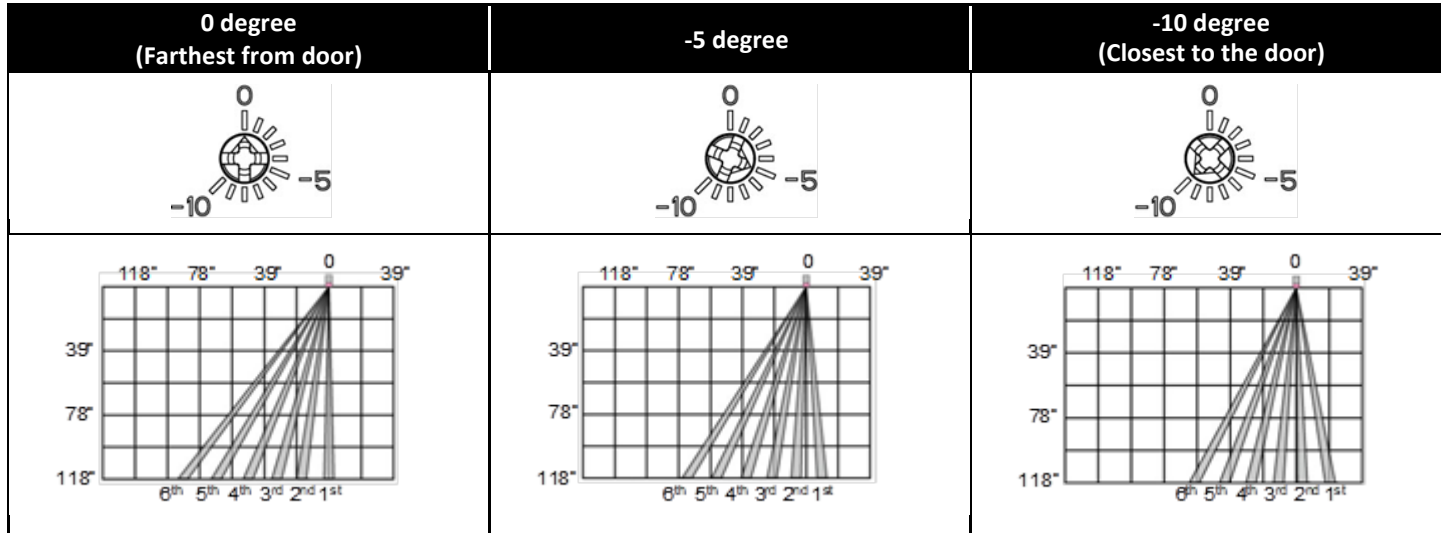
Detection Area and Threshold settings depend on the Operation Mode setting. Please switch the settings according to the application in the field.

Operator Mode		Detection Area Diagram	Description
1	2		
		Normal	DO NOT USE (the First row will detect the door)
		Doorway 2	DO NOT USE
		Doorway 1	▶ The first row is for threshold detection. Adjust the sensor angle so that the door passes through the first row. ▶ Presence Detection Area are Row 1 and Row2.
		1st Row OFF	▶ The first row is inactive. ▶ Presence Detection Area are Row 2 and Row 3.
	Presence Detection	These rows are active with monitoring function.	
	Presence Detection (For Threshold)	These rows are active with monitoring function. This is intended for door pass through areas. The detection sensitivity is adjusted to avoid detection of the moving doors.	
	Activation	These rows are active, but not applied to the monitoring function.	
	ECO Mode	Depends on the Depth setting. See SECTION 9.3: for details.	
	Inactive	Depth Rows are not Active.	

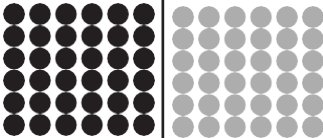
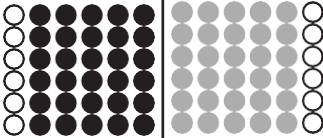
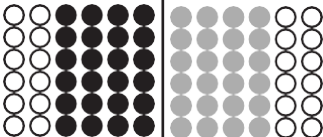
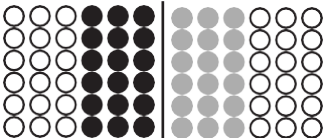
9.1.1 Adjust Angle of the Sensor



The sensor angle can be adjusted by rotating the Area Adjuster. The angles are from 0 to -10 degrees, and the angles are indicated by arrows as shown below.



SECTION 9.2: Width Setting (Switches 5-8)

Width (L)			Width Area Diagram			Width (R)		
5	6		● = Active Area Left Side	○ = Inactive Area	● = Active Area Right Side	7	8	
		#6						6
		5						5
		4						4
		3						3

SECTION 9.3: Depth Setting (Switch 9-11)

Depth				Operation Mode			
9	10	11		Normal* ¹	Doorway-2* ¹	Doorway 1	1 st Row OFF
			# 6	DO NOT USE	DO NOT USE		
			5				
			4				
			3				
			2				
			5-6 ECO				
			4-6 ECO				
			Area Check* ²				
	Presence Detection			These rows are active with monitoring function.			
	Presence Detection (For Threshold)			These rows are active with monitoring function. This is intended for door pass through areas. The detection sensitivity is adjusted to avoid detection of the moving doors.			
	Activation			These rows are active, but not applied to the monitoring function.			
	ECO Mode			The sensor checks the order of detection in rows 5-6 for "5-6 ECO" and rows 4-6 for "4-6 ECO". If the Object is moving away from the door, the sensor will eventually stop outputs. Eco mode may reduce Hold Open Time and reduce the temperature shift between the interior and exterior. For safety reasons, if any detection occurs in the “ECO Mode” area, Eco Mode will shut off until detection is removed.			
	Inactive			Depth Rows are not Active.			
*1 Do not use Normal Mode and Doorway 2.							
*2 Used for adjusting detection area depth and confirming test command input during installation only. During this mode, LED lighting pattern will change. A unique LED color is assigned to each Depth Row. For detailed information please refer to CHAPTER 12:.							

CHAPTER 10: ADJUST DETECTION ACCURACY

WARNING After changing Detection area or settings, confirm sensor can comply with ANSI standards.

SECTION 10.1: Sensitivity (Switches 17 and 18)

Sensitivity determines how sensitive the sensor will detect objects. SH is the highest sensitivity and L is the lowest. Initially, choose sensitivity based on the mounting height. Adjust the Detection sensitivity if performance is affected by the material and color of the floor or clothes. Confirm adjustments to sensitivity by walking within the detection area.

Sensitivity				Description
17	18			
		# H (High)	▶	Mounting Height: 98" thru 118" (2.5m thru 3.0m)
		M (Medium)	▶	Mounting Height: 79" thru 98" (2.0m thru 2.5m)
		L (Low)	▶	Mounting Height: 79" thru 98" (2.0m thru 2.5m) ▶ Use if sensitivity is too HIGH with Switch Setting (M)
		SH (Super High)	▶	Mounting Height: 98" thru 118" (2.5m thru 3.0m) ▶ Use if sensitivity is too LOW with Switch Setting (H)

SECTION 10.2: Learn Time (Switches 12 and 13)

Notice: After powering-on, do not enter detection area within 1 minute.

Learn Time is how long the Sensor learns that a stationary object is part of the area. It will learn to ignore that object in the future in order for the door to close. Learn Time differs due to the "Operator Mode" and Depth Row.

Operator Mode			Normal					
12	13		Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
		# 30s	30 seconds	5 seconds				
		15s	15 seconds*					
		60s	60 seconds					
		300s	300 seconds					
Operator Mode			Doorway 2 (Do Not Use)					
12	13		Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
		# 30s	30 seconds					
		15s	15 seconds					
		60s	60 seconds					
		300s	300 seconds					

Operator Mode			Doorway 1					
12	13		Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
		# 30s	30 seconds	5 seconds				
		15s	15 seconds*					
		60s	60 seconds					
		300s	300 seconds					
Operator Mode			1 st Row OFF					
12	13		Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
		# 30s	Inactive	30 seconds	5 seconds			
		15s		15 seconds*				
		60s		60 seconds				
		300s		300 seconds				

* ANSI requires at least 30 seconds of Learn Time for Presence Area.

SECTION 10.3: Anti-Noise (Switch 14)

WARNING This setting may delay the detection response speed. After changing the setting, confirm the sensor will open the door at normal walking speed.

If the door opens periodically even though there are no passersby, the sensor may be triggered by light or electromagnetic noise. If this is the case, setting this to "Special" may solve the problem.

Anti-Noise		
14		Description
	# Normal	Anti-Noise is OFF.
	Special	Use when a malfunction occurs due to a lighting fixture or an electromagnetic noise. "IP Mode" setting also can help this kind of malfunction.

SECTION 10.4: Anti-Environment (Switches 15 and 16)

WARNING This setting may delay the detection response speed. After changing this setting, confirm the sensor will open the door at normal walking speed.

If the door false detects under certain conditions (Snow, insect, ...etc.), these settings may solve the problem.

Anti-Environment			Vibration	Snow	Insect	Note
15	16					
		# Normal	Inactive	Inactive	Inactive	N/A
		Anti-Vibration	Active	Inactive	Inactive	Use when Sensor malfunctions due to door vibration during operation.
		Anti-Snow I	Inactive	Active	Inactive	Use when Sensor false detects due to snow. Response time may slow down.
		Anti-Snow II	Active	Active	Active	Use when Sensor's false detections were not improved by Anti-Snow I

SECTION 10.5: IP Mode (Switches 19 and 20)

If multiple sensors are in close proximity, the sensors may receive IR from each other, resulting in false detection. In such cases, the sensor area must be adjusted so that the IR areas do not overlap by making the IP Mode value different from the other sensor.

IP Mode			Description
19	20		
		# A	Default for the Acusensor C.
		B	Suggested IP Mode for 2nd Sensor.
		C	Suggested IP Mode for 3rd Sensor.
		D	Suggested IP Mode for 4th Sensor.

CHAPTER 11: ADJUST INPUT OUTPUT LOGIC

SECTION 11.1: Output Logic (Switch 3)

When an Object is detected within the detection area, the sensor sends a pulse to the Input of the Controller. This setting allows the logic to switch between Normally Closed and Normally Open. There is no need to change this setting if used with an Opus.

Output Logic								
3		Definition	Stand-by	Detecting	Action	Test Reply (Good)	Test Reply (Error)	Power OFF
	# N.O.	Normally Open			Circuit closes Door opens			
	N.C.	Normally Closed			Circuit opens Door opens			

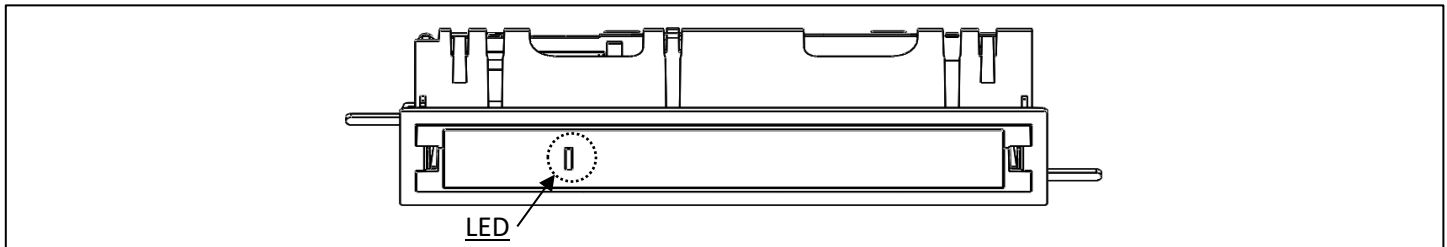
SECTION 11.2: Input Logic (Switch 4)

Notice: ANSI requires monitoring function.

This setting can change the logic of the test input for Monitoring. There is no need to change this setting if used with an Opus.

Input Logic		Description	
4			
	# High	+input	Connects to +voltage
		- input	Connects to Output, regardless of Switch 4 Setting.
		▶ Opus setting should be "Sensor Monitoring N.O. (Normally Open)"	
	Low	+input	Connects to +voltage
		- input	Connects to Output, regardless of Switch 4 Setting.
		▶ Opus setting should be "Sensor Monitoring N.C. (Normally Closed)"	

CHAPTER 12: LED PATTERN



The color of the Sensor LED indicates the state of the sensor. The LED lighting pattern differs between the General LED Pattern and Area Check Mode, as shown in the table below: (The LED color on the upper side of the table has priority.)

SECTION 12.1: General LED Pattern

Sensor Status		Operation Mode			
		Normal	Doorway 2	Doorway 1	1st Row OFF
Detected Object:	in Presence Detection Area	Red	Red	Purple (Only 1 st Row)	Red
	in Activation Area	Orange			
	...but is disabled by "ECO Mode" or "Anti-Insect" feature.	Yellow			
If an Error Occurred:		Blinks Red 1 time every second.			
Stand-by:	Threshold Learning is NOT completed.	White			
		If the Sensor needs to be replaced, it will blink White 2 times every 5 seconds.			
	Threshold Learning is completed.	Green			
		If the Sensor needs to be replaced, it will blink Green 2 times every 5 seconds.			

SECTION 12.2: Area Check Mode

WARNING After checking area, be sure to set Depth Setting to an appropriate value.

LED pattern when Depth Setting (Switch 9-11) is in Area Check Mode:

Sensor Status		Operation Mode			
		Normal	Doorway 2	Doorway 1	1st Row OFF
Recognized Monitoring Input		Blinks White 4 times quickly (10Hz)			
Detected Object	Depth Row 1	Red			OFF
	Depth Row 2	Pale Blue			
	Depth Row 3	Yellow			
	Depth Row 4	Blue			
	Depth Row 5	Green			
	Depth Row 6	Purple			
Stand-by		OFF			

CHAPTER 13: TROUBLESHOOTING

SECTION 13.1: Errors, possible causes and troubleshooting

Trouble	Possible cause	Troubleshooting
No operation	Wiring/connector NG	Check the wiring and connector. The connector pins may not be inserted all the way.
	Power voltage NG	Make sure that the power supply voltage is either 24VAC or 12 - 24VDC and that it does not exceed the current supply limit of the controller.
No detection	Filter is stained with dirt, water, dew, or frost.	Wipe off the stain with soft fabric with neutral detergent. (Do not use such chemicals as thinner or alcohol, etc.)
	Sensitivity is too low.	Increase the sensitivity. For details, refer to SECTION 10.1:
	Improper adjustment of the detection area	Adjust the Area with the Setting Switch and Area Adjuster. For details, refer to CHAPTER 9:
False detection	Sensitivity is too high.	Lower the sensitivity. For details, refer to SECTION 10.1:
	Footprints on the accumulated snow	
	Detection area of sensors overlap.	Select a different interference prevention mode than the other sensor. For details, refer to SECTION 10.1:
	The sensor detects a moving object.	Adjust the detection area or move the object out of the area so that it is not detected.
	Lighting fixture has the same frequency as this sensor.	Set "Anti-Noise" to [Special]. For details, refer to SECTION 10.3: Further changes of the "Interference prevention mode" setting or lowering of "Sensitivity" may lead to improvement.
	The sensor is subject to the effects of an electro-magnetic wave or microwave.	
	A strong light like sunlight or down light etc. strikes the sensor.	Install the sensor to avoid the light.
	Environment rapidly changes by weather such as heavy rain or snow.	Set "Anti-Environment" to [Anti-Snow I]. If no improvement is seen after that, set it to [Anti-Snow II]. For details, refer to SECTION 10.4: Further lowering of "sensitivity" may lead to improvement.
	The sensor is exposed by fog, steam, exhaust fume.	
	Insect flies near the sensor.	
	Fallen leaves etc. move on the floor.	
	The sensor vibrates during door operation.	Set "Anti-Environment" to [Anti-Vibration]. For details, refer to SECTION 10.4: Further lowering of "sensitivity" may lead to improvement.
	There are highly reflective objects on the floor.	
Misdetection (sliding doors)	The sensor detects the doors.	In case of adjusting detection area to locate 1st depth row on the door, set "operation mode" to [Doorway1] and adjust detection area not to locate 2nd depth row on the door. In case of adjusting detection area not to locate 1st depth row on the door, set "operation mode" to [Normal] and adjust detection area not to locate 1st depth row on the door.
Door stops or LED blinks red.	Wiring/connector NG	Check the wiring and connector of input and output.
	Mismatch of input logic and output logic	Match the settings of input logic and output logic to D/O controller.
	Mirror reflection from floor	In case that there is mirror reflection from floor, implement measures like placing mat.
	Self-diagnosis error occurs due to failure.	Turn off the power, then turn it on again. If self-diagnosis error occurs again, replace the sensor.
Learn time is short.	Within 1 minute after power-on	Just after power-on, learn time is short. Do not enter the Detection area within 1 minute after power-on
	Activation area	Learn time of activation area is 5 sec regardless of setting.
Operation display LED blinks green or white twice every 5 seconds.		Total power-on time is about 5 years. Replacement of this sensor is recommended.

SECTION 13.2: Causes of false-detections and the proper preventive settings:

Cause of false-detection \ Setting items	Anti-Noise (Switch 14)	Anti-Environment (Switch 15 and 16)	Sensitivity (Switch 17 and 18)
Snow	-	Anti-Snow I/ Anti-Snow II	L/M/H/SH
Rain or pooling of water			
Fog, steam, or exhaust fumes			
Flying insects			
Fallen leaves			
Distortion/vibration of transom	-	Anti-Vibration/ Anti-Snow II	L/M/H/SH
High reflection from reflective objects			
Sunlight	-	-	L/M/H/SH
Footprints on the accumulated snow			
Lighting fixture with the same frequency	Special	-	L/M/H/SH
Electromagnetic noise			
Mounting height	-	-	L/M/H/SH
Detection of object at point blank range (less than 19.7" (500mm))			
Others			

SECTION 13.3: Contact Information

NABCO Entrances' products are distributed through a nationwide network of NABCO Authorized Distributors that specialize in Sales, Installation and Service within the Automatic Door Industry. To locate your local service contact please use the Distributor Finder on our website:

[NABCO Branches & Distributors | Locations | NABCO Entrances](https://www.nabcoentrances.com/service/find-a-distributor/) (https://www.nabcoentrances.com/service/find-a-distributor/)

Should you have warranty questions, please contact our Technical Service team for further assistance.

NABCO Entrances Inc.

Email: techsupport@nabcoentrances.com

877 622-2694 Option #3