

15. TROUBLESHOOTING			
Problem	LED Status	Possible Cause	Solution
Door does not open when a person enters the detection area	OFF	Sensor Connector not connected correctly	Tighten or reconnect the connector.
		Incorrect power supply voltage	Apply proper voltage to the sensor. (AC : 12-24V, DC : 12-30V)
		Incorrect sensor wiring	Double check sensor wiring
Door opens and closes for no apparent reason (Ghosting)	Door Opens RED or BLUE	Object moving in the detection area	Remove the moving object from detection area.
		Sensitivity too high for the installation environment	Reduce the sensor sensitivity setting
	Door Closes GREEN	Dust, frost or water droplet on the sensor lens	Wipe the sensor lens clean and install a weather cover if necessary
		Detection area overlaps with that of another sensor	Ensure different frequency setting for each sensor, and adjust to overlap the radar area using the angle and volume.
		Detection of falling snow, insects, leaves etc	Turn monitor mode Dip Switch (X) 8 to "snow"
When Door opens or closes, LED ORANGE	ORANGE	Detection row "ROW1" ("ROW2" when "Doorway Learn" is turned ON) is focused too close to the door.	Adjust detection depth for Inner 3 rows away from the door.
		Detection area changed, while infinity presence timer setting is in use	Re-power the sensor or change the presence timer settings to 30 or 60 sec
Door opens and remains in the open position	RED	Incorrect sensor wiring	Double check sensor wiring
		Reflected signal saturation	Remove highly reflective objects from the detection area, or lower the sensor sensitivity setting
		Moving objects in the radar area	Eliminate moving objects
	BLUE	Moving objects in the radar area	Eliminate moving objects
	GREEN/RED FAST FLASH	Internal sensor error	Replace the sensor
	GREEN/RED SLOW FLASH	Reflection of the transmitted infrared signal from the floor is too low	Increase sensor sensitivity or change the "Reflection Diagnostics" Dip Switch (X) 7 from "Normal" to "Low Ref"
ORANGE blinking (Slow)	Door Hold (Dip Switch (Y) 6 set to Open)	Turn OFF the "Door Hold" Dip Switch (Y) 6 to Auto	

EUD-0004

EU DECLARATION OF CONFORMITY

Radio equipment:  
SSR-3-ER Combined motion and presence detection sensor for the activation and safety of automatic doors including emergency exits.

Manufacture:  
HOTRON GROUP Honda Electron Co., Ltd.  
1-23-19 Asahimachi, Machida-shi, Tokyo 194-0023, Japan

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Object of the declaration:  
Door Sensor

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Directive 2014/53/EU Directive 2006/42/EC Directive 2011/65/EU (EU/2015/863)	RE Directive Machinery Directive RoHS Directive
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The relevant harmonised standards used:

EN 300 440 V2.2.1	Short Range Devices (SRD): Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Harmonised Standard for access to radio spectrum
EN 301 489-1 V2.2.3	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services: Part 1: Common technical requirements:
EN 301 489-3 V2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services: Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz:
EN 62368-1:2020	Audio/video, information and communication technology equipment Part 1: Safety requirements
EN12978:2003+A1:2009	Industrial, commercial and garage doors and gates - safety devices for power operated doors and gates - Requirements and test methods.
EN16005:2012+AC:2015	Power operated pedestrian doorsets - Safety in use - Requirements and test methods
DIN18650-1:2010	Powered pedestrian doors - Part 1: Product requirements and test methods
EN ISO 13849-1:2015	Safety of machinery - Safety-related parts of control systems. Part 1: General principles for design (ISO 13849-1:2015)

Signed for and on behalf of: *Teruya Morimoto*  
place and date of issue: *Machida, Tokyo, Japan, October 30, 2020*  
name: *Teruya Morimoto*  
function: *Director(Quality Assurance)*

- < Disclaimer > The manufacturer cannot be held responsible for below.
- Misinterpretation of the installation instructions, miss connection, negligence, sensor modification and inappropriate installation.
  - Damage caused by inappropriate transportation.
  - Accidents or damages caused by fire, pollution, abnormal voltage, earthquake, thunderstorm, wind, floods and other acts of providence.
  - Losses of business profits, business interruptions, business information losses and other financial losses caused by using the sensor or malfunction of the sensor.
  - Amount of compensation beyond selling price in all cases.

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English



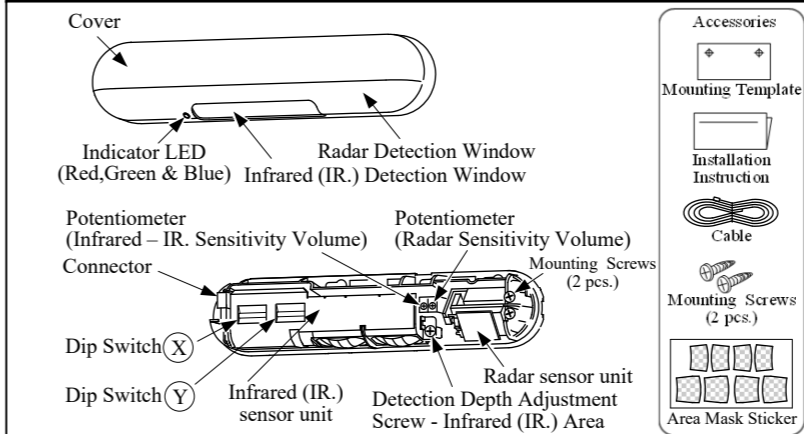
COMPLIED STANDARDS  
EN 12978:2003 +A1:2009  
EN 16005:2012 +AC:2015  
DIN 18650-1:2010  
EN ISO 13849-1:2015  
EC type examination  
XXXXXX

## SSR-3-ER

### User Manual (Original)

Combined motion and presence detection sensor for the activation and safety of automatic doors including emergency exits.

#### 1. DESCRIPTION



#### 4. MOUNTING PRECAUTIONS

<p>Mounting height of 3.5m (11.5ft) or lower</p>	<p>Mount within 50mm of the bottom of the door engine cover</p>	<p>Ensure there are no moving objects in the detection zone</p>	<p>Ensure no condensation gets onto the sensor.</p>
<p>If the sensor is exposed to excessive rain install with a Hotron weather cover</p>	<p>If possible ensure no accumulation of snow or water on the floor.</p>	<p>Ensure the minimum of reflected sunlight from the floor</p>	<p>Use different frequency settings for sensors in close proximity</p>

To maximize the effectiveness of Doorway Learn, install the SSR-3-ER outside and inside as shown below.

Side View

Plan View

The Radar part of the SSR-3-ER sensor may be negatively influenced by metal close to or in the detection field

#### 6. MOUNTING & WIRING INFORMATION

**WARNING** Drilling may cause electric shock. Be careful of hidden wires inside the door engine cover.

- Attach the mounting template so that its bottom edge is flush with the bottom edge of the door engine cover.
- Drill mounting (3.5mm  $\phi$ ) and wiring (10mm  $\phi$ ) holes.
- Remove the sensor cover as illustrated. Lift the sensor from its cover.
- Attach the sensor with the mounting screws provided.

⑤-1 Wiring to a door controller that can test the sensor

Power (Non Pole) AC:12 to 24 [V]  $\pm$ 10% / DC:12 to 30 [V]  $\pm$ 10%  
 Activation Output 1 Opto Relay (Non Pole) White  
 Safety Output Opto Relay (Non Pole) Green  
 Test Input Test-P Yellow / Test-N Blue  
 Activation Output 2 + Gray(+) / - Brown(-) / Pink / Sky Blue

**Note** EN16005  
Set "Test Input" Dip Switch Setting (Y) 8 to "ON"  
Ref section 7, Dip Switch Settings.

⑤-2 Wiring to a door controller that cannot test the sensor

Power (Non Pole) AC:12 to 24 [V]  $\pm$ 10% / DC:12 to 30 [V]  $\pm$ 10%  
 Activation Output 1 Opto Relay (Non Pole) White  
 Safety Output Opto Relay (Non Pole) Green  
 do not connect Blue / Gray / Brown  
 Activation Output 2 + Pink / - Sky Blue

**Note**  
Set "Test Input" Dip Switch Setting (Y) 8 to "OFF"  
Ref section 7, Dip Switch Settings.

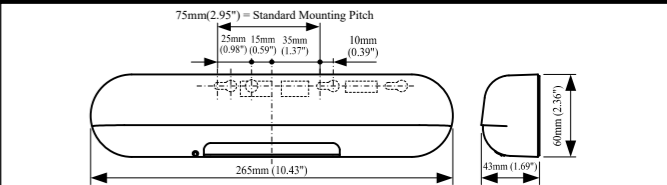
- House connectors in the space provided.
- Replace Cover.

※ Removing the cover after installation

**WARNING** Disregarding this symbol may result in serious injury or death. Special attention is required when this symbol is shown.

**CAUTION** Disregarding this symbol may result in injury or damage to equipment. Setting required to conform with EN16005.

#### 2. DIMENSIONS



#### 3. LED INDICATORS

Green	Standby
Green blinking	Doorway Learning (Y) 7 is "ON"
Green blinking (once)	When responding to the TEST signal
Blue	RADAR Detecting (Y) 5 is "ON" / RADAR or ROW 3 of IR. Detecting (Y) 5 is "OFF"
Red	ROW 2, 3 Detecting (Y) 5 is "ON" / ROW 2 Detecting (Y) 5 is "OFF"
Red blinking	ROW 1 Detecting
Orange	Detection row "ROW1" ("ROW2" when Doorway Learning is turned ON) is detecting door movement
Orange blinking (Fast)	Indicates a change of Dip Switch Settings
Orange blinking (Slow)	Door Hold is turned ON (Y) 6 is "ON"
Green / Red blinking (Fast)	Internal Sensor Error
Green / Red blinking (Slow)	Reflected infrared signal from the floor is very low

#### 5. TECHNICAL SPECIFICATIONS

Common Specification	
Model Name	SSR-3-ER
Installation Height	3.5[m] (11.5 [ft]) Max EN16005 Conformity = 3.5m
Supply Voltage	AC:12 to 24 [V] DC:12 to 30 [V] $\pm$ 10% 50/60Hz
Power Consumption	AC12V-2.5 [VA] (Max) AC24V-2.5 [VA] (Max) DC12V-150 [mA] (Max) DC30V-80 [mA] (Max)
INFRARED (Safety Output)	Opto Relay Non Pole Voltage: 48 [VDC] Max. Current : 300 [mA] Max. (Resistance load)
RADAR	Contact output Opto Relay Non Pole Voltage: 48 [VDC] Max. Current : 300 [mA] Max. (Resistance load)
	Pulse output Opto Relay Non Pole Voltage: 48 [VDC] Max. Current : 300 [mA] Max. (Resistance load) Output frequency 100Hz duty 1:1
Activation Output 2	Voltage output Output voltage: Min3.2 [VDC] at 10 [mA] Open circuit voltage: Max 7 [VDC] 6 [mA] Max. at 30 [VDC]
Test Input	6 [mA] Max. at 30 [VDC]
Operating Temperature	-20 to +60 [Deg.C], (-4 to 140 Deg.F)
Operating humidity	Below 80%
IP Rating	IP54
Category	Cat.2/PL.d[IR], Cat.2/PL.d[RadAR] according to EN ISO 13849-1:2015
Weight	0.56 [lb.] (0.26 [kg])
Color	BL : Black, S : Silver
Accessories	Cable, Mounting Screw 2pcs., Mounting Template, Installation Instruction, Area Mask Sticker
<b>Specifications - Infrared part of sensor</b>	
Detection Method	Active Infrared Reflective
Output Holding Time	0.5 [seconds] App.
Response Time	0.1 ~ 0.2 [seconds]
Presence ROW1, ROW2	2, 30, 60 [seconds] or $\infty$
Timer ROW3	2 [seconds]
<b>Specifications - Radar part of sensor</b>	
Detection Method	Doppler method: (moving body detection)
Transmit frequency	24.15 [GHz]
Output Holding Time	1.5 [seconds] App.
Response Time	0.1 ~ 0.2 [seconds]

Notice: Specification may be changed without prior notice.

## 7. DIP SWITCH SETTINGS

<span style="margin-left: 20px;">  Dip Switch (X)           </span> <span style="margin-left: 20px;">  Dip Switch (Y)           </span>			
Function	Dip Switch (X)	Description	Possible Setting Options
Infrared (IR.) Presence Timer	☆30s	The sensor will detect a stationary object for the preset presence timer setting on the inner 2 rows. <b>EN16005</b> To comply with EN16005 set the presence timer to 30s or higher.	2s  ☆30s  60s  ∞
Quantity of IR. Rows	☆R3	The number of active rows of IR. detection can be set to 3,2 or 1 depending on detection area requirements. ※ When using R1 Only, set Doorway Learn (Dip Switch (Y)7) to "OFF".	☆R3  R2  R1 Only  R3
IR. Frequency	☆A	When two sensors are installed in close proximity to each other select different frequency settings for each sensor to prevent cross interference.	☆A  B
Safety Output	☆N.C.	Refer to [11.Timing Chart of events] for full details on the Safety Output.	☆N.C. Safety Output (Opto Relay) N.O.
Reflection Diagnostics	☆Normal	A low reflected infrared signal is indicated by a slow flashing Red/Green LED. Refer to section [13] to see how the "Low Ref." setting can be used during routine door maintenance work. <b>EN16005</b> To comply with EN16005 set to "Normal"	☆Normal  Transmitter Receiver IR Spot Low Ref.  Transmitter Receiver IR Spot
Monitor Mode	☆Normal	Set to Snow in instances where false door activations can result from blowing snow, leaves or rubbish in the detection area.	☆Normal  Snow
Function	Dip Switch (Y)	Description	Possible Setting Options
RADAR Direction Detection	☆ON	When set to "ON", pedestrians moving away from the sensor will not be detected.	OFF  ON
RADAR Cross Traffic	☆OFF	This function prevents the sensor from detecting movement parallel to the door.	☆OFF  ON
Activation Output	☆N.O.	Choose one of the three outputs - contact output, pulse output (emergency exits), or voltage output (emergency exits). When set to contact output, choose between "N.O." or "N.C.".	Activation Output 1 Contact output: ☆N.O.  N.C. Pulse output Voltage output
Activation Output Configuration	☆OFF	Choose how the activation output is configured. <b>Note</b> Refer to [12. Safety & Activation Output Explanation with Dip Switch (Y) 5] for further.	☆ OFF  RADAR + IR rows 2+3 ON  RADAR ONLY
Door Hold	☆ Auto	Switch to OPEN to hold the door in the open position	☆ Auto  Open
Doorway Learn	☆ OFF	Doorway Learn allows the 1st row of detection to be focused inside the door close area without the detecting door movement. <b>Note</b> When Doorway Learn is turned ON, the sensitivity level of the inner row of detection is only at maximum when the outer rows of detection are activated.	☆ OFF  ON
Test Input Setting from Door Controller	☆ ON	When connected to a door controller without a TEST input, set to "OFF". When connected to a door controller with a TEST input, set to "ON" Refer to [11.Timing Chart of events]. <b>EN16005</b> Set to "ON" to comply with EN16005	OFF ☆ ON Without TEST → With TEST → Without TEST OFF 0v → ON 0v

## 11. TIMING CHART OF EVENTS

Safety Output / Test Input		POWER OFF	NON-DETECTION	DETECTION	NON-DETECTION
Dip Switch (X) Safety Output					
N.C.					
N.O.					
Dip Switch (Y) Test Input setting	OFF				
	ON				
		TEST RESPONSE		DETECTION as response to TEST	
		NON-TEST		TEST	
		Break the current		Supplying DC12 to 30V, make current flow from Gray to Brown.	
		Dip Switch (Y) 5 ON		Dip Switch (Y) 5 OFF	
		POWER OFF	NON-DETECTION	DETECTION	POWER OFF
Dip Switch (Y) Activation Output 1	N.O.				
	N.C.				
Activation Output 1	Pulse Output				
Activation Output 2	Voltage Output				

## 12. SAFETY & ACTIVATION OUTPUT EXPLANATION WITH DIP SWITCH (Y) 5

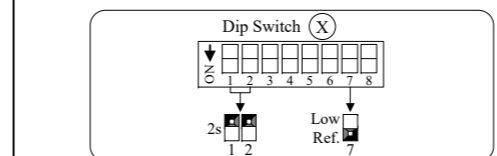
Output	Dip Switch (Y) 5 ON	Dip Switch (Y) 5 OFF
Safety Output	ROW1, ROW2, ROW3	ROW1, ROW2
Activation Output	RADAR	RADAR+ROW2, ROW3

Activation Output | Safety Output  
 ※ When Dip Switch (Y) 5 is "OFF"

## 13. DOOR MAINTENANCE WORK

When carrying out door maintenance work with power applied to the sensor on door controllers that are wired to "test" the sensor ensure to set the Dip Switches as below.

**Note** Remember to return the Dip Switch Settings to their original state once door maintenance work has been carried out.



Refer to [7.Dip Switch Settings].

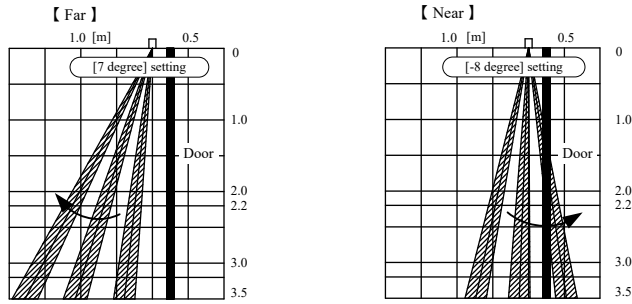
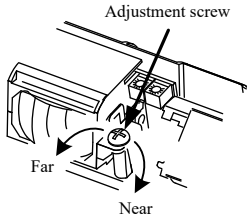
## 14. SELF DIAGNOSTICS ERRORS

Technical problems with the SSR-3-ER sensor are indicated by a flashing Green/Red LED. The frequency of flashing indicates the type of problem as explained below.

Flash Frequency	LED	Cause
Fast	Green Red	Defective sensor, please replace
Slow	Green Red	Confirm that the sensitivity potentiometer is set to maximum and re-power the sensor.

## 8.DETECTION AREA WIDTH AND DEPTH ADJUSTMENT

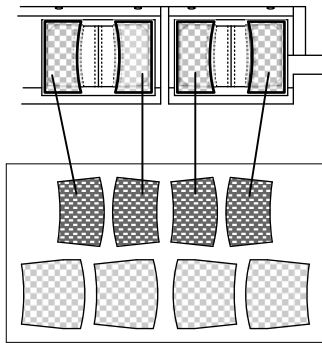
### Detection Area Depth Adjustment: IR. (Inner 3 Rows)



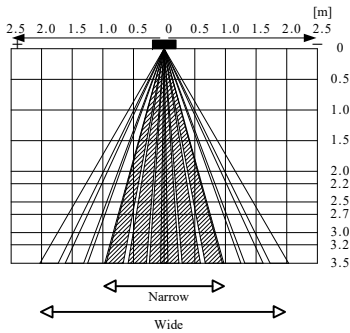
EN16005 Verify that the detection area position conforms to EN16005 by using the Hotron Beam Finder or Test Box

### Detection Area Width Adjustment: IR. (Inner 3 Rows)

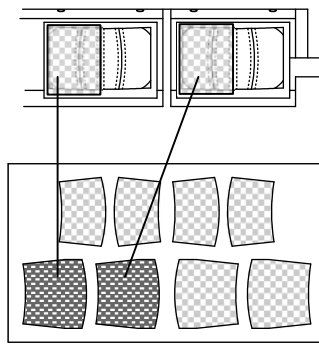
[ Narrow ]



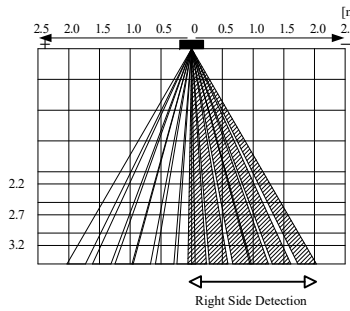
Area Mask Sticker



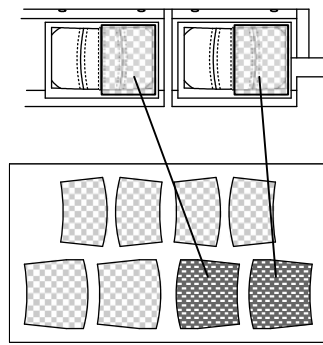
[ Right Side Detection ]



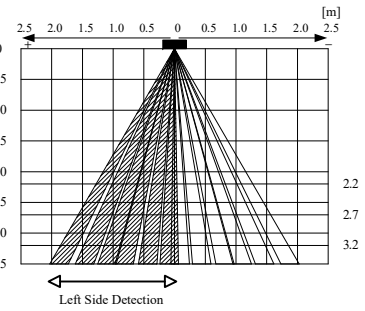
Area Mask Sticker



[ Left Side Detection ]

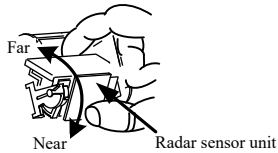


Area Mask Sticker

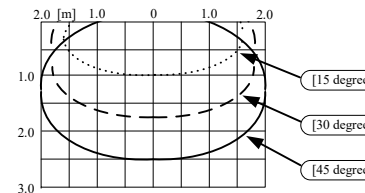


### Detection Area Depth Adjustment: RADAR sensor detection area

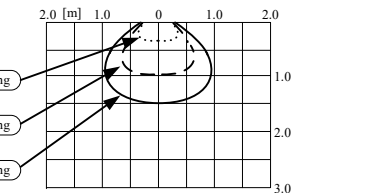
- ※ The detection area varies depending on the approach speed of pedestrians
- ※ Adjustment possible in 3° steps as illustrated



Installation height "2.2m" and Sensitivity set to "High".



Installation height "2.2m" and Sensitivity set to "Low".



The above illustrated detection areas represent the actual position of the infrared and radar beams. The actual detection area observed will vary depending on the sensor installation environment, object being detected and sensor settings. Please ensure that the detection area is set to conform to EN16005

## 9. APPLYING POWER AND THE "DOORWAY LEARN" SETTING

<p><b>"Doorway Learn" is OFF</b> Ref section 7, Dip Switch Settings.</p>	<p><b>"Doorway Learn" is ON</b> Ref section 7, Dip Switch Settings.</p>		
<p>Upon power ON, the solid green LED turns on indicating that the sensor is in standby mode and ready to detect.</p>	<p>Upon power ON, the Red LED indicates a door open relay output to begin the Doorway Learn process.</p>	<p>Green LED blinks for 37s as the "Door Learn" process is carried out. Door opens/closes.</p>	<p>Door learn process complete, sensor in standby mode.</p>
<p><b>Presence Detection:</b> It takes 10s after sensor power up for presence detection to be initiated on all rows of detection. If before 10s has elapsed someone walks into the detection area it will take about 5s after the person leaves the detection zone for presence detection to be functional.</p>	<p><b>CAUTION</b> </p> <p><b>Presence Detection:</b> During the "Doorway Learn" process the outer 3 rows of detection on the SSR-3-ER sensor switch from motion detection to presence detection 10s after power ON. The inner "Doorway Learn" row of detection will switch from motion to presence detection after the "Doorway Learn" process is carried out.</p> <p><b>"Doorway Learn" Failure &amp; Recovery:</b> If a person enters the detection area during the "Doorway Learn" process it may not be successfully completed. In this case the sensor will carry out the Doorway Learn process over three door activations by a person in order to build an accurate image of the door open and door close position.</p> <p><b>Note</b> When Doorway Learn is turned ON, the sensitivity level of the inner row of detection is only at maximum when the outer rows of detection are activated.</p>		
<p><b>General Caution:</b> When carrying out the following work, turn the sensor off and on again.</p> <ul style="list-style-type: none"> <li>※ When the floor condition is changed by placing a mat on the floor etc.</li> <li>※ When the detection area pattern or sensor sensitivity is adjusted.</li> </ul>			

## 10. VERIFICATION OF OPERATION

After installation is completed "walk test" the sensor detection area. If the detection area is not as expected adjust the detection area as referred to in section 8. If the detection area is still not as expected then the sensor sensitivity can be increased by turning the potentiometer clockwise. When the sensor detects even though there is nothing in the detection area the sensor sensitivity can be decreased by turning the potentiometer in the anti-clockwise direction.

If the sensor is false activated by the snow or rain, decrease the IR. Sensitivity. It should be noted that sensitivity to detecting pedestrians may also be reduced.



**CAUTION** Adjust the sensitivity to be appropriate to the installation environment.

