SSS-1
Door Mounted Presence Sensor

Section 1
General Description

The SSS-1 is a door mounted presence sensor designed to provide safety protection for automatic swing doors. The SSS-1 combines the most reliable active infrared technology available with Position Sensitive Detection (PSD) technology found in auto focus cameras to ensure precise pedestrian detection within the path of a moving door panel.

The SSS-1 mounts near the top of the door panel out of harms way. PSD sensor technology automatically focuses the sensor lenses to dipswitch controlled height settings. Pattern width can be adjusted by inserting additional PSD sensor modules into the 34 1/2" long extruded aluminum housing, allowing the detection zone of each module to be adjusted independently.

Each PSD sensor module consists of a transmitter (TX) and a receiver (RX) that transmit a precise detection pattern that functions independently of other modules. Three standard versions of the SSS-1 are available. The SSS-1L1 contains a single PSD sensor module and is ideal for low energy doors. The SSS-1L2 contains two PSD sensor modules doubling the detection capability of the SSS-1 providing safety for full energy doors. The SSS-1L3 contains three PSD sensor modules for the highest level of safety.

Section 2
Parts Identification

Components Diagram
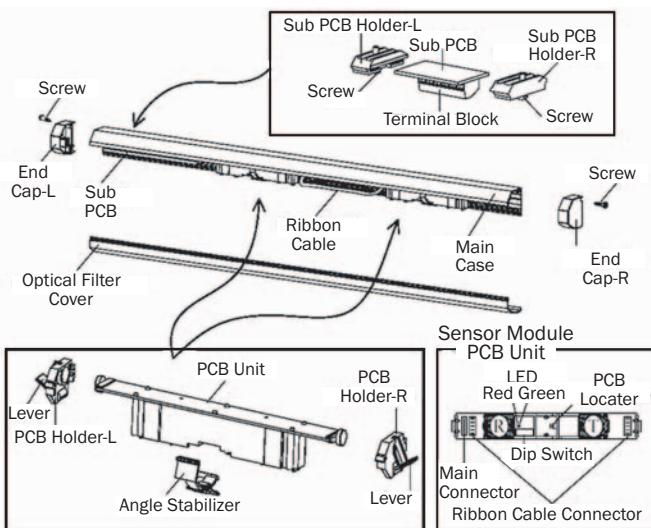
Accessories

Mounting Screws 4 x 16 (mm)

Main Cable 5 ft. (1.5m)

Jamb Hole Cover

Wire Sheath 2 ft. (0.6m)

Mounting Screws 3 x 10 (mm)

Instructions

Section 3
Mounting Information

1. Do not mount higher than 8' 6" (2.6m).
2. Do not leave any objects which may move in the detection pattern.
3. Ensure rain or snow will not fall directly on unit.
4. Ensure a minimum of reflected sunlight from the floor.
5. Avoid steamy environments.
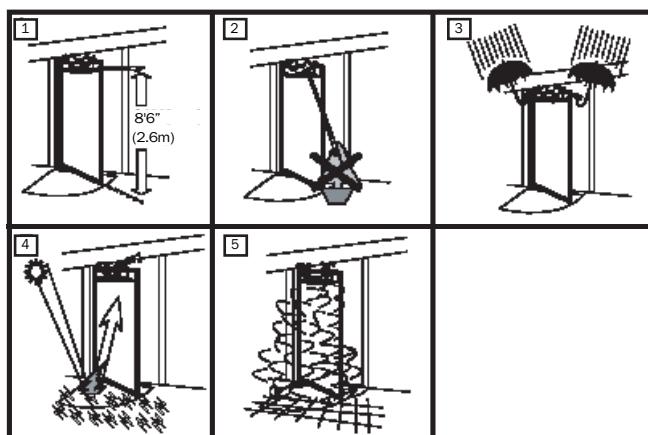
Section 4
Installation and Wiring

1. Remove end caps from both sides of the SSS-1 sensor.

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Section 4

Installation and Wiring (continued)

2. Remove optical filter cover as shown below.

3. Loosen all PCB holders.
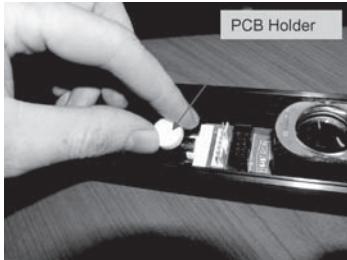
4. Disconnect ribbon cable in cases where the SSS-1 sensor consists of more than 1 PCB unit.
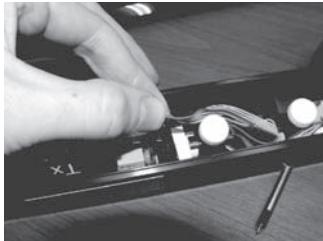
5. Release the "angle stabilizer" as indicated by the arrow and remove the "PCB unit" and "angle stabilizer" as a complete unit from the housing.

6. Removal of "PCB unit" and "angle stabilizer" as a complete unit.

7. The SSS-1 housing should then be left as below.

8. Attach the housing to the swing door as below. If an SSS-1 sensor is installed on both sides of the door, ensure a hole is drilled through the door **and** both SSS-1 housings so that the SSS-1 sensors on both sides of the door can be wired back to the "terminal block assembly" in one of the SSS-1 sensors.
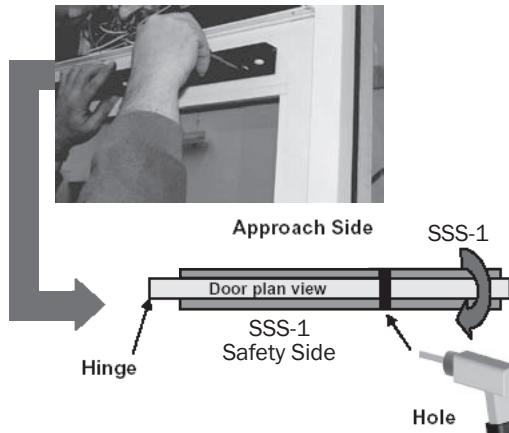
9. Ensure that the housing is attached as close to the leading edge of the door as possible. Allow enough clearance so that the door is able to close when the end caps are attached to the housing.

Section 4

Installation and Wiring (continued)

10. **Detection Range Setting:** Measure the installation height of the housing and set the detection range of each PCB unit with dip switches 3, 4 & 5 using the chart below.

⚠️ **NOTE:** It is easier to select dip switch settings in steps 10-13 prior to re-installing each PCB unit back into the housing.

Dip Switches are depicted in the "OFF" position.

ON
1 2 3 4 5 6 7 8

Dip Switch Chart

	3 4 5		
A OFF OFF OFF	4'7" (1.4m)	**B** ON OFF OFF	5'3" (1.6m)	**C** OFF ON OFF	5'11" (1.8m)

3 4 5 — OFF OFF OFF — (A) 4'7" (1.4m)
3 4 5 — ON OFF OFF — (B) 5'3" (1.6m)
3 4 5 — OFF ON OFF — (C) 5'11" (1.8m)
3 4 5 — ON ON OFF — (D) 6'7" (2.0m)
3 4 5 — OFF OFF ON — (E) 7'3" (2.2m)
3 4 5 — ON ON ON — (F) 7'10" (2.4m)
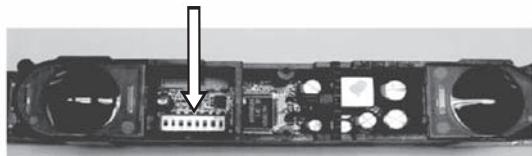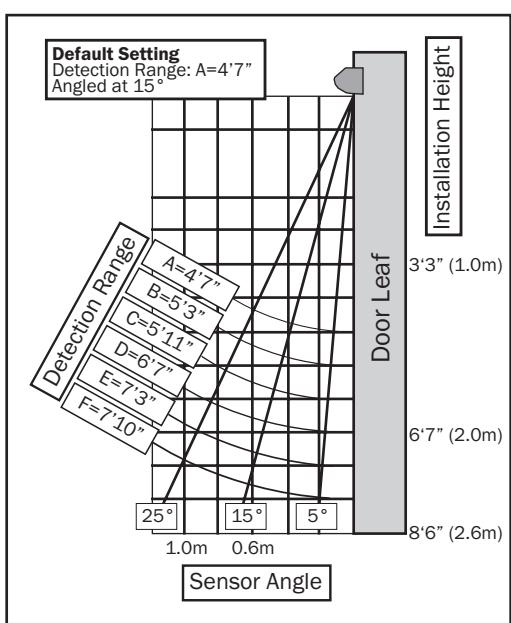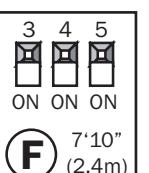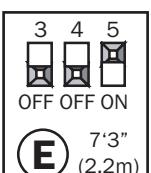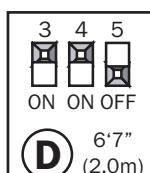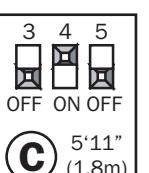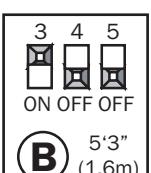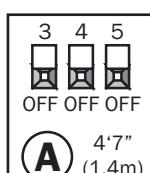
Installation Height	PCB Angle	Dip Switch			Chart
		No. 3	No. 4	No. 5	
4'7" to 5'11" (1.4m to 1.8m)	5°	OFF	OFF	OFF	A
	10°	OFF	OFF	OFF	A
	15°	OFF	OFF	OFF	A
	20°	OFF	OFF	OFF	A
	25°	OFF	OFF	OFF	A
5'11" to 6'7" (1.8m to 2.0m)	5°	OFF	OFF	OFF	A
	10°	OFF	OFF	OFF	A
	15°	OFF	OFF	OFF	A
	20°	OFF	OFF	OFF	A
	25°	ON	OFF	OFF	B
6'7" to 7'3" (2.0m to 2.2m)	5°	ON	OFF	OFF	B
	10°	ON	OFF	OFF	B
	15°	ON	OFF	OFF	B
	20°	OFF	ON	OFF	C
	25°	OFF	ON	OFF	C
7'3" to 7'10" (2.2m to 2.4m)	5°	OFF	ON	OFF	C
	10°	OFF	ON	OFF	C
	15°	OFF	ON	OFF	C
	20°	ON	ON	OFF	D
	25°	ON	ON	OFF	D
7'10" to 8'6" (2.4m to 2.6m)	5°	ON	ON	OFF	D
	10°	OFF	OFF	ON	E
	15°	OFF	OFF	ON	E
	20°	OFF	OFF	ON	E
	25°	ON	ON	ON	F

11. **Relay Output Hold Time Setting:** Dip switches 1 & 2 are used to adjust the relay output hold time. Ex. When 2S is selected, the relay will stay ON (Active State) for 2 seconds after an object or person leaves the detection area.

ON
1 2 3 4 5 6 7 8

1 2 OFF OFF	1 2 ON OFF	1 2 OFF ON	1 2 ON ON
0.5S	1S	2S	4.5S
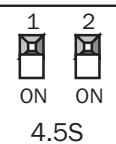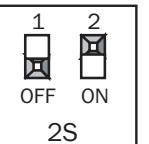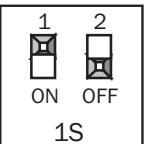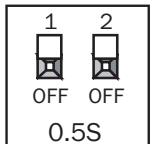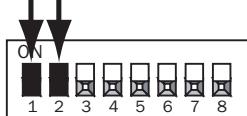
12. **Optical Interference:** When two SSS-1's are in close proximity, interference between sensors may result in improper operation. Different frequency settings can be set using Dip Switch 6 to prevent interference problems.

Dip Switches are depicted in the "OFF" position.

ON
1 2 3 4 5 6 7 8

6 OFF — A
6 ON — B

Sensor-1 Select "A"
Sensor-2 Select "B"

Default Setting
Detection Range: A=4'7"
Angled at 15°

Installation Height

Detection Range
A=4'7"
B=5'3"
C=5'11"
D=6'7"
E=7'3"
F=7'10"

Door Leaf

3'3" (1.0m)
6'7" (2.0m)
8'6" (2.6m)

25° 15° 5°
1.0m 0.6m

Sensor Angle
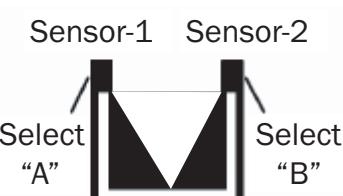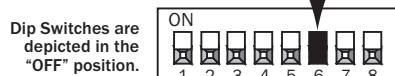
Section 4

Installation and Wiring (continued)

13. **Relay Output Mode:** When dip switch 8 is "OFF", the Normally Open terminal will be closed on detection. When "ON", the Normally Open terminal will be kept closed after power on, until the sensor detects an object.

⚠️ **WARNING:** Relay output mode setting must be the same on each PCB unit.

```
ON
[ ][ ][ ][ ][ ][ ][ ][█]
 1  2  3  4  5  6  7  8
```

Normally Closed

DIP SW 6 OFF	YELLOW (N.O.) WHITE (COM) GREEN (N.C.)	YELLOW (N.O.) WHITE (COM) GREEN (N.C.)	YELLOW (N.O.) WHITE (COM) GREEN (N.C.)
	RED LED	○ OFF	☀ ON
	GREEN LED	☀ ON	○ OFF
	POWER OFF	NON-DETECTION	DETECTION

Normally Open
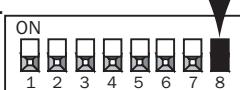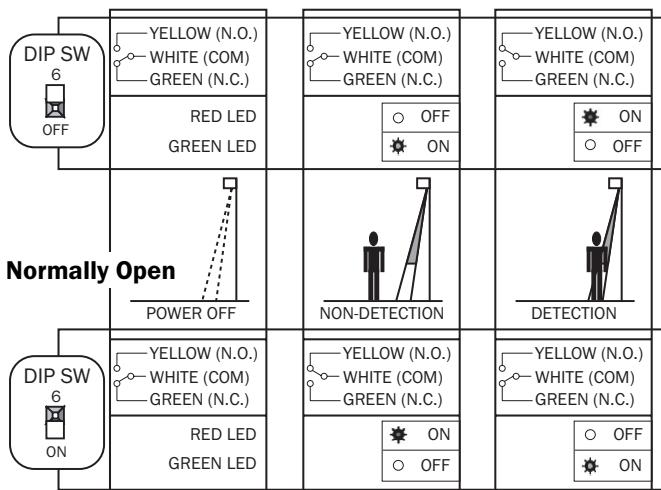
| DIP SW 6 ON	YELLOW (N.O.) WHITE (COM) GREEN (N.C.)	YELLOW (N.O.) WHITE (COM) GREEN (N.C.)	YELLOW (N.O.) WHITE (COM) GREEN (N.C.)
	RED LED	☀ ON	○ OFF
	GREEN LED	○ OFF	☀ ON
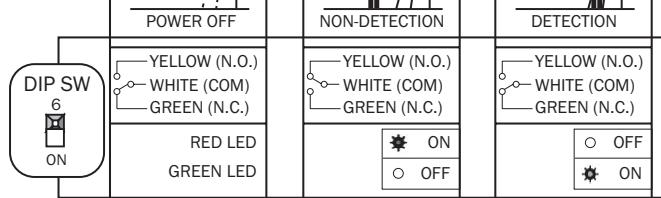
⚠️ **WARNING:** Dip switch 7 must be "OFF".

14. Re-insert the PCB units back into the housing and lock into position using the "PCB holders".

    Tx on the "PCB unit" must be closest to the leading edge of the door in all cases.

Leading edge of door

Tx

PCB Holders
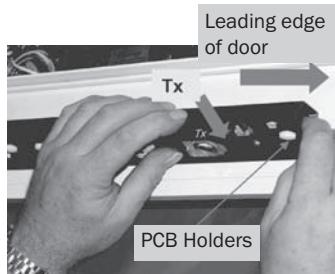
15. Lock PCB unit into position using the "Angle Stabilizer" and set detection angle as shown below.

Angle Stabilizer

```
4 = 25°   Angle
3 = 20°   Stabilizer in
2 = 15°   Locked in
1 = 10°   position
0 = 5°
```

NOTE: Remember when reinserting "Angle Stabilizer" that the part indicated below with the arrow must always lock into the top of the housing.
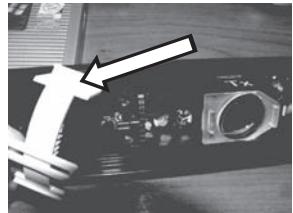
16. If the SSS-1 sensor that has been installed consists of more than one "PCB unit" then connect them together using the ribbon cable provided.

① Approach Side
③ Terminal Block   ④ Main Cable (5 wires)   ⑤ Ribbon Cable (10 wires)   ⑥ PCB unit
⑦ Hinge
To the door controller
⑨ Details in the next figure
⑧ Wire Hole through the door
② Safety Side
Door leaf

⑩ DOOR CONTROLLER

⑭ RED
⑮ BLACK
⑯ WHITE(COM)
⑰ YELLOW(NO)
⑮ BLACK
⑭ RED
⑱ GREEN (NC)
⑯ WHITE
CN1

⑪ Approach Input — NO / COM
⑫ Stall Input — NC / COM
⑬ Power Output — POWER / POWER

③ Terminal Block

RED	POWER SUPPLY (AC/DC 12~24V)
BLACK	
WHITE	Relay Output (COM)
YELLOW	Relay Output (NO)
GREEN	Relay Output (NC)

17. On the approach side, connect the main cable to its connector terminal and feed the cable through the hole in the door and out into the SSS-1 sensor on the safety side of the door.

Section 4

Installation and Wiring (continued)

18. Cable enters SSS-1 on safety side of the door as shown below.

Cable entering SSS-1 sensor on the safety side from SSS-1 on the activation side

19. Thread the "main cable" along the full length of the SSS-1 sensor on the safety side of the door as below.

20. Prepare cable for wiring into "terminal block".

21. Wire the SSS-1 sensors on the approach & safety side as well as from the operator control into the terminal block. Feed the wiring from the control through the wire sheath provided.

Main cable from SSS-1 on safety side of door

Wires from operator control

Main cable from SSS-1 on approach side of door
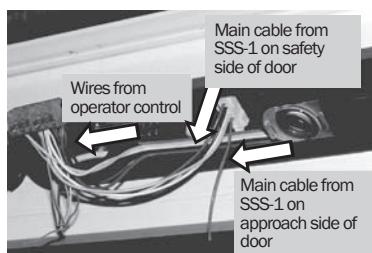
Wiring through wire sheath to operator control
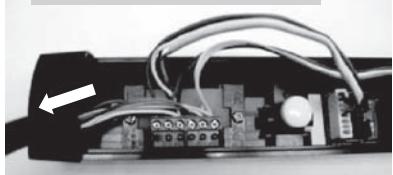
22. Reset the "terminal block" back onto its locator pins.
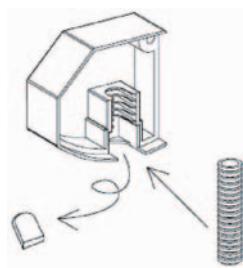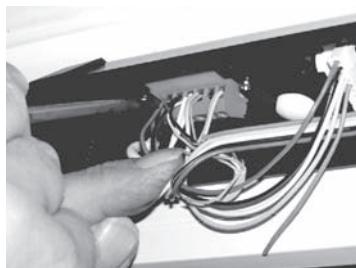
23. A "Jamb Hole Cover" is provided so that wiring from the operator control to the SSS-1 sensor can be run neatly as shown below.

Jamb Hole Cover A

Screw (3 x 10mm)

Jamb Hole Cover B

Main Cable

Wire Sheath

Screw (3 x 10mm)
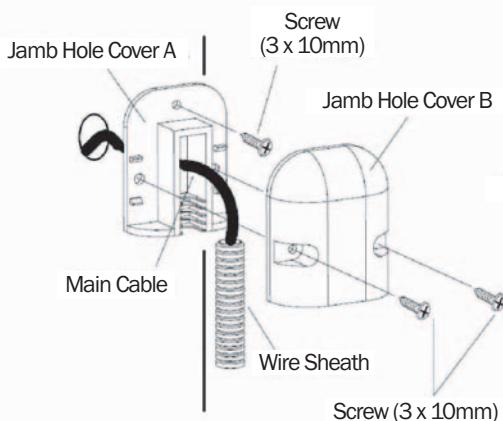
24. **BEFORE APPLYING POWER:**
CHECK THE WIRING AGAIN AND FOLLOW THE INSTRUCTIONS BELOW.

This "Power On Check" is to be executed without the Filter Cover installed.

1. Clear the area of any unnecessary objects.
2. Apply power.
3. Put a test object in the detection area to verify that the actual detection zone achieved corresponds to that set up by the installer.
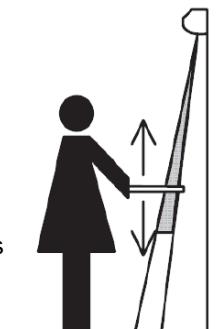
When the "Power On Check" has been successfully completed, the filter cover and end caps can be installed. If errors are found, re-check wiring, dip switch settings and angle adjustment settings again.

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Section 4
Installation and Wiring (continued)

25. Reinsert the filter cover and reattach the sensor end cap as shown below.

26. The SSS-1 sensor is now ready for use.

Section 5
Technical Data

Model................................	SSS-1 Door Mounted Presence Sensor
Detection Method.............	Active Infrared with Position Sensitive Detection (PSD) Measurement
Max. Installed Height.......	8'6" (2.6m)
Detection Range...............	0' to 7'10" (0 to 2.4m)
Range Adjustment............	4'7"(1.4m), 5'3"(1.6m), 5'11"(1.8m), 6'7"(2.0m), 7'3"(2.2m), 7'10"(2.4m)
Beam Angle Adjustment..	5°, 10°, 15°, 20°, 25°
Presence Timer.................	Infinity
Power Supply...................	12 to 24 V AC or DC ± 10%
Power Consumption......... (per sensor module)	AC12V-1.1VA, AC24V-1.6VA DC12V-60mA, DC24V-35mA
Output Contact................	Form C Relay: DC50V 0.1A NonVoltage 1C
Inhibit Input......................	DC12-24V ± 10%; Inhibited When Voltage is Applied
Response Time.................	<50mSec.
Delay Hold Time...............	0.5, 1, 2, 4.5 Sec.
Temperature Range.........	-4°F to 140°F (-20°C to 60°C)
Weight...............................	1.8 lbs. (0.8kg)
Color.................................	Black

Section 6
External Dimensions
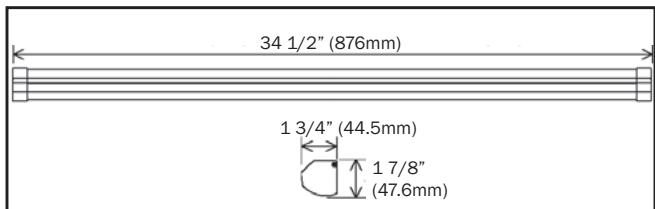
Section 7
Warranty

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.**

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