DH100-CT

Sliding Pedestrian Door Motion & Presence Sensor ***INSTALLATION INSTRUCTIONS***

NOTE: Set up for this sensor should be performed by an AAADM-certified installer.

Section 1

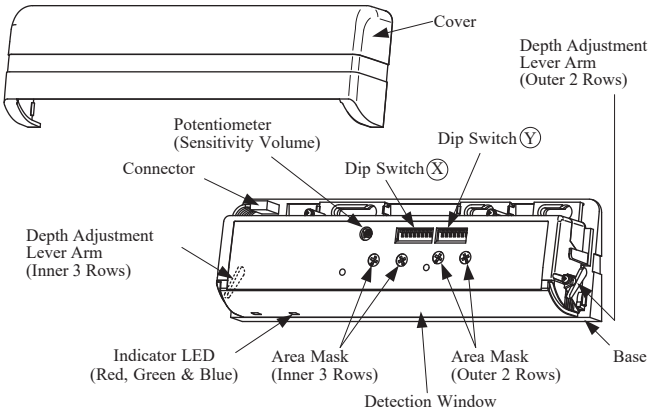
General Description

The DH100-CT is an active infrared presence sensor that is designed to provide both activation and safety detection for automatic sliding and folding doors in a single device.

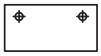
- Test Input provides sensor monitoring capabilities as required by the latest industry standard.
- Pattern depth and width are adjustable using mounting height, dip switches, detection area depth, and detection area width adjustments.
- Frequency can be changed to prevent interference from other sensors in close proximity.
- Self-Diagnostic means the sensor continuously monitors itself.
- Monitor Mode Switch ensures against false operation caused by snow, leaves, insects, etc.
- Programmable Presence Timer (2 sec., 30 sec., 60 sec., or infinity).

Section 2

Parts Identification

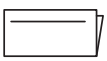


Accessories



Mounting Template

Cable



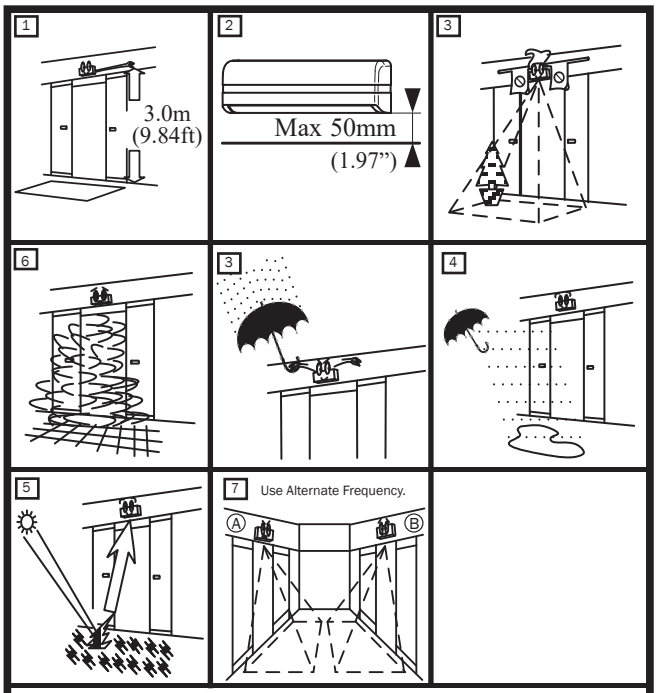
Installation Instruction

Mounting Screws (2 pcs.)

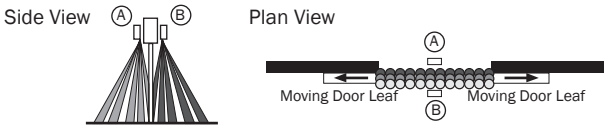
Section 3

Mounting Information

1. Do not mount higher than 9.84 ft. (3m).
2. Mount within 50mm (1.97") from bottom of header cover.
3. Do not leave any objects which may move in the detection pattern.
4. Avoid steamy environments.
5. Ensure rain or snow will not fall directly on unit.
6. Ensure snow or water can not accumulate on floor.
7. Ensure a minimum of reflected sunlight from the floor.
8. Use different frequency settings for sensors in close proximity.



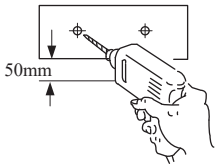
To maximize the effectiveness of doorway detection, install the DH100-CT outside and inside as shown below.



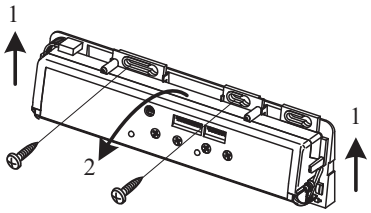
Section 4

Mounting and Wiring

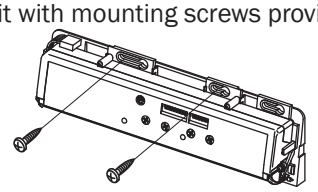
1. Using the mounting template provided, drill mounting and wire holes.



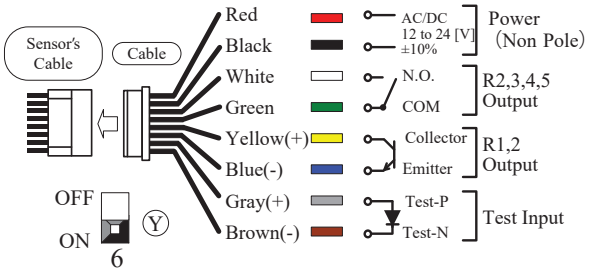
2. If you need to remove the sensor body from its base, lift the sensor body from the base and tilt it forward to remove as illustrated.



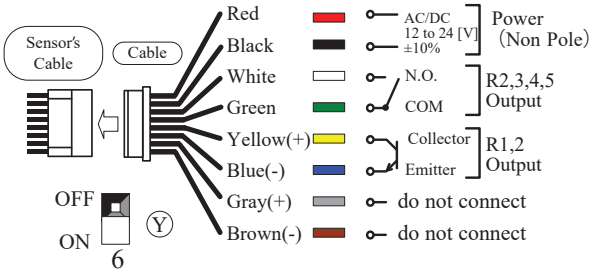
3. Fasten unit with mounting screws provided.



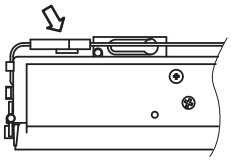
4. When wiring to a door controller that **can** test the sensor, set "Test input" dip switch setting Ⓨ6 to "ON".



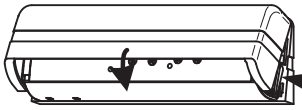
5. When wiring to a door controller that **cannot** test the sensor, set "Test input" dip switch setting Ⓨ6 to "OFF".



6. House connector in receptacle.



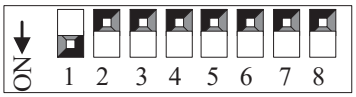
7. Replace cover.



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

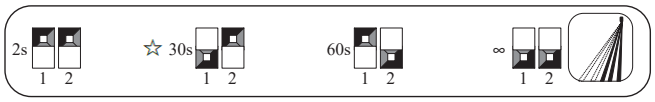
Section 5

Dip Switch Settings

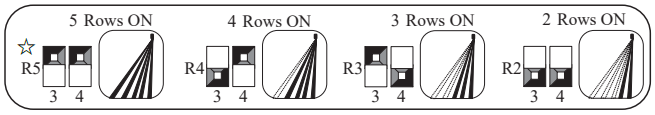


Dip Switch Ⓧ

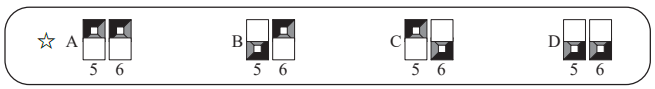
Presence Timer: The sensor will detect a stationary object for the preset Presence Timer Setting on the inner 3 rows.



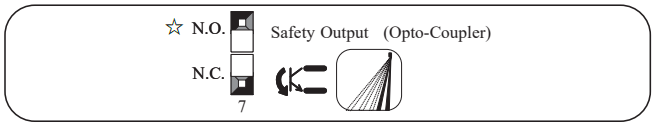
Number of Rows: The number of active rows can be set to 5, 4, 3 or 2 depending on detection area requirements.



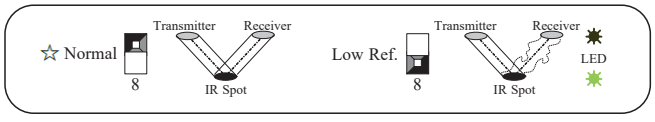
Frequency: When more than two sensors are used in close proximity to each other select different frequency settings for each sensor to prevent interference.



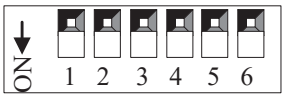
Safety Relay Output: Refer to Timing Chart of events for full details on Safety Output.



Reflection Diagnostics: A low reflected infrared signal is indicated by a slow flashing Red/Green LED. To ignore this low reflection "Low Reflection" (ON).



☆ : Default Setting

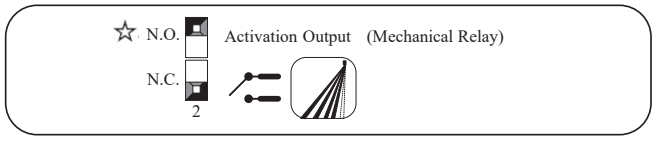


Dip Switch (Y)

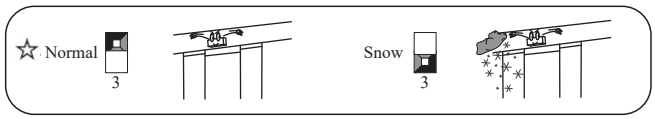
Direction Detection: When set to ON, pedestrians Moving away from the sensor will not be detected.

NOTE: For pedestrian safety purposes when "Doorway Learn" is set to ON, the 1st and 2nd row of detection will detect pedestrians regardless of direction of movement.

Activation Relay Output: Refer to Timing Chart of events for full details on Activation Output.



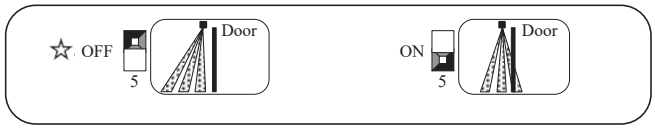
Monitor Mode: Snow mode should only be used in exterior environments where heavy snow or other extreme conditions exist.



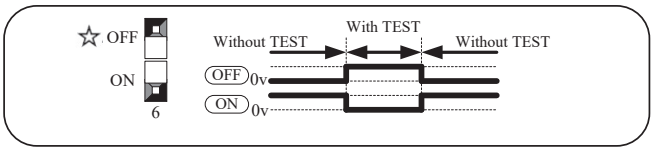
Door Hold: Switch to OPEN to hold the door in the open position.

Doorway Learn: Doorway Learn allows the 1st row of detection to be focused inside the door close area without detecting the 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.



Test Input Setting from Door Controller: 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 Timing Chart of events.



☆: Default Setting

Section 6

Power

BEFORE APPLYING POWER, READ AND FOLLOW THESE INSTRUCTIONS:

When power is applied, the sensor will read and store the environmental optical parameters. This is necessary for Presence Detection to work properly.

1. CLEAR THE AREA OF ANY UNNECESSARY OBJECTS.
2. Apply POWER.
3. Vacate the Detection Pattern immediately. While the sensor sees ANY moving objects in its DETECTION PATTERN, it will not proceed to the following step.
4. DO NOT enter DETECTION PATTERN for 10 seconds (Presence Detection Setting).
5. TEST the presence feature, especially near the door.

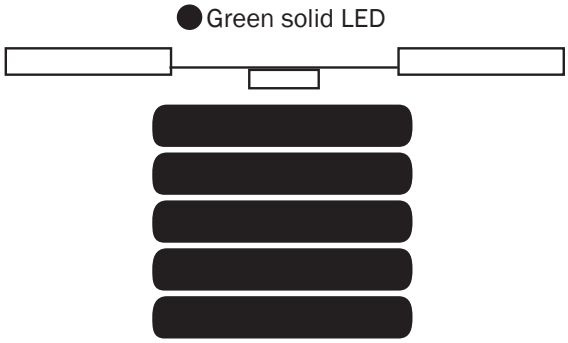
When carrying out the following work, TURN OFF THE POWER:

1. When the floor conditions change.
2. Adjusting pattern or sensitivity.

"DOORWAY LEARN" is OFF (Y) 5

(Ref. Sec. 5-Dip Switch Settings)

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

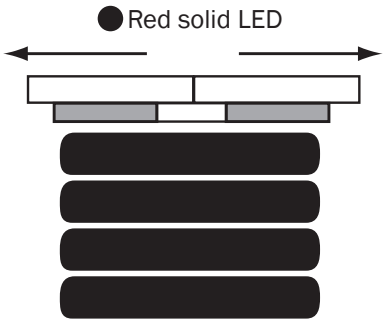


Presence Detection: It takes 10 seconds after the sensor powers up for presence detection to be initiated on all rows of detection. If someone enters the detection area before 10 seconds has elapsed, the sensor will continue to initialize until after 5 seconds with no motion being detected.

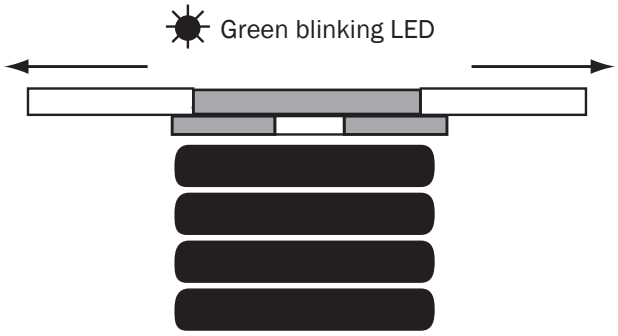
"DOORWAY LEARN" is ON

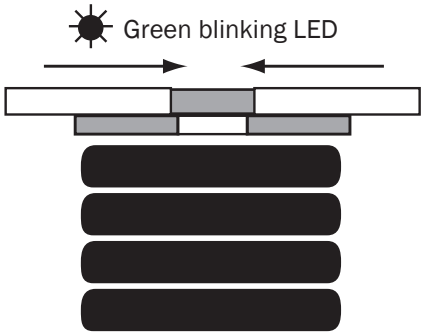
(Ref. Sec. 5-Dip Switch Settings)

- Upon power ON, the Red LED indicates a door open relay output to begin the "Doorway Learn" process.

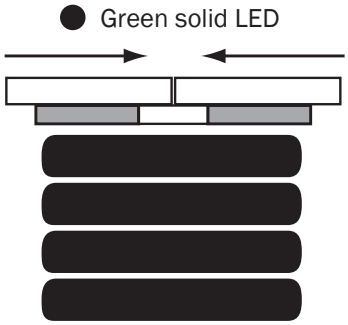


- Green LED blinks for about 10 seconds as "Doorway Learn" process is carried out. Door opens/closes.





- After the "Doorway Learn" process is completed, sensor is in standby mode.



Presence Detection: During the "Doorway Learn" process, the outer 4 rows of detection on the DH100-CT sensor switch from motion detection to presence detection 10 seconds after power ON. The inner "Doorway Learn" row of detection will switch from motion to presence detection after the "Doorway Learn" process is complete.

"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 on door activation caused 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 at maximum ONLY when the outer rows of detection are activated.*

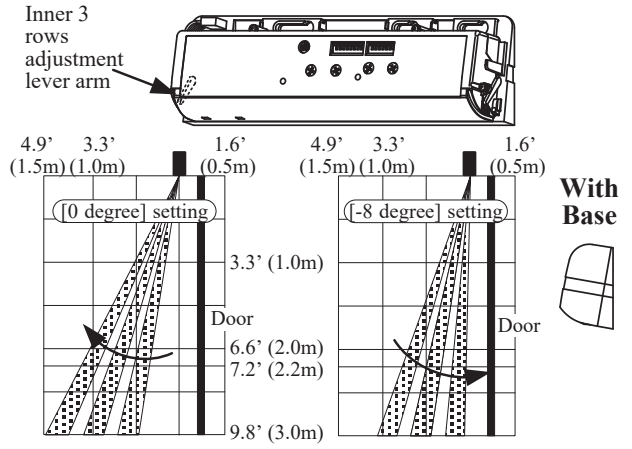
CAUTION: When carrying out the following work, turn off sensor power.

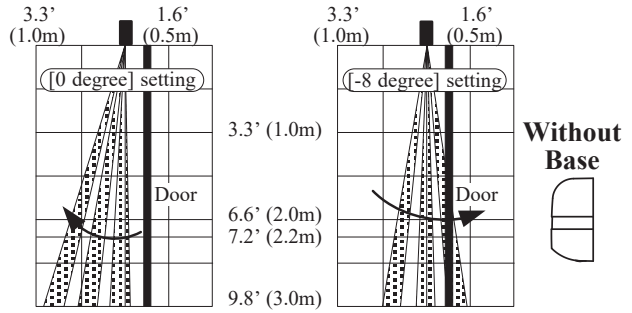
- When the floor condition is changed by placing a mat on the floor, etc.
- When the detection area pattern or sensor sensitivity is adjusted.

Section 7

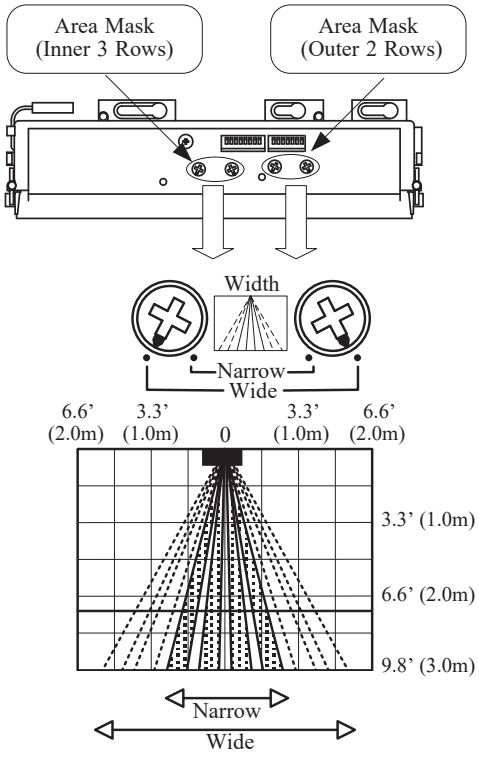
Adjusting Detection Pattern

Detection Area Depth Adjustment: Inner 3 Rows

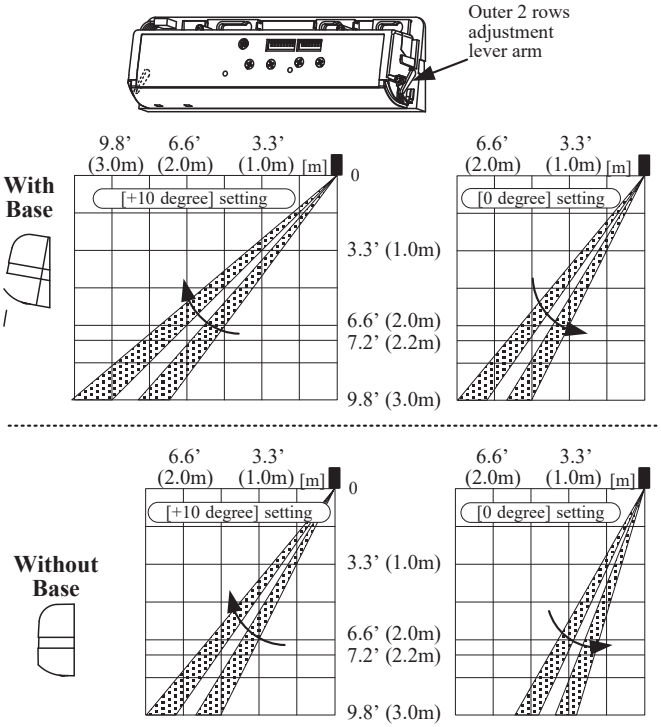




Detection Area Width Adjustment



Detection Area Depth Adjustment: Outer 2 Rows

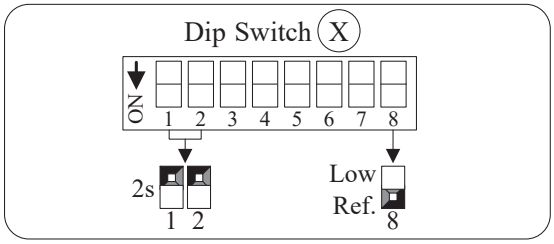


Optical beams are designed as shown above. Please note that actual detection area is variable, depending on cloths, materials on the floor and sensitivity adjustment. Please confirm the actual area after adjustment.

Section 8

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 the dip switches are set as shown below:



NOTE: Be sure to return the dip switch settings to their original state once door maintenance work is complete.

Section 9

Verification of Operation

1. After mounting, setting parameters and applying power, walk test unit to verify detection pattern.
2. If the sensor does not function as expected, TURN OFF THE POWER and RECHECK the Depth Adjustment Lever Arms, Dip Switch and Width Mask Knobs as described in Sections 5 and 7.
3. After rechecking, if there is still a problem, adjust the sensitivity.

*******EXTREMELY IMPORTANT*******

After final set-up, test unit(s) completely to ensure that proper coverage has been achieved (width, depth and location of the pattern must be tested).

After the installation and operational check of the system:

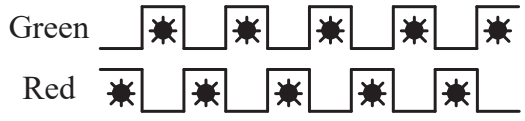
1. Place the proper labels on the door per all applicable standards.
2. Instruct the owner of the door system operation and how to test it. This should be checked on a daily basis.
3. Instruct the owner on what to do if the door or any of its components become damaged.
4. Strongly recommend to the owner that the complete entry be inspected twice a year as part of the service agreement.

Section 10

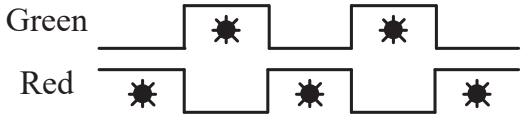
Self Diagnostics

A flashing Green/Red LED inducates any technical issues with the HR100-CT. The frequency of the flashing indicates the type of issue as explained below:

LEDs Flashing Fast = Please replace the sensor.



LEDs Flashing Slow = Confirm that sensitivity potentiometer is set to maximum and re-power the sensor. If the error persists, set Dip Switch Ⓧ 8 to "Low Reflection".



Section 11

Troubleshooting

PROBLEM 1: Door does not open when person enters the detection area.
LED STATUS: OFF

CAUSE 1: Sensor Connector.
SOLUTION 1: Tighten connector or reconnect.

CAUSE 2: Power Supply.
SOLUTION 2: Check that the power supply is properly connected and 12V to 24V AC or DC.

CAUSE 3: Sensor Wiring.
SOLUTION 3: Double check sensor wiring is accurate.

PROBLEM 2: Door operates by itself (Ghosting).
LED STATUS: Door Opens RED, Door Closes GREEN

CAUSE 1: Moving objects in detection area.
SOLUTION 1: Remove the moving object from the detection area.

CAUSE 2: Sensitivity too high.
SOLUTION 2: Reduce sensor sensitivity.

CAUSE 3: Dust, frost or water droplet on the sensor lens.
SOLUTION 3: Wipe the sensor lens clean and install a weather cover if necessary.

CAUSE 4: Detection area overlaps with that of another sensor.
SOLUTION 4: Ensure different frequency setting for each sensor.

CAUSE 5: Detection of falling snow, leaves, insects, etc.
SOLUTION 5: Turn monitor mode Dip Switch Ⓨ3 to "Snow".

PROBLEM 3: When Door opens or closes - LED ORANGE.
LED STATUS: ORANGE

CAUSE 1: Detection row "ROW 1" ("ROW 2" when "Doorway Learn" is turned ON) is focused too close to the door.
SOLUTION 1: Adjust detection depth of Inner 3 rows away from the door.

PROBLEM 4: Door opens and remains in open position.
LED STATUS: RED

CAUSE 1: Detection area changed, while ∞ infinity presence timer setting is in use.
SOLUTION 1: Re-power the sensor or change the presence timer settings to 30 or 60 secs.

CAUSE 2: Incorrect sensor wiring.
SOLUTION 2: Double check sensor wiring.

CAUSE 3: Reflected signal saturation.
SOLUTION 3: Remove highly reflective objects from the detection area, or lower the sensor sensitivity.

LED STATUS: GREEN/RED FAST FLASH

CAUSE 4: Internal sensor error.
SOLUTION 4: Replace the sensor.

LED STATUS: GREEN/RED SLOW FLASH

CAUSE 5: Reflection of the transmitted infrared signal from the floor is too low.
SOLUTION 5: Increase sensor sensitivity or change the "Reflection Diagnostics" Dip switch Ⓧ8 from "Normal" to "Low Reflection".

LED STATUS: ORANGE BLINKING (Slow)

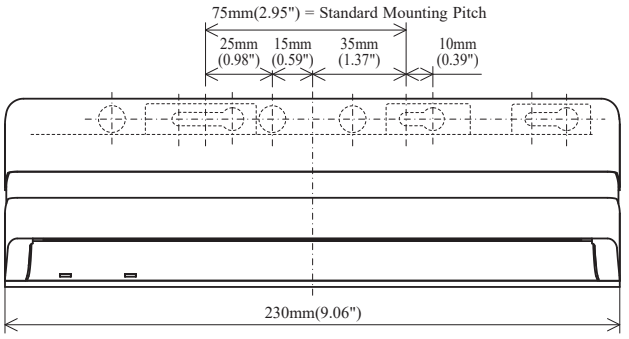
CAUSE 6: Door Hold (Dip switch Ⓨ4 set to Open).
SOLUTION 6: Turn "Door Hold" Dip switch Ⓨ4 to Auto.

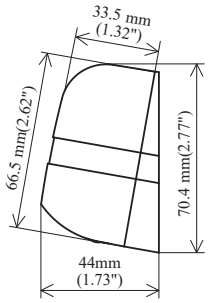
Section 12

Technical Data

Model..... DH100-CT Combination Motion & Presence Sensor
Detection Method.....Floor Reflection Method (FRM) Active Infrared
Max. Installed Height..... 9.84 ft. (3.0m)
Pattern Adjustments..... Pattern Depth (2 to 5 rows via dip switch setting) and Angle Adjustment Levers (Outer 2 Rows 10° in 3 steps; Inner 3 Rows 8° in 3 steps)
Pattern Width via 2 Position Mechanical Mask Knobs (Outer 2 Rows = Narrow or Wide Inner 3 Rows = Single or Double Door)
Sensitivity via potentiometer
Detection Beams.....UP TO 48 BEAMS
Inner 2 Rows:
12 Beams x 2 Rows
Outer Rows:
8 Beams x 3 Rows
Presence Detection..... 1, 2 & 3 Inner Rows (safety) timer selectable 2, 30, 60 sec. and infinity
Motion Detection..... 4 & 5 Outer rows (Approach) timer selectable 2, 30 sec.
Power Supply..... 12 to 24 V AC or DC ± 10%
Power Consumption..... AC12V-1.5VA (Max.)
DC12V-80mA (Max.)
AC24V-2.0VA (Max.)
DC24V-50mA (Max.)
Output Contact..... Form C Relay: DC50V 0.1A (Resistor Load)
Yellow Wire = Normally Open
Green Wire = Normally Closed
White Wire = Common
Relay is "driven" when power fails
Output Holding Time..... Approx. 0.5 seconds
Presence Timer.....Outer 2 Rows (2, 30 sec.)
Inner 3 Rows (2, 30, 60 sec. & infinity)
LED Indication..... RED = Detecting
GREEN = Standby
ORANGE = Detection Row 1 is too close to the door
Temperature Range..... -4°F to 140°F (-20°C to 60°C)
Weight..... 0.55 lbs. (0.25kg)
Color..... Black
Accessories.....Cable, Mounting Screws, Mounting Template, Installation Instructions

Section 13
External Dimensions





Section 14
Warranty

MS SEDCO guarantees this product to be free from manufacturing defects for 3 years from date of installation. Unless MS SEDCO is notified of the date of installation, the warranty will be in effect for 3 years from the date of shipment from our factory. If, during the first 3 years, our motion detector or support device fails to operate and has not been tampered with our abused, the unit can be returned prepaid to factory and it will be repaired free of charge. After 3 years, the unit will be repaired for a nominal service charge. **This limited warranty is in lieu of all other warranties expressed or implied, including any implied warranty of merchantability, and no representative or person is authorized to assume for MS SEDCO any other liability in connection with the sale of our products. All warranties are limited to the duration of this written warranty. In no event shall MS SEDCO be liable for any special, incidental, consequential or other damages arising from any claimed breach of warranty as to its products or services.**

FIGURE 1: Timing Chart of Events