2 INSTALLATION AND MAINTENANCE NOTES

<table>
<thead>
<tr>
<th>Warning</th>
<th>Caution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold the main unit securely when you install or service it. If you remove your hands from the main unit when cables are connected to it, the main unit may fall and the connector cables may break or the circuit board may be damaged.</td>
<td></td>
</tr>
</tbody>
</table>

Never repair or modify product.

Caution
Verify that the power is off before connecting the wiring.

When servicing, the sensor can be hooked onto the base using the nylon wire loop.

2-1 INSTALLATION HINTS

Mount the detector so that the majority of traffic flow is across the detection pattern.

Base
Fixing screw for the base
Main unit
Masking plate for near area (*)
Fixing rubber form
Near area mirror
Adjustment screws (two facing each other)
Angle adjustment guide
Arrow marking
Fixing screw

Far area mirror
Masking plate for far area
Fixing rubber form
Window
Fixing screw for the cover

*1. Not used for the SIP-4010WF and SIP-404WF.

2.3-4.0 m (7.6-13 ft.)

PARTS IDENTIFICATION

FEATURES

* Low power consumption (3-9VDC, 40μA (standby) 5mA max.)
* Low battery signal
* Intelligent PIR Detection System
  - Three dual pyro-elements with patented Double Conductive Shielding
  - Detection of ambient temperature and illuminance for automatic sensitivity management
  - Advanced detection algorithm
* Anti-vandalism functions
  - Max. 4 m (13 ft.) installation height
  - Anti-rotation function with accelerometer
  - Anti-maskung function with photo-beam
* Independent sensitivity selector for near/far areas
* Detection logic selector
* Detection range selector
* Independent N.C. and N.O. ALARM output
* Adjustable alarm interval time
* Reinforced polycarbonate housing

REDWALL-V

* Low current Synthesized Intelligent PIR
  - SIP-3020WF
  - SIP-4010WF
  - SIP-404WF

INSTALLATION INSTRUCTIONS

Synthesized Intelligent PIR
REDWALL-V series

ENGLISH FRANÇAIS DEUTSCH ITALIANO ESPAÑOL
3 INSTALLATION AND ANGLE ADJUSTMENT

3-1 Wall Mounting

(1) Attach the paper template (an accessory) onto the wall, and drill a 6-mm dia. mounting hole and a cabling hole. Insert the anchor bolt (an accessory) into the board mount hole.

(2) Using an allen key, remove the main unit from the base.

(3) Drill through the bushing of the wiring hole, pass the cable through the hole, and secure the base to the wall.

(4) Connect the cable to the terminal block (see Step 3-3).

(5) Mount the main unit onto the base.

(6) Check to see that the various settings and operations are correct.

Caution:
When the red LED flashes after the power turns on, this signifies that the system is warming up. Wait for approximately 120 seconds.

Cautions:
When mounting the main unit, take care not to trap the nylon wire loop. Also, take care not to get your fingers caught.

3-2 Inside View of the Base

3-3 WIRING

ELECTRICAL CONNECTIONS TO TRANSMITTER
DC POWER SUPPLY (BATTERY)

WF-100DT (Transmitter)
+ (red)
– (black)

TROUBLE OUTPUT
TAMPER OUTPUT
ALARM OUTPUT (N.C.)
ALARM OUTPUT (N.O.)
Spare

Cautions:
Maximum wiring length is 3 m.

Table: ELECTRICAL CONNECTIONS TO TRANSMITTER

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>TROUBLE OUTPUT</td>
<td>Trouble output is used for anti-masking signal and low battery signal. When an object is placed close to the lens surface, for a period of more than 120 seconds (approx.), the IR anti-masking circuit will activate and generate a trouble signal. When the battery power is less than 2.3V DC, and this condition continues for more than 2.5 hours, the signal will be generated.</td>
</tr>
<tr>
<td>TAMPER OUTPUT</td>
<td>It is detected when the cover is opened.</td>
</tr>
<tr>
<td>SPARE</td>
<td>It is detected when the main unit is removed from its base.</td>
</tr>
</tbody>
</table>

Waterproof seal (Do not remove this seal.)

Base

Open wiring cap

Inside View of the Base

Wall mounting hole

Main unit connector

Wiring terminals

Cautions:

Distance from the ground to the bottom of the template must be between 2.3 m (7.6 ft.) and 4 m (13 ft.).
DETECTION AREA SETTING

You can adjust the detection area by 90 degrees in a horizontal direction and by 10 degrees in a vertical direction. Correct the vertical detection angle according to the mounting height of the sensor unit.

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

Adjust the angle of the main unit in a horizontal direction so that you can cover the desired detection area.

(1) Adjust the angle of the main unit in a horizontal direction so that you can cover the desired detection area.

(2) Adjust the angle of the main unit in a vertical direction so that you can cover the desired detection area.

Cautions>>

To rotate the main unit counterclockwise, loosen the RH-side adjustment screw. To rotate the main unit clockwise, loosen the LH-side adjustment screw. Otherwise, you may find it difficult to tighten or you may find that you cannot tighten the adjustment screw when you are securing the main unit.

Cautions>>

If the mounting wall is at an angle, the arrow of the main unit may exceed the top or bottom limit of “Angle adjustment guide”. Always check this using the area viewfinder or the walk tester. If the detection area is too high or too low, an object outside the detection area may be detected or incorrect object detection may occur.

Cautions>>

The cover is linked to the main unit by nylon wire loop so that the cover does not fall. Do not pull the cover using excessive force.

Adjust the angle of the main unit in a horizontal direction so that you can cover the desired detection area.

(1) Adjust the angle of the main unit in a horizontal direction so that you can cover the desired detection area.

(2) Adjust the angle of the main unit in a vertical direction so that you can cover the desired detection area.

Cautions>>

To rotate the main unit counterclockwise, loosen the RH-side adjustment screw. To rotate the main unit clockwise, loosen the LH-side adjustment screw. Otherwise, you may find it difficult to tighten or you may find that you cannot tighten the adjustment screw when you are securing the main unit.

Cautions>>

If the mounting wall is at an angle, the arrow of the main unit may exceed the top or bottom limit of “Angle adjustment guide”. Always check this using the area viewfinder or the walk tester. If the detection area is too high or too low, an object outside the detection area may be detected or incorrect object detection may occur.

Cautions>>

The cover is linked to the main unit by nylon wire loop so that the cover does not fall. Do not pull the cover using excessive force.
Mount the area viewfinder.

1. Put the red string round the main unit.
2. Insert and mount to the main unit.
3. Determine the detection direction (see Step 6-1).
4. Insert the area plate into the slot.
5. Fixing arms

**Mounting tips>>**

- Engage the convex section of the area viewfinder fixing arms with the notches of the main unit, and insert and mount the arms.
- Mount the area plate so that an arrow of the plate center section faces upward and the letter surface can be seen.
- Insert the area plate into the top and bottom grooves of the area viewfinder until the plate is stopped by the ribs.

**Cautions>>**

- The area viewfinder is a supporting tool for detection area adjustment.
- After you have adjusted the detection area using the area viewfinder, always check the area using the walk tester.
- Never look directly into the sun through the area viewfinder.
- After you have used the area viewfinder, store it away from direct sunlight.
- Securely tighten the adjustment screw that you have loosened.
- Connect the walk tester OPM-WT (optional) to the sensor unit, and check that the detection area is correct.

**Fine adjust the main unit angle in vertical and horizontal direction by observing the target area through the area viewfinder.**

1. To change the direction of the inspection window, rotate the area viewfinder in a horizontal direction until it clicks and stops.
2. Move your face close to the viewfinder so that your eye comes within 5 mm of the inspection window (lens surface).

**Adjusting tips>>**

If you experience any of the following, see Step 10.

1. When the power selector switch is turned to "CELL BATTERY" position after plugging the cable into the walk tester connector, a continuous beeping sound will be heard.
2. When a pedestrian first enters the detection area, the strong and weak beeps will sound alternately.
3. When the entirety of a pedestrian’s body is detected, the strong beep will sound continuously.

**Cautions>>**

- OPM-WT can not be operated at the "Power supply from sensor" position of the power select switch.
FUNCTION SETTING

5-2 Detection Logic Selector Switch

- Dip switch 1

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

The near area sensor has two dual-element devices, and it covers two types of plane areas alternately using the two devices.

### FUNCTION SETTING

#### Detection Logic Selector Switch

<table>
<thead>
<tr>
<th>SELECTOR POSITION</th>
<th>STATUS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>OR</td>
<td>A sensor signal is output when an object is detected in either of the two detection areas. Use this mode when you adjust the detection area. Switch to AND mode after you have finished the detection area adjustment.</td>
</tr>
<tr>
<td>DWN</td>
<td>AND</td>
<td>Use this mode to reduce instances of incorrect detection of objects. The sensor signal is output only when an object is detected within the two detection areas. If any objects are blocking multiple detection areas, use OR mode.</td>
</tr>
</tbody>
</table>

#### Detection Range Selector Switch

<table>
<thead>
<tr>
<th>SELECTOR POSITION</th>
<th>STATUS</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>OFF</td>
<td>Cancels the far area detection. The detection area is reduced as shown below.</td>
</tr>
<tr>
<td>DWN</td>
<td>ON</td>
<td>Enables the far area detection.</td>
</tr>
</tbody>
</table>

Cautions>>

- If the red LED keeps blinking for approx. 120 seconds after turning the power on, turn the power off and then on again.

Cautions>>

- If you set the interval to 60 seconds, no more alarm signals will be output for 60 seconds after the output of the first alarm signal. It works to avoid frequent outputs to save battery life. If no pedestrians are detected for more than 60 seconds, the system returns to the standby mode. Then, when a pedestrian is detected, the alarm signal will be output.

5-4 Alarm Interval Switch

- Dip switch 3-4

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

You can set an interval (4 different times) to suspend the alarm signal output.

### Cautions>>

- The alarm interval is set to 0 sec as a factory default to allow the detection area to be correctly recognized for the Walk-Test. Set the alarm interval switch after adjusting the detection area.

### Sensitivity Selector Switch for Near and Far Area

- Dip switch 2

You can change the sensitivity for far area detection and near area detection independently.

### Cautions>>

- If the red LED keeps blinking for approx. 120 seconds after turning the power on, turn the power off and then on again.
DETECTION AREA

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 4.0 m (13ft.))

SIDE VIEW (Installation height 4.0 m (13ft.))  : Near area  : Far area

TOP VIEW (Installation height 2.3 m (7.6ft.))

SIDE VIEW (Installation height 2.3 m (7.6ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 4.0 m (13ft.))

SIDE VIEW (Installation height 4.0 m (13ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 2.3 m (7.6ft.))

SIDE VIEW (Installation height 2.3 m (7.6ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 4.0 m (13ft.))

SIDE VIEW (Installation height 4.0 m (13ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 2.3 m (7.6ft.))

SIDE VIEW (Installation height 2.3 m (7.6ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 4.0 m (13ft.))

SIDE VIEW (Installation height 4.0 m (13ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 2.3 m (7.6ft.))

SIDE VIEW (Installation height 2.3 m (7.6ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 4.0 m (13ft.))

SIDE VIEW (Installation height 4.0 m (13ft.))  : Near area  : Far area

Applicable models: SIP-3020WF | SIP-4010WF | SIP-404WF

TOP VIEW (Installation height 2.3 m (7.6ft.))

SIDE VIEW (Installation height 2.3 m (7.6ft.))  : Near area  : Far area
7 MASKING THE FAR AREA SENSOR

The far area mirror mounted in the main unit has 2 far masking plates; one at the right side of this mirror and the other at the left side of this mirror. You can mask the detection area by changing the position of these masking plates.

Cautions>>
- You can only mask the detection area from its outside to its inside using the masking plates. You cannot mask only the inside detection area.
- However, if you need to mask the inside detection area only, use the white space (margin) of the near area masking seal (an accessory) for the masking. Attach the seal and mask all mirrors that you need to shield.

Cautions>>
- The window is linked to the main unit by nylon wire loop so that the window does not fall. Do not pull the window using excessive force.
- After you have masked the detection areas, mount the window and place the excessive nylon wire loop inside the main unit.

How to remove the window>>

1. Remove the masking plate from the storage, and check the detection area and the mirror you use by referring to the area chart.
2. Attach the masking plate to the mirror, and secure it to the ribs.
3. Insert the fixing rubber form to secure the knob of the masking plate.

Applicable models: SIP-3020WF, SIP-4010WF, SIP-404WF

If tree branches or other moving objects are in the path of the detection beam.
8 MASKING THE NEAR AREA SENSOR

8-1 Masking the Detection Areas using Masking Plates

The near area mirror mounted in the main unit has 2 near masking plates; one at the right side of this mirror and another at the left side of this mirror. You can mask the detection area by changing the position of these masking plates.

Cautions>

You can mask the outside detection areas only; they are areas 1 and 6. Use the area masking seals (an accessory) to mask the other detection areas (see Step 8-2).

Applicable models:
SIP-3020WF
SIP-400WF
SIP-404WF

1. Remove the masking plate from the storage, and check the detection area and the mirror you use by referring to the area chart.

2. Attach the masking plate to the mirror, and secure it to the ribs.

3. Insert the fixing rubber form to secure the knob of the masking plate.

Points>

If tree branches or other moving objects are in the path of the detection beam.

8-2 Masking the Detection Areas using Masking Seals

Using the tweezers (an accessory), carefully attach the area masking seals (an accessory) to the near area mirror.

Applicable models:
SIP-3020WF
SIP-400WF
SIP-404WF

If you are using the SIP-3020WF, SIP-4010WF, or SIP-404WF sensor unit when you have completed Step 8, proceed to Step 9.
If there is a public street where a people walk or cars drive by the detection area:

Points:
Reduce the size of the detection area so that it does not include any public streets.

1. Check to see that the arrow of the main unit is within the width of "Angle adjustment guide" on the adjustment screw.
2. Using the area viewfinder, check to see that the detection area does not include any public streets.
3. If the detection area does go beyond a public street, correct the vertical angle of the main unit. However, exercise care so that the arrow does not move away significantly from the "Angle adjustment guide" position.
   
   If the arrow does move away significantly from the "Angle adjustment guide" position:
   Mask the far area detection area using the masking plate or by using the far area masking switch. You may be required to also mask the near area detection area under specific sensor installation conditions (see Steps 5 and 8).
4. When a person walks along the street or a car drives along it, check the detection area using the walk tester.

Points:
You cannot mount and use both the area viewfinder and walk tester simultaneously.

Cautions:
The detection area may increase if there is a large difference in temperature between the moving object and the background.

Cautions:
A heat source beyond the detection area may cause a false alarm due to the reflection of heat off the ground. Examples of types of surfaces that reflect include water (puddles), wet roads, smooth concrete surfaces and asphalt roads. If the source of the heat is strong and/or the reflection rate is high, the detection distance will be longer than required and may detect unnecessary objects beyond the target area. Therefore, select the detection range position according to the ground conditions of the installation site.
If Tree Branches or Grass are Detected When They Move Within the Detection Area

**Points**
- Adjust the detection area so that it does not cover tree branches or grass that move when the wind blows.
- Check to see that the arrow of the main unit is within the width of "Angle adjustment guide" on the adjustment screw.
- Using the area viewfinder, check to see that the detection area does not cover tree branches or grass that may move when the wind blows.
- Use the walk tester to listen for sound level changes when there is no apparent activity in the detection area. Adjust the detection area so that it does not detect unwanted areas.
  - If the sound level changes, some part of the detection area must be active (i.e.: an object is moving).
- Use the walk tester and locate the part of the detection area that is active. Change the walk tester selector switch position and determine whether the active part of the detection area is far or near.
- Using the area viewfinder again, locate the active detection area.
- Mask the active detection area. To do this, mask the area using the masking plate or the masking seal. Otherwise mask the area using the far area masking switch (see Steps 5, 7, and 8).
- Using the walk tester again, check that the sound level changes. If the sound level does not change excessively, you can finish the adjustment.

**Points**
- You cannot mount and use both the area viewfinder and the walk tester simultaneously.

11 LED FUNCTIONS

**Operation Indicator - Red LED**

**Cautions**
- If the red LED keeps blinking for approx. 120 seconds after turning the power on, turn the power off and then on again.

### DETECTOR STATUS

<table>
<thead>
<tr>
<th>If the cover is removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>During power ON</td>
</tr>
<tr>
<td>During standby</td>
</tr>
<tr>
<td>When detected (in far/near area)</td>
</tr>
</tbody>
</table>

12 SPECIFICATIONS

#### 12.1 Specifications of the Main Unit

<table>
<thead>
<tr>
<th>Model</th>
<th>SIP-3020WF</th>
<th>SIP-4010WF</th>
<th>SIP-404WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection method</td>
<td>Passive infrared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage</td>
<td>30 x 20m (100 x 65ft.)</td>
<td>40 x 10m (130 x 33ft.)</td>
<td>40 x 4m (130 x 13ft.)</td>
</tr>
<tr>
<td>Number of detection zones</td>
<td>74 zones</td>
<td>48 zones</td>
<td>24 zones</td>
</tr>
<tr>
<td>Mounting height</td>
<td>2.3 to 4m (7.6 to 13ft.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power input</td>
<td>3 - 9V DC Alkaline or lithium battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating voltage</td>
<td>2.5 - 10V DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current draw</td>
<td>40 µA (standby)</td>
<td>5mA max. (operating, LED ON)</td>
<td></td>
</tr>
<tr>
<td>Operation indicator</td>
<td>RED ALARM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warm-up period</td>
<td>Approx. 120 sec.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection range selector</td>
<td>Far area: ON / OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm interval period</td>
<td>0 / 5 / 60 / 150 sec.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection logic selector</td>
<td>AND/OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tamper output</td>
<td>N.C. 10V DC, 0.01A max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble output</td>
<td>N.C. 10V DC, 0.01A max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alarm output</td>
<td>N.C. 10V DC, 0.01A max.</td>
<td>N.O. 10V DC, 0.01A max.</td>
<td></td>
</tr>
<tr>
<td>Sensitivity selector</td>
<td>Far: SH/H/M/L Near: SH/H/M/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25 to +60°C (-13 to +140°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP rating</td>
<td>Main unit: IP65 Chassis: IP55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions (H × W × D)</td>
<td>227 x 102 x 266mm (9 x 4 x 10.5 in.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>1.2kg (42 oz.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>Screws, paper template, allen key, area masking seal, tweezers, instruction manual, area plate, fixing rubber form, cable glands</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OPTION

- OPM-WT  -Audio Walk Tester
- AVF-1  -Area View Finder
- SIP-MINIHOOD  -Sun/Snow shield

These units are designed to detect movement to activate CCTV system. Being only part of a complete surveillance system, we cannot accept responsibility for any damage or other consequences resulting from the activation of the unit. This product confirms the EMC Directive 2004/108/EC.

Specifications and design are subject to change without prior notice.