HOTRON **English** CE

SSR-3
User Manual (Original)

COMPLIED STANDARDS
DIN18650-1:2010
EN 12978:2003 +A1:2009

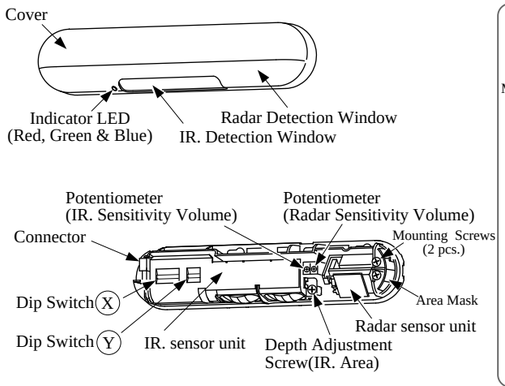
WARNING Disregarding this symbol may result in serious injury or death

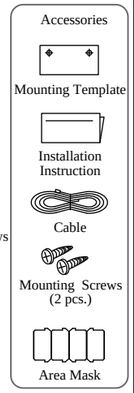
CAUTION Disregarding this symbol may result in injury or damage to equipment

Note Special attention is required when this symbol is shown

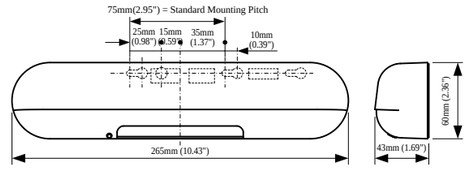
DIN Setting required to conform with DIN18650

1. DESCRIPTION





2. DIMENSIONS



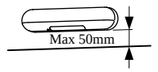
3. LED INDICATORS

Green	Standby
Green blinking	Doorway Learning (When dip switch (Y) 5 is ON)
Blue	RADAR Detecting
Red	IR. Detecting / RADAR and IR. 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 (When dip switch Y④ is ON)
Green/Red blinking (Fast)	Internal Sensor Error
Green/Red blinking (Slow)	Reflected infrared signal from the floor is very low

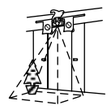
4. MOUNTING PRECAUTIONS

Mounting height of 3.2m (10.5ft) or lower

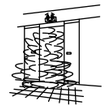
Mount within 50mm of the bottom of the door engine cover



Ensure there are no moving objects in the detection zone



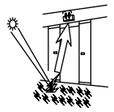
Ensure no condensation gets onto the sensor.



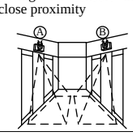
If the sensor is exposed to excessive rain install with a Hotron weather cover

If possible ensure no accumulation of snow or water on the floor.

Ensure the minimum of reflected sunlight from the floor



Use different frequency settings for sensors in close proximity



To maximize the effectiveness of doorway detection, install the SSR-3 outside and inside as shown below.

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

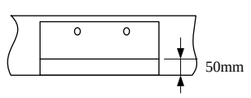
5. TECHNICAL SPECIFICATIONS

Common Specification		
Model Name	SSR-3	
Installation Height	3.2[m] (10.5 [ft]) Max	
Supply Voltage	AC/DC 12 to 24 [V] ±10% 50/60Hz	
Power Consumption	AC12V-2.5 [VA] (Max) AC24V-2.5 [VA] (Max) DC12V-150 [mA] (Max) DC24V-80 [mA] (Max)	
Output	IR.	Open collector: 7.5 [mA] (Max) Resistor Load Opto coupler (NPN) Voltage: 55 [VDC] Max. Current : 50 [mA] Max. Dark Current: 100 [nA] Max. (Resistance load)
	RADAR	Form A Relay DC50 [V] 0.1[A] Resistor Load
Test Input	6 [mA] Max. @ 24 [VDC]	
Operating Temperature	-20 to +60 [Deg.C],(-4 to 140 Deg.F)	
Operating humidity	Below 80%	
IP Rate	IP54	
Category	2 , performance level D according to EN ISO 13849-1:2008	
Weight	0.56 [lb.] (0.26 [kg])	
Color	Black, Silver	
Accessories	Cable , Mounting Screw 2pcs., Mounting Template, Installation Instruction	
Specifications of Reflection Sensor		
Detection Method	Active Infrared Reflective	
Output Holding Time	0.5 [seconds] App.	
Response Time	0.1 ～ 0.2 [seconds]	
Presence Timer	2, 30, 60 [seconds] or ∞	
Specifications of Redar Sensor		
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.		

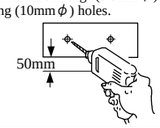
6. MOUNTING & WIRING INFORMATION

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

① Attach the mounting template so that its bottom edge is flush with the bottom edge of the door engine cover.

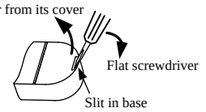


② Drill mounting (3.5mmϕ) and wiring (10mmϕ) holes.

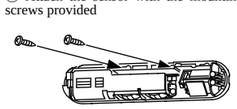


③ Remove the sensor cover as illustrated

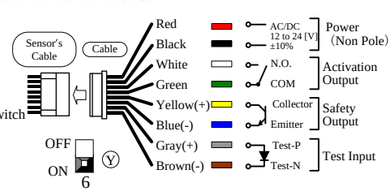
Lift the sensor from its cover



④ Attach the sensor with the mounting screws provided

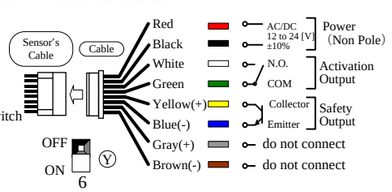


⑤-1 Wiring to a door controller that **can** test the sensor



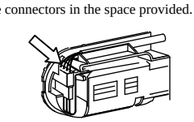
Note **DIN**
Set “Test input” dip switch setting (Y) 6 to “ON”
Ref section 7, Dip Switch Settings.

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

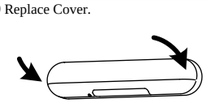


Note
Set “Test input” dip switch setting (Y) 6 to “OFF”
Ref section 7, Dip Switch Settings.

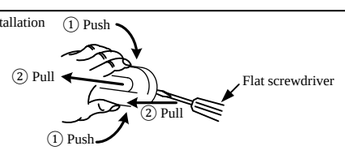
⑥ House connectors in the space provided.



⑦ Replace Cover.



※Removing the cover after installation

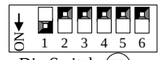


7. DIP SWITCH SETTINGS

CAUTION

☆ = Default Setting

Dip Switch (X)



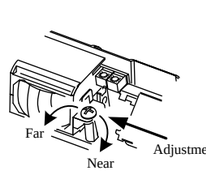
Dip Switch (Y)

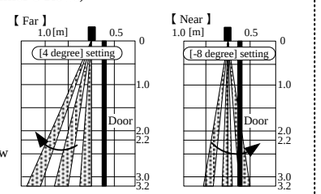
Function	Dip Switch (X)	Description	Possible Setting Options
IR. Presence Timer	☆30s 1 2	The sensor will detect a stationary object for the preset presence timer setting on the inner 3 rows. **DIN** To comply with DIN18650 set the presence timer to 60s or more	2s 1 2 ☆30s 1 2 60s 1 2 ∞ 1 2
IR. Frequency	☆ A 3 4	When more than two sensors are installed in close proximity to each other select different frequency settings for each sensor to prevent cross interference.	☆ A 3 4 B 3 4 C 3 4 D 3 4
Monitor Mode	☆ Normal 5	Set to snow in instances where false door activations can result from blowing snow, leaves or rubbish in the door close area.	☆ Normal 5 Snow 5
Safety Relay Output	☆ N.O. 6	Refer to [11.Timing Chart of events] for full details on Safety Output	☆ N.O. N.C. 6 Safety Output (Opto-Coupler)
Reflection Diagnostics	☆ Normal 7	A low reflected infrared signal is indicated by a slow flashing Red/Green LED. To ignore this low reflection error state, set this dip switch to “Low Reflection”(ON). **DIN** To comply with DIN18650 set to “Normal”	☆ Normal 7 Transmitter Receiver IR Spot Low Ref. 7 Transmitter Receiver LED IR Spot

Function	Dip Switch (Y)	Description	Possible Setting Options
Direction Detection RADAR	☆ ON 1	When set to ON, pedestrians moving away from the sensor will not be detected.	OFF 1 ☆ ON 1
Activation Relay Output	☆ N.O. 2	Refer to [11.Timing Chart of events] for full details on Activation Output	☆ N.O. N.C. 2 Activation Output (Mechanical Relay) OR
Activation Relay Output Configuration	☆ OFF 3	Choose how relay output is configured.	☆ OFF 3 RADAR + IR rows 2+3 ON 3 RADAR
Door Hold	☆ Auto 4	Switch to OPEN to hold the door in the open position CAUTION	☆ Auto 4 Open 4
Doorway Learn	☆ OFF 5	Doorway Learn allows the 1st row of detection to be focused inside the door close area without the detecting door movement. **Note** 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 5 Door ON 5 Door
Test Input Setting from Door Controller	☆ OFF 6	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]. **DIN** Set to “ON” to comply with DIN18650	☆ OFF ON 6 Without TEST With TEST Without TEST (OFF) 0v (ON) 0v

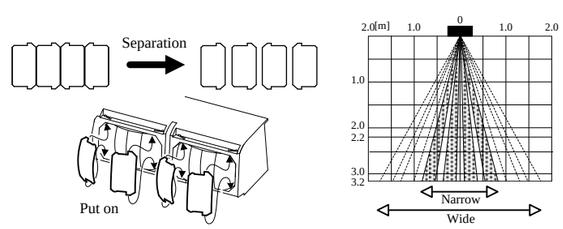
8.DETECTION

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





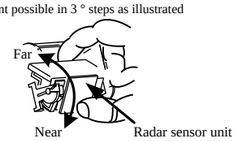
Detection Area Width Adjustment: IR. (Inner 3 Rows)



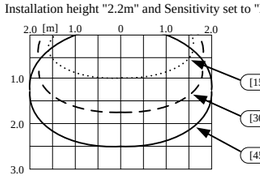
DIN Verify the detection area in the door close area according to DIN 18650 using the CA test body

Detection Area Depth Adjustment: RADAR (Outer)

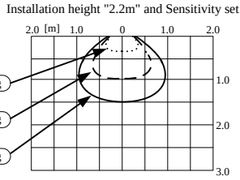
※ Detection area varies depending on walking speed
※ Adjustment possible in 3 ° steps as illustrated



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

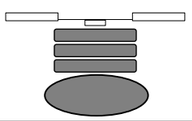
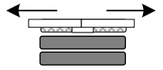
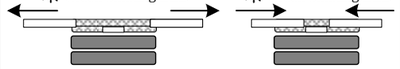
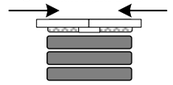


Installation height "2.2m" and Sensitivity set to "Low".



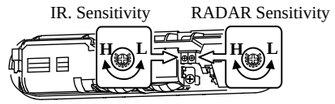
CAUTION The above illustrated detection areas represent the actual position of the infrared and radar beams. The actual detection area observed will vary depending on the sensor installation environment, objects been detected and sensor settings. Please ensure that the detection area is set to conform to DIN18650.

9. APPLYING POWER AND THE "DOORWAY LEARN" SETTING

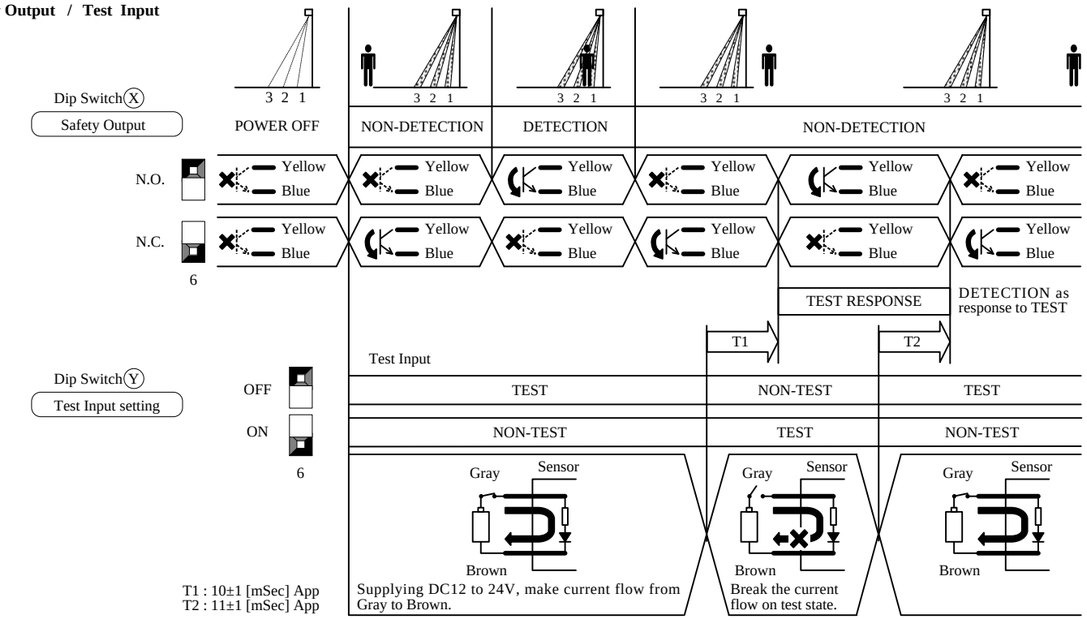
"Doorway Learn" is OFF *Ref section 7, Dip Switch Settings.* (Y) 5	**"Doorway Learn" is ON** *Ref section 7, Dip Switch Settings.* (Y) 5		
Upon power ON, the solid green LED turns on indicating that the sensor is in standby mode and ready to detect	Upon power ON, the Red LED indicates a door open relay output to begin the doorway learn process	Green LED blinks for 37s as the "door learn" process is carried out. Door opens/closes	Door learn process complete, sensor in standby mode
● Green solid LED 	● Red solid LED 	✷ Green blinking LED ✷ Green blinking LED 	● Green solid LED 
Presence Detection: 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.	CAUTION **Presence Detection:** During the "Doorway Learn" process the outer 3 rows of detection on the SSR-3 sensor switch from motion detection to presence detection 10s after power ON. The inner "door learn" row of detection will switch from motion to presence detection after the "doorway learn" process is carried out. **"Doorway Learn" Failure & Recovery:** 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. Note 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		

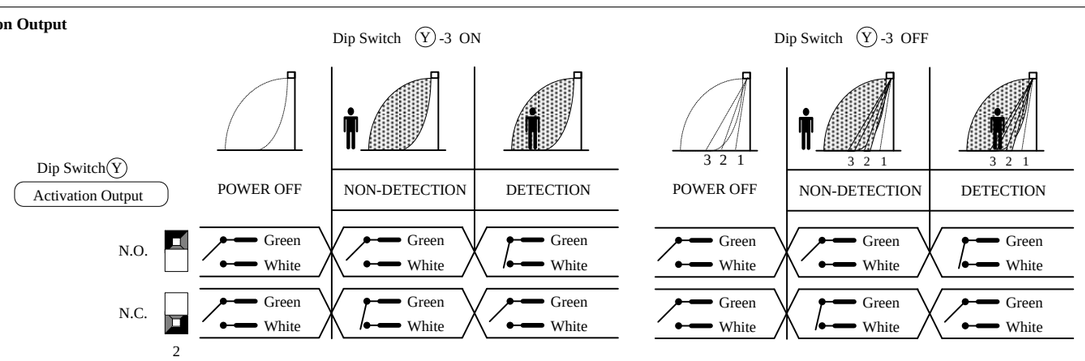
10. VERIFICATION OF OPERATION

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.



11. TIMING CHART OF EVENTS

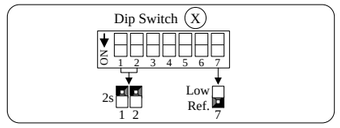




12. DOOR MAINTENANCE WORK

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].

13. SELF DIAGNOSTICS ERRORS

Technical problems with the SSR-3 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 ✷ ✷ ✷ ✷ ✷	Please replace the sensor.
Slow	Green ✷ ✷ Red ✷ ✷	Confirm that the sensitivity potentiometer is set to maximum and re-power the sensor. If the error persists, set Dip Switch (X) 7 to "Low Reflection".

14. 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/DC 12-24V)
		Incorrect sensor wiring	Double check sensor wiring
Door opens and closes for no apparent reason (Ghosting)	Door Opens RED or BLUE Door Closes GREEN	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
		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) 5 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.
Door opens and remains in the open position	RED	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 secs
		Incorrect sensor wiring	Double check sensor wiring
		Reflected signal saturation	Remove highly reflective objects from the detection area, or lower the sensor sensitivity setting
	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) 4 set to Open)	Turn "Door Hold" Dip switch (Y) 4 to Auto

15. SSR-3 EC DECLARATION OF CONFORMITY

We Hotron declare that this sensor complies with all of the applicable EHSRs of Annex I of the Machinery Directive and that the appropriate conformity assessment procedure has been carried out.
We, the manufacturer (Honda Electron Co., LTD.) hereby declare that this equipment (Combined Technology Sensor), model SSR-3 is in compliance with the essential requirements and other relevant provisions of Directive R&TTE 1999/5/EC

Compiler of Technical File (EC Community)
David Morgan
Hotron Ireland Ltd
26 Dublin Street, Carlow, Ireland
Ph: +353-(0)59-9140345 Fax: +353-(0)59-9140543

Description of Product:
SSR-3 Combined motion and presence detection sensor for the activation and safety of automatic doors.
Technology used is Active Infrared Technology and Doppler method: (moving body detection) Technology

Harmonized Standards Used:
EN ISO 13849-1:2008

Other Technical Standards Used:
DIN 18650-1:2010

EC-type examination No. 44 205 401191-000
Certified by: Mo. 0044 TÜV NORD CERT GmbH,
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Declaration made by
Reiji Kuwashima
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Location of Declaration
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1-23-19 Asahi-Cho, Machida-City,
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Date
31th of August 2011

Directives Fulfilled:
DIRECTIVE 2006/42/EC

DIN 18650-1:2010	Powered pedestrian doors Part 1: Product requirements chapter 5.7.4
EN12978:2003 +A1:2009	Industrial, commercial and garage doors and gates - safety devices for power operated doors and gates - Requirements and test methods
EN62061:2005	Functional safety of electrical/electronic/programmable electronic safety-related systems
EN ISO 13849-1:2008	Safety of machinery - Safety-related parts of control systems.

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

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