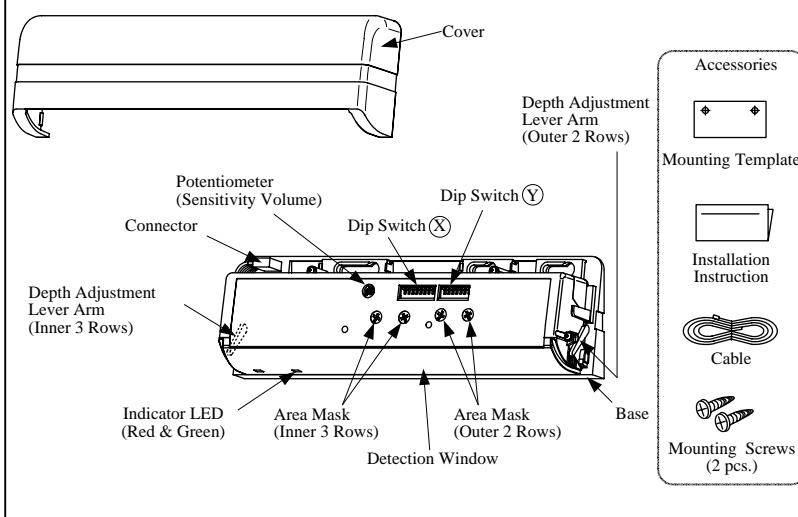


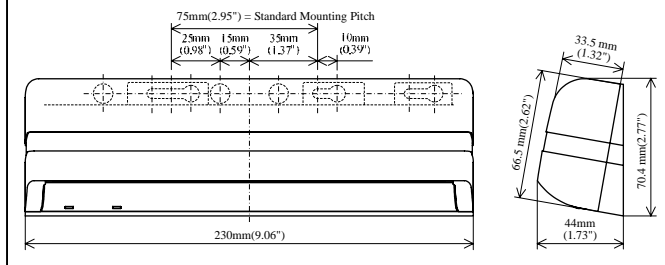
COMPLIED STANDARDS
 DIN18650-1:2005
 EN 12978:2003

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

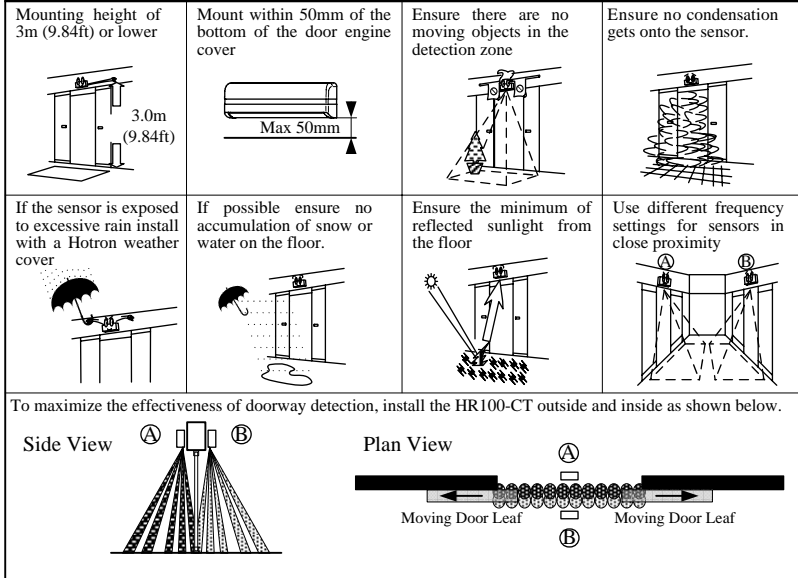
Green Standby
 Green blinking Doorway Learning (When dip switch (X) 7 is ON)
 Red Detecting
 Orange Detection row "ROW1" ("ROW2" when doorway Learning is turned ON) is detecting door movement.
 Orange blinking (Fast) Indicates a change of dip switch settings
 Orange blinking (Slow) Setting Mode is turned ON (When dip switch (Y) 7 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

Model Name	HR100-CT
Detection Method	Active Infrared Reflection
Installation Height	3.0[m] (9.84 [ft]) Max
Supply Voltage	AC/DC 12 to 24 [V] ±10% 50/60Hz
Power Consumption	AC12V-2.1 [VA] (Max) AC24V-2.1 [VA] (Max) DC12V-110 [mA] (Max) DC24V-60 [mA] (Max)
Output Holding Time	Approx 0.5s
Response Time	0.1s ~ 0.2s
Presence Timer	Outer 2 Rows 1 [seconds] Inner 3 Rows 2s,30s,60s or ∞
Output	ROW 1,2 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) ROW 2,3,4,5 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 (With Base)
Category	2 , performance level D according to EN ISO 13849-1:2008
Weight	0.55 [lb.] (0.25 [kg])
Color	Black, Silver
Accessories	Cable , Mounting Screw 2pcs., Mounting Template, Installation Instruction

Notice: Specification may be changed without prior notice.

4. MOUNTING PRECAUTIONS



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 φ) and wiring (10mm φ) holes.
- If you need to remove the sensor body from its base then lift the sensor body from the base and tilt it forward to remove as illustrated.
- Attach the sensor with the mounting screws provided.

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

Note Set "Test input" dip switch setting (Y) 4 to "Low". 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) 4 to "High". Ref section 7, Dip Switch Settings.

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

CAUTION Be careful not to inadvertently move the Depth Adjustment Lever Arms when replacing the cover.

7. DIP SWITCH SETTINGS

CAUTION Setting Mode: Turn ON the setting mode dip switch (Y) 7 to change all other dip switch settings. This will cause the relay to activate, opening the door. Once dip switch settings are configured, (Y) 7 should be turned OFF.

☆ = Default Setting

Function	Dip Switch (X)	Description	Possible Setting Options
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, ☆ 30s, 60s, ∞
Quantity of Detection Rows	☆ R5 3 4	The number of rows of detection can be set to 5, 4, 3, 2 depending on detection area requirements.	5 Rows ON, 4 Rows ON, 3 Rows ON, 2 Rows ON
Frequency	☆ A 5 6	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, B, C, D
Doorway Learn	☆ OFF 7	Doorway Learn allows the 1 st 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, ON
Doorway Sensitivity	☆ Normal 8	When set to "OFF" once the door closes the sensitivity level on the inner most row of detection drops to zero. Note Only selectable when "Doorway Learn" above is turned "ON"	☆ Normal, OFF, Sensitivity zero
Function	Dip Switch (Y)	Description	Possible Setting Options
Direction Detection	☆ OFF 1	When set to ON, pedestrians moving away from the sensor will not be detected. Note For pedestrian safety purposes when "Doorway Learn" is set to ON the 1 st and 2 nd row of detection will detect pedestrian regardless of direction of movement.	☆ OFF, ON
Relay Output Mode	☆ N.O. 2 3	Refer to [11.Timing Chart of events] for full details on Output (A) and Output (B)	☆ N.O. Output (A) (Safety, Opto-Coupler), ☆ N.O. Output (B) (Activation, Mechanical Relay), N.C.
Test Input Setting from Door Controller	☆ High 4	When connected to a door controller without a TEST input, set to "High". When connected to a door controller with a TEST input, set to "Low". Refer to [11.Timing Chart of events]. DIN Set to "Low" to comply with DIN18650	☆ High, Low
Reflection Diagnostics	☆ Normal 5	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, Low Ref.
Monitor Mode	☆ Normal 6	Set to snow in instances where false door activations can result from blowing snow, leaves or rubbish in the door close area.	☆ Normal, Snow
Setting Mode	☆ OFF 7	CAUTION Turn ON to configure all other dip switch settings. When ON the sensor will output a detection signal and the LED will be Orange blinking (Slow). Once all other dip switch settings are configured turn OFF again	☆ OFF, ON

8. DETECTION AREA WIDTH AND DEPTH ADJUSTMENT

Detection Area Depth Adjustment: Inner 3 Rows	Detection Area Width Adjustment	Detection Area Depth Adjustment: Outer 2 Rows
<p>Inner 3 rows adjustment lever arm</p>	<p>Area Mask (Inner 3 Rows), Area Mask (Outer 2 Rows)</p>	<p>Outer 2 rows adjustment lever arm</p>

CAUTION The above illustrated detection areas represent the actual position of the infrared beams. The actual detection area observed will vary depending on the sensor installation environment, object 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.

Upon power ON, the solid green LED turns on indicating that the sensor is in standby mode and ready to detect

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.

"Doorway Learn" is ON
Ref section 7, Dip Switch Settings.

Upon power ON, the Red LED indicates a door open relay output to begin the doorway learn process

Presence Detection: During the "Doorway Learn" process the outer 4 rows of detection on the HR100-CT 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.

CAUTION

"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

Green LED blinks for 37s as the "door learn" process is carried out. Door opens/closes

Door learn process complete, sensor in standby mode

General Caution:
When carrying out the following work, turn off sensor power.

- ※ When the floor condition is changed by placing a mat on the floor etc.
- ※ When the detection area pattern or sensor sensitivity is adjusted.

10. VERIFICATION OF OPERATION

After installation is completed "walk test" the sensor detection area to verify its location. If the detection area is not as expected adjust the detection area as referred to in section 8 or increase the rows of detection using Dip switch 3 & 4. 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

Output (A) Row 1, 2 / Test Input

Output (B) Row 2, 3, 4, 5

Test Response: DETECTION as response to TEST

Test Input: TEST, NON-TEST, TEST, NON-TEST, TEST, NON-TEST

Timing: T1: 10±1 [mSec] App, T2: 11±1 [mSec] App

Supplying DC12 to 24V, make current flow from Gray to Brown.

Break the current flow on test state.

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 HR100-CT 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 5 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 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.	
		Detection of falling snow, insects, leaves etc	Turn monitor mode Dip switch 6 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 secs	
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	
		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 5 from "Normal" to "Low Ref"
		ORANGE blinking (Slow)	Setting Mode (Dip switch 7 set to ON)	Turn OFF the "setting mode" Dip switch 7
Dip switch settings do not seem to take effect	Not Applicable	Setting Mode, Dip switch 7 not turned ON	Turn the "Setting Mode" Dip switch 7 to ON	

15. HR100-CT 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.

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: HR100-CT Combined motion and presence detection sensor for the activation and safety of automatic doors. Technology used is Active Infrared Technology
Harmonized Standards Used: EN ISO 13849-1:2008	Other Technical Standards Used: DIN 18650-1:2005
Above EC Type Directives Certified by: TUV NORD CERT GmbH 30519 Hannover, Germany Identification No: 0044	Declaration made by: Kaoru Musya General Manager, Honda Electron
Directives Fulfilled: DIRECTIVE 2006/42/EC DIN 18650-1:2005 Powered pedestrian doors Part 1: Product requirements chapter 5.7.4 EN12978:2003 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.	Location of Declaration: Honda Electron Co., LTD. 1-23-19 Asahi-Cho, Machida-City, Tokyo, Japan
	Date: 31st of May 2011

- < 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.

HOTRON CO., LTD.

Manufacturer
HOTRON CO., LTD.
1-11-26 Hyakunin-Cho, Shinjuku-Ku, Tokyo, Japan
Phone: +81-(0)3-5330-9221
Fax: +81-(0)3-5330-9222
URL: <http://www.hotron.com>

SALES Europe
Hotron Ireland Ltd.
26 Dublin Street (2nd Floor), Carlow, Ireland
Phone: +353-(0)59-9140345
Fax: +353-(0)59-9140543
URL: <http://www.hotron.com>