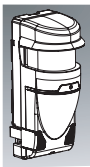
(UL) 591815-7 1306-01
(No.610494-2 : Doc 591815-7)

Quality detection system for video surveillance
REDWALL®
Unrivalled performance
REDSCAN®

INSTALLATION INSTRUCTIONS



Laser Scan Detector
RLS-3060SH

This model is UL Listed product. The comments with "*UL-Number" are UL's requirements and information for using this product. Software is Ver. 7.x.x. and UL Listed Version is Ver. 7.x. and the part number may consist of ".x" which delineates minor code error/bug fixes.

FEATURES

* Detection range is 30m (Approx. 100ft.) radius, max. 190 degree
* Selectable horizontal or vertical detection area
* Intelligent detection analysis for various types of application such as PTZ camera control (*UL-1), human hand detection, direction control, vehicle detection (*UL-2) etc. (*1)
☆Fence/Wall top protection mode and Loitering detection mode are new in Ver. 7.1.0.(*UL-2)(*1)
* Recognition of the intrusion location which can activate 4 independent outputs for PTZ control (*UL-1)
* Flexible and easy setup of the required detection area
☆Advanced area setting and Selectable detection areas function are new in Ver. 7.1.0. (*1)
* Built-in heater (-40 - +60 °C, -40 - +140 °F)
* Selectable zone patterns for PTZ camera control using the IP connection (*1) (*UL-3)

*1: The Redscan Manager, optional setup software, provides these functions.

*UL-1: The PTZ camera feature is to be used supplementary only.
*UL-2: Vehicle detection, Fence/Wall top protection and Loitering detection modes cannot be used for UL Listed applications.
*UL-3: For UL Listed installation applications, the unit shall be connected to a compatible UL Listed control panel and/or UL Listed burglar alarm power supply.

REDSCAN is an area sensor that configures a fan-like detection area of 30 m (Approx.100 ft.) radius over 190 degrees arc. using laser beams. REDSCAN detects target objects by emitting laser beams at the target and measuring the time required for the emitted beams to be reflected and returned to the detector.

CONTENTS

1 INTRODUCTION

1-1 BEFORE OPERATION

- Read this instruction manual carefully prior to installation.
- This manual uses the following warning indications to provide information regarding correct usage of the product to prevent you and other people from being harmed and your assets from being damaged. These warning indications are described below.
  Ensure you understand these precautions before reading the rest of this manual.

⚠ Warning	Failure to follow the instructions provided by this warning and improper handling may cause death or serious injury.
⚠ Caution	Failure to follow the instructions provided by this caution and improper handling may cause injury and/or property damage.

This symbol indicates prohibition.
The specific prohibited action is provided in and/or around the figure.

This symbol requires an action or gives an instruction.

⚠ Warning

Do not use the product for purposes other than the detection of human and vehicles.
Do not use the product to activate a shutter, etc., which may cause an accident.

Do not touch the unit base or power terminals of the product with a wet hand (do not touch when the product is wet with rain, etc.). It may cause electric shock.

Never attempt to disassemble or repair the product. It may cause fire or damage to the devices.

Do not exceed the voltage or current rating specified for any of the terminals, doing so may cause fire or damage to the devices.

Ensure the power is turned off before connecting wiring.

Confirm the signal name of every terminal to ensure wiring is carried out correctly.

Whenever a commercial switching regulator is used, be sure to connect PE (Protective Earth Terminal).

Hold the main unit securely when you install or service it. Exercise care not to bump the product against nearby objects or drop it inadvertently.

This product is not capable of detecting objects in the dead zone of the laser scan.
Do not use this product for an application where it is not capable of covering the detection area required by the task.

Please note that the product can malfunction, including producing an irregular output and committing a detection error, if it is exposed to unfavorable environmental conditions such as strong ambient light, electronic noises or mechanical vibrations.

⚠ Caution

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

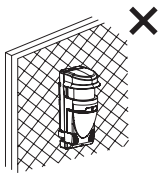
Clean and check the product periodically for safe use. If any problem is found, do not attempt to use the product as it is.

When disposing of this product, be sure to follow the waste-disposal regulations of the country or region where it is used.

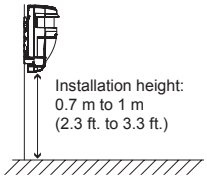
This product is intended to detect an intruder(s) and is not designed to prevent theft, disasters or accidents. The manufacturer shall not be held liable for any damage to user's property resulting from theft, disasters or accidents.

1-2 PRECAUTIONS

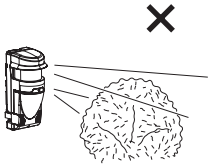
Install the product only on a solid surface.



In the Horizontal Detection Area, this product must normally be used within the recommended installation height in order to detect an intruder.



Install the product so that the detection area is not influenced by interference from tall grass or tree branches waving in the wind.



Do not install or leave the product in a location exposed to heat, vibrations or impacts

Do not use the product in an environment where solvent fumes or corrosive gases are present.

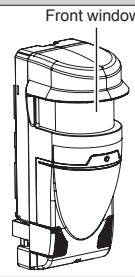
Do not use this product in environments where there may be oil mist particles which may contaminate the window of the detector; thus causing detection errors and possible corrosion which may lead to product failure.

*UL-4: When assessing the installation and application, alarms triggered by conditions such as weather, blowing leaves and bush, or related environmental conditions, etc., need to be considered .
It is recommended that the intrusion detection unit is not to be connected to an alarm initiating circuit but may be connected to a trouble alarm circuit if nuisance trips are not tolerable.

The symbol "×" indicates prohibited actions.

Cleaning the Product

Clean the front window on a regular basis using a wet cloth.
A smeared front window can limit the detection area due to the reduced laser sensitivity. In addition, heavy soiling of the window can induce detection errors.



On Safety of Laser

This product is categorized as a Class 1 product in terms of the Safety Standard.

Average Power : Max. 0.015 mW (AEL)
Wavelength : 905 nm
Pulse Width : 4 ns
Emission period : 36 μs
Standard : IEC60825-1

Class 1 of the Laser Safety Standard means that the safety of laser products belonging to this class is warranted under normal operating conditions (reasonably predictable operating conditions). The product is marked to indicate that it is laser equipment. No additional safety measures are necessary.

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No.50, dated June 24, 2007.

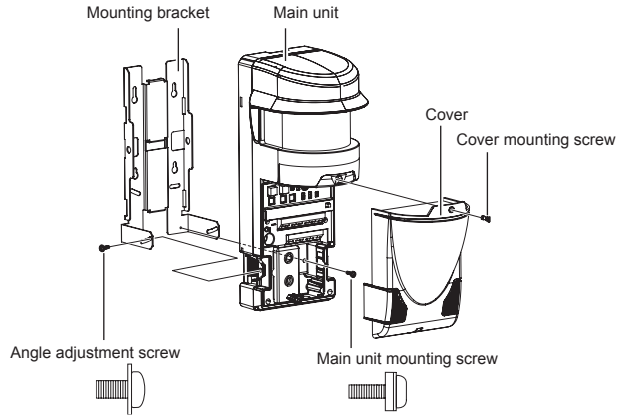
Class 1 laser product

Do not expose your eyes directly to the laser beam.

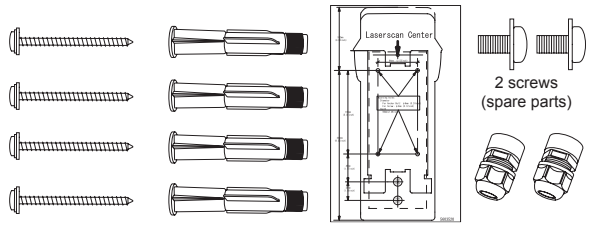
CE Statement

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. (EN55022)

1-3 PARTS IDENTIFICATION

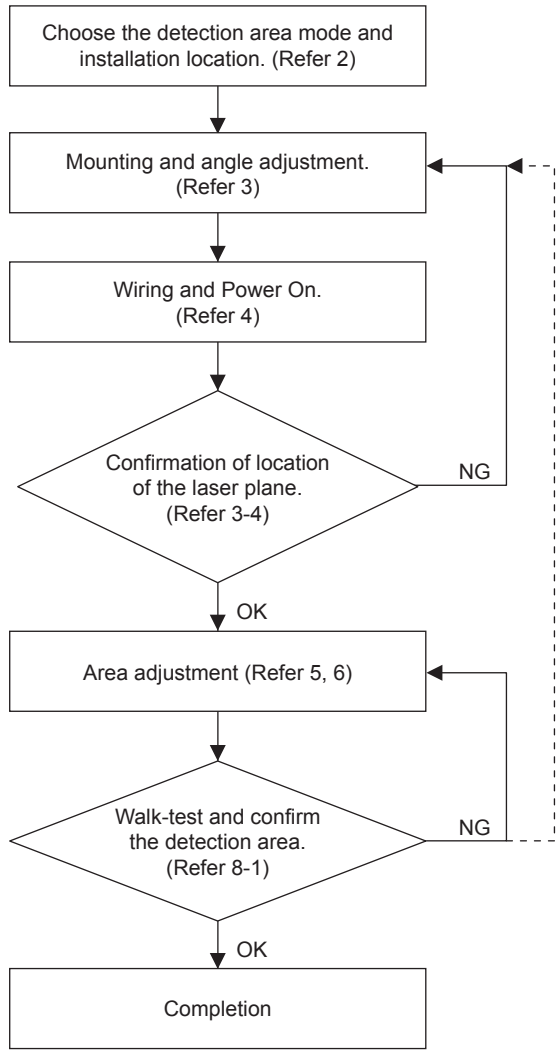


Accessories>>



4 screws (For fixing the mounting bracket)
4 anchors for the wall
1 mounting holes template (printed on inside of the carton box)
2 cable glands

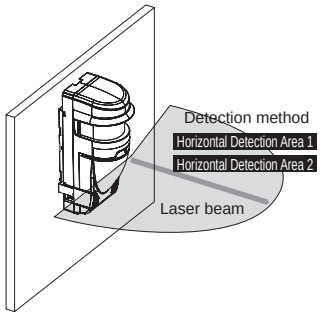
1-4 INSTALLATION WORK FLOWCHART



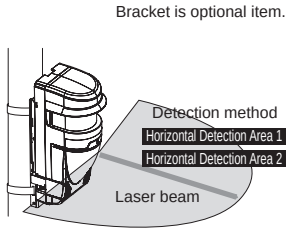
2 TYPES OF INSTALLATION METHOD AND DETECTION AREAS

2-1 TYPES OF INSTALLATION METHOD

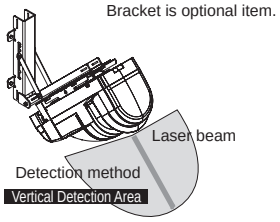
Installing to a wall



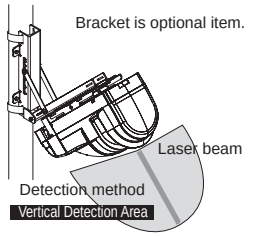
Installing to a pole



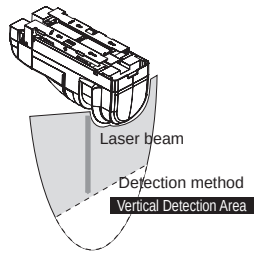
Installing at an angle to a wall



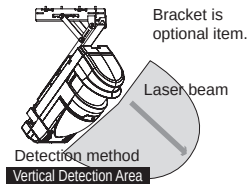
Installing at an angle to a pole



Installing to a ceiling plane



Installing at an angle to a ceiling plane



2-2 TYPES OF DETECTION METHOD

The detection method comprises the three modes of operation, Horizontal Detection Area 1, Horizontal Detection Area 2 and Vertical Detection Area.

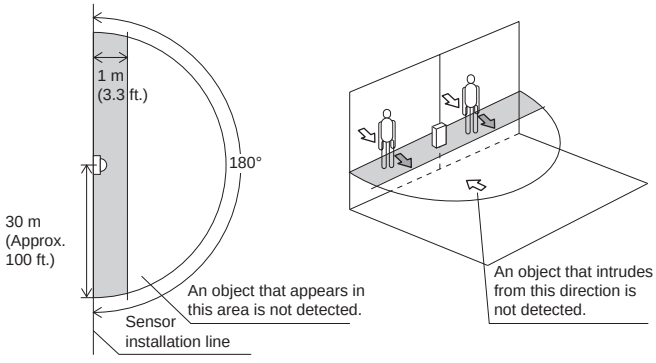
-Horizontal Detection Area 1 **H1** H2 V

This mode allows setting of a fan-like detection area in the horizontal direction with a maximum radius of 30 m (Approx.100 ft.), a spread angle of 180 degrees, and a width of 1 m (3.3 ft.) (*1).
This mode detects intrusion of an object that appears from the rear side of the sensor or in a position within 1 m (3.3 ft.) (*1) from the sensor installation line and that moves toward the front of the sensor.
The Redscan will generate the alarm output 1 minute (*1) after the initial detection, so long as the detected object stays in the detection area.

Cautions>>
This mode does not detect an object that appears in a position more than 1 m (3.3 ft.) (*1) away from the sensor installation line.

*1: The Redscan Manager, optional setup software, can change these values.

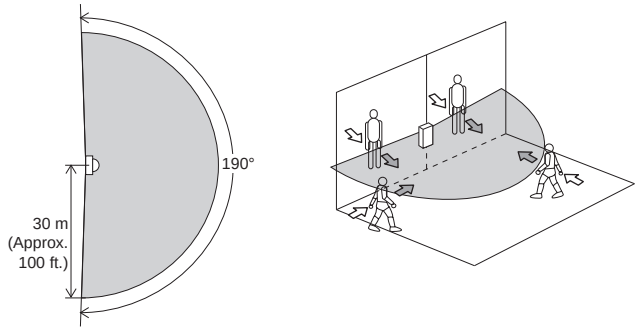
*UL-5: The Horizontal Detection Area H1 is not to be used in the UL Listed application.



-Horizontal Detection Area 2 H1 **H2** V

This mode allows setting of a fan-like detection area in the horizontal direction with a maximum radius of 30 m (Approx. 100 ft.), a spread angle of 190 degrees.
This mode detects intrusion into the detection area from any direction.
The Redscan will generate the alarm output 1 minute (*1) after the initial detection, so long as the detected object stays in the detection area.

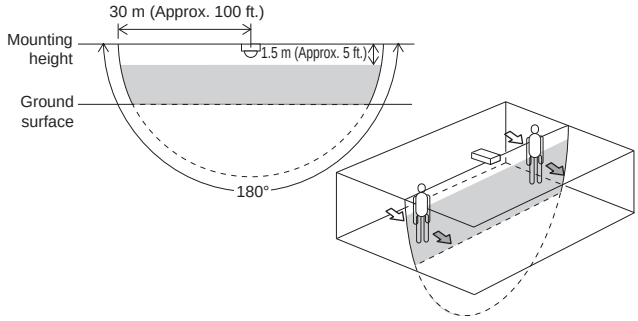
*1: The Redscan Manager, optional setup software, can change this value.



-Vertical Detection Area H1 H2 **V**

This mode allows setting of a fan-like detection area in the vertical direction with a maximum radius of 30 m (Approx. 100 ft.), a spread angle of 180 degrees.
This mode creates a non detection area, 1.5 m (Approx. 5 ft.) (*1) immediately in front of the unit, in order to avoid possible false alarms caused by birds or obstructions close to the unit.
Recommended installation height is from 4 m (Approx. 13 ft.) to 15 m (Approx. 50 ft.).
This mode will detect an object that traverses the detection area.
The width of detection area depends on distance from the unit.
The maximum width of the detection beam is approx. 260mm (0.87ft.) at 30m (100ft.) distance from the unit.

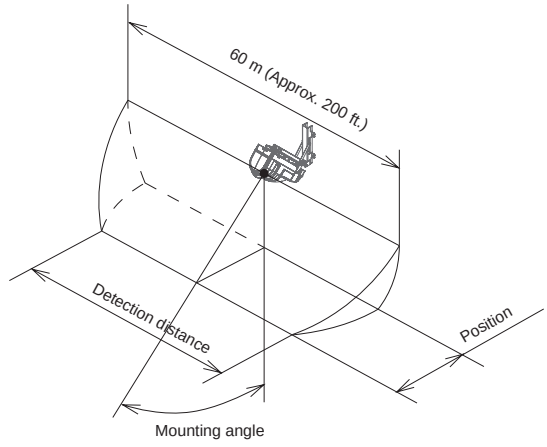
*1 The Redscan Manager software can change this value or cancel the “non detection area” for specific applications



-Vertical Detection Area when the product is installed at an angle

H1 H2 **V**

When you have installed this product at an angle with the optional adjustable angle mounting bracket, the detection area varies as shown below depending on the installation height and angle.



Relationship between "detection distance" and mounting height and mounting angle. See diagram on page 3.

				Mounting angle		
				0°	30°	45°
Installation height	4 m (13 ft.)	Position		0 (0)	2.3 (7.6)	4.0 (13.1)
		Detection Distance	Walking	59 (195)	59 (195)	59 (193)
			Crawling	57 (187)	55 (180)	53 (174)
	8 m (26 ft.)	Position		0 (0)	4.6 (15.2)	8.0 (26.2)
		Detection Distance	Walking	58 (190)	57 (187)	56 (182)
			Crawling	53 (174)	51 (167)	48 (157)
	12m (39 ft.)	Position		0 (0)	6.9 (22.7)	12.0 (39.4)
		Detection Distance	Walking	55 (180)	53 (175)	49 (162)
			Crawling	50 (164)	48 (157)	46 (151)

Unit: m (ft.)

Note >>
A running person may not be detected if the mounting angle is 0 degree.

*UL-6: Detection of a crawling or running person is not a feature of UL Listed applications.

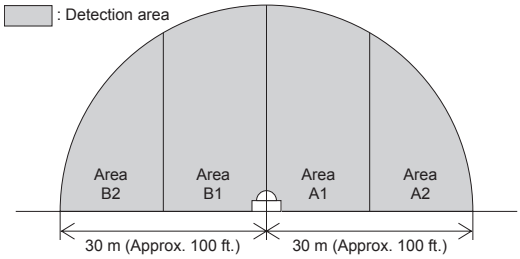
2-3 AREA SETTING PROCEDURE

The Manual and Auto modes are available for setting the area. The Auto setting procedure comprises two options; P1 and P2. The setting procedure in each mode varies depending on which detection method of either H1, H2 or Vertical detection Area is selected.

-Horizontal Detection Area 1/Horizontal Detection Area 2

Manual

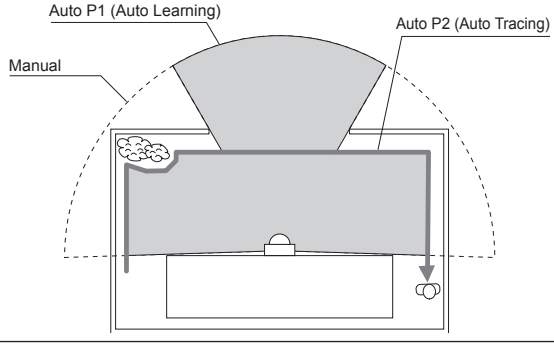
In this mode the fan like detection area is specified by the following rotary switches.
The rough alignment rotary switch can specify the radius in the range of 0 to 30 m in 2 m steps.
Using the fine adjustment potentiometer the area setting can be increased or decreased by up to +/- 1 m.
The detection area is divided into Area A and Area B, allowing you to specify a different radius for each. Each of Areas A and B is halved to A1, A2, B1 and B2 areas.



Auto

P1 Auto Learning
The area automatically learnt by the sensor within the boundary defined by the rough alignment rotary switches and fine adjustment potentiometers.

P2 Auto Tracing
The area automatically learnt by tracing a person walking a boundary within the area set by the rough alignment rotary switches and fine adjustment potentiometers.



-Vertical Detection Area

Manual

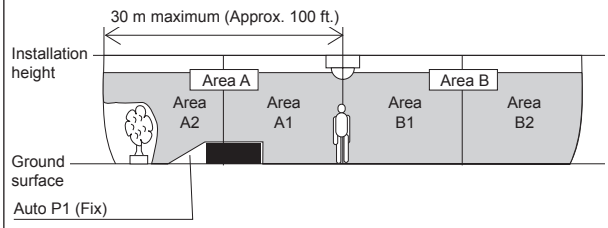
Vertical Detection Area is not available in Manual mode. Turn on the Auto mode to use it.

Auto

P1 Fixed detection area
The detection area is fixed by the "SET" of the area and by the settings of the Size and Offset parameters. The Redscan will ignore "noise" at ground level caused by grass or small changes of the ground shape.

P2 Adaptive detection area
When an object, such as a stack of snow, is in the detection area, the Redscan will recreate the detection area around the object. Similarly, if a hole is created in the snow the Redscan will recreate the detection area to include the hole. This automatic adaptive area has a default value of +/- 1m. (*1)

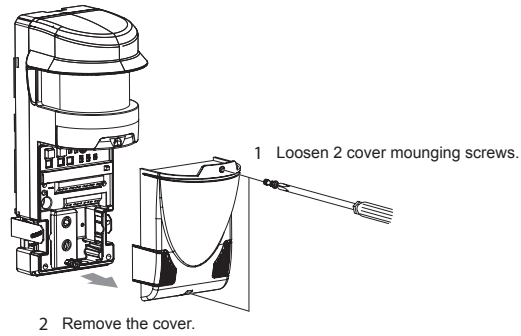
*1: The Redscan Manager, optional setup software, can change this value.



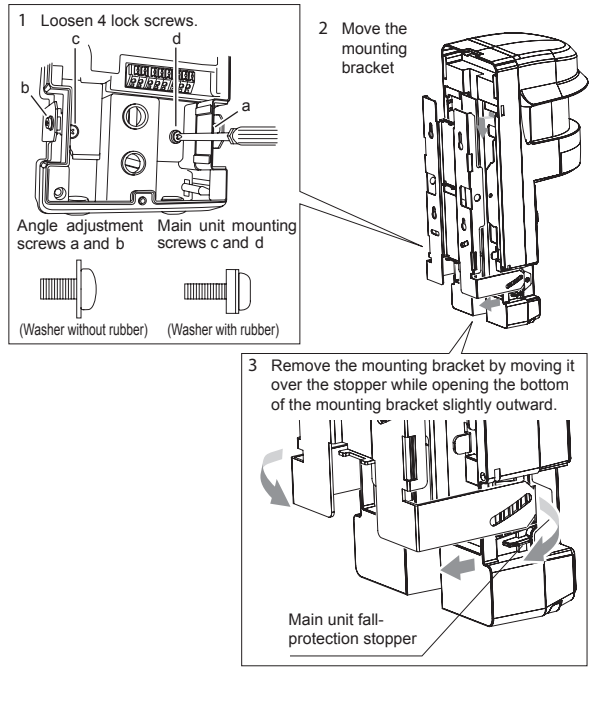
3 INSTALLATION AND ANGLE ADJUSTMENT

3-1 INSTALLING TO WALL OR CEILING PLANE

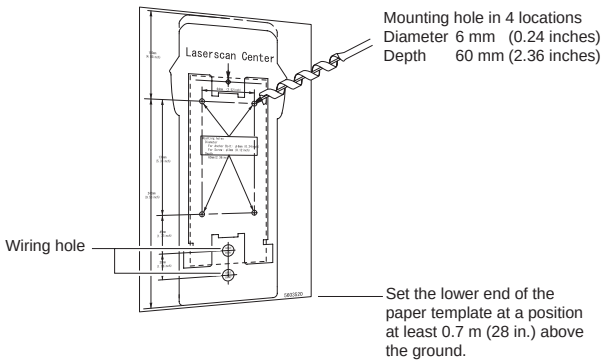
1 Remove the cover from the main unit.



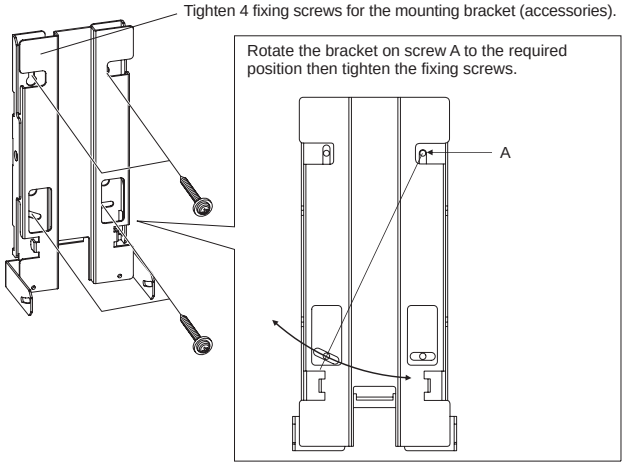
2 Remove the mounting bracket from the main unit.



3 Attach the mounting holes template (an accessory) onto the wall or the ceiling plane, and drill 4 mounting holes in it. Drill 2 wiring holes as required.
Insert the anchor bolt (an accessory) into the mounting holes.

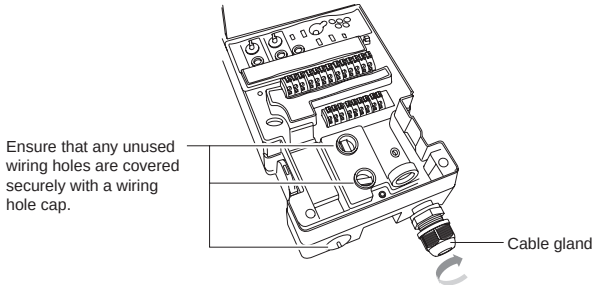


4 Fix the mounting bracket on the wall or the ceiling plane.

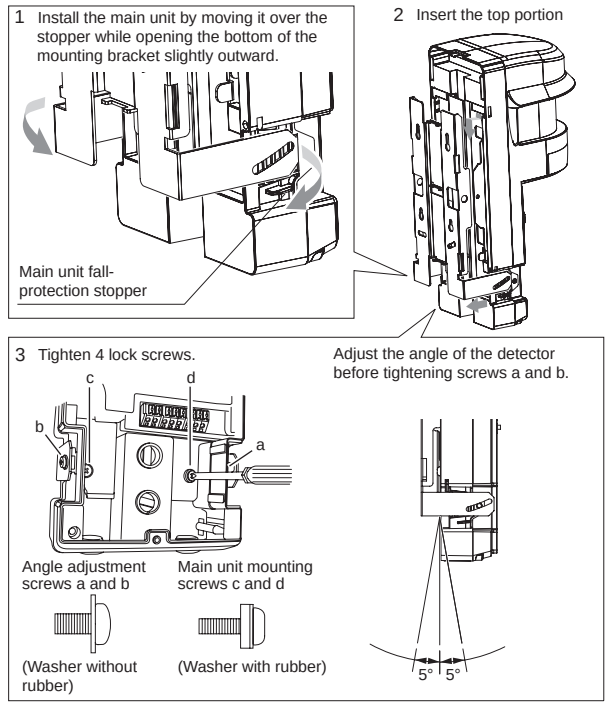


Cautions>>
When installing the product to the wall, fix the mounting bracket parallel to the ground. If the mounting bracket is set at an angle, the laser beam will not be emitted parallel to the ground, which may result in the non-detection of an intruder. An inclination of 1 degree may vary the shape of the detection area of 30 m (Approx. 100 ft.) ahead by approximately 0.5 m (1.6 ft.).

5 Install the cable gland.



6 Install the main unit and fix it to the mounting bracket.

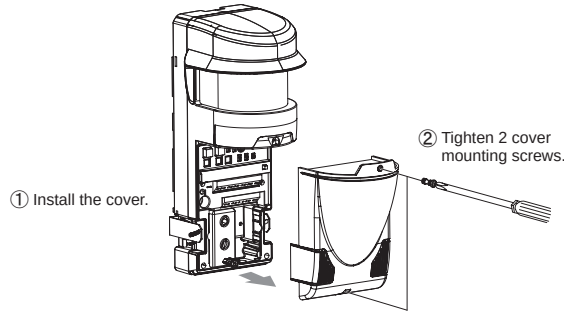


7 See section " 4-1 " and connect the wires to the terminal block.

8 It is recommended that the optional Laser Area Checker (LAC-1) is used to adjust the mounting angle to achieve the required detection area. (Refer 3-4)

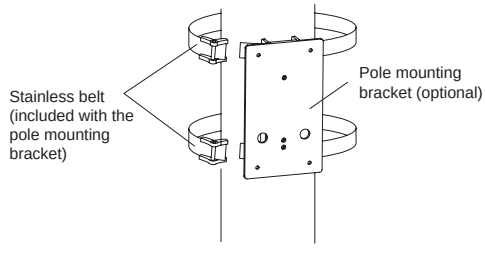
9 See Chapters 5, 6 and 7, make various settings and confirm that the equipment operates correctly.

10 The installation work is complete when the various settings and operational check are finished. Mount the cover.



3-2 INSTALLING TO POLE

When installing the product to a pole, use the optional pole mounting bracket (RLS-PB).



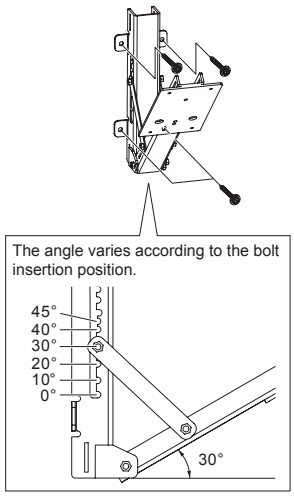
Note >>
For detailed handling procedures, see the manual attached to the pole mounting bracket.

3-3 INSTALLING AT AN ANGLE TO WALL, CEILING PLANE OR POLE

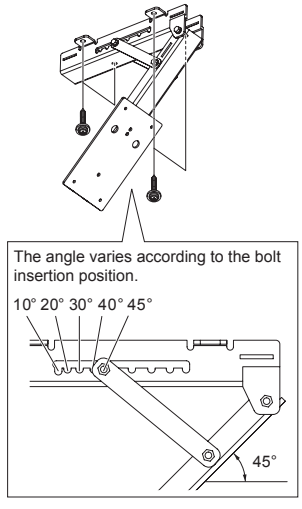
When installing the product at an angle to a wall, ceiling plane or pole, use the optional adjustable angle mounting bracket (RLS-SB).

Points >>
The mounting holes for the adjustable angle mounting bracket align with similar holes in the main unit mounting holes indicated on the mounting holes template.

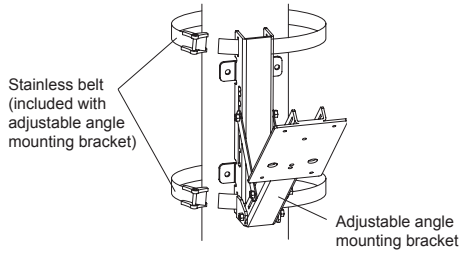
Wall



Ceiling plane



Pole



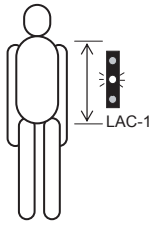
Note >>
For detailed handling procedures, see the manual attached to the adjustable angle mounting bracket.

3-4 CONFIRMATION OF LOCATION OF THE LASER PLANE

It is recommended that the optional Laser Area Checker (LAC-1) is used to confirm the location of the laser plane.

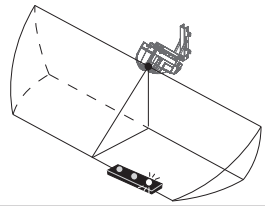
-Horizontal Detection Area

Ensure that the laser beam is hitting the human target between the shoulder and hip line in all of the detection area taking into consideration the possibility that the ground level may not be flat.



-Vertical Detection Area

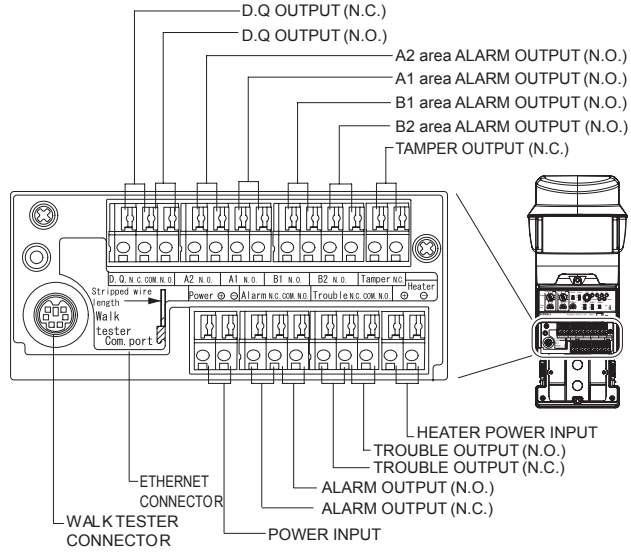
Adjust the mounting angle so that the laser beam is hitting the ground at the required location.



Note >>
For detailed instructions see the LAC-1 Instruction manual

4 PARTS LAYOUT INSIDE THE COVER AND THER FUNCTIONS

4-1 WIRING

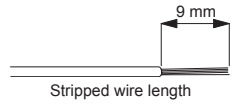


*1: TAMPER terminals to be connected to a 24 hour supervisory loop.

Power wires should not exceed the following lengths.

WIRE SIZE	Sensor		Heater
	24V DC	24V AC	24V AC/DC
AWG20 (0.52 mm²)	120 (394)	60 (197)	80 (262)
AWG18 (0.83 mm²)	200 (656)	100 (328)	130 (427)

m (ft.)



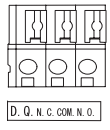
Wires must be stripped back 9 mm.
Use the gauge on the panel for correct measurement.

Cautions >>
Power for the heater is separately from the power to the Redscan.
If the power for the Redscan and the Heater is supplied from the same power supply, ensure that sufficient power is provided for both. See 9-1 specifications for power requirements.

*UL-7: UL required the main unit and heater to be connected to a UL listed power supply Class 2, capable of providing a nominal input of 19.2VDC - 30VDC, 800mA and battery standby time of 4 hours.
The equipment shall be installed in accordance with the National Electrical Code, NFPA 70.

4-2 SIGNAL OUTPUT

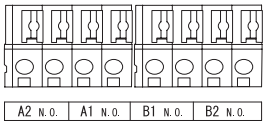
-D.Q. output



The algorithm specific to REDSCAN allows for detection during foggy condisions. However, during severe conditions such as heavy rain, dense fog or snow storms the Environmental DisQualification (EDQ) output is activated.

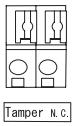
*UL-8: D.Q. output shall be connected to a compatible UL Listed control unit trouble circuit.

-Alarm output



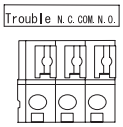
Upon detecting an intruder, this product outputs the alarm specific to the general area (Area A1, Area A2, Area B1 or Area B2) where the intrusion happened.
When combined with a CCTV camera monitoring system employing PTZ, this product works efficiently to provide early detection of intruders.

-Tamper output



This output is enabled when the terminal cover is removed.

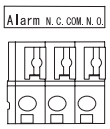
-Trouble output



It is generated when an error has occurred on the sensor.

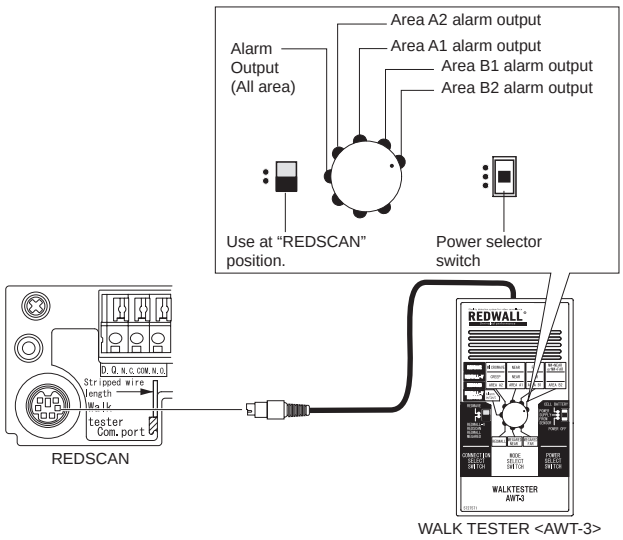
Name	Function
Anti-masking	It is activated when an obstacle has been placed in front of the sensor in order to block the detection area. It is reset after such obstacles are removed.
Anti-rotation	It is activated when the area being scanned changes by a significant amount as a result of the unit being rotated from its original settings. **Not applicable in Manual mode.**
Soiling of the window	It is activated when the front window is heavily soiled which may induce detection errors. Clean the front window using a wet cloth.
Sensor error	It is activated when the sensor has detected an internal self check error.

-Alarm output



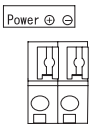
The alarm output is generated if an intruder is detected in one or more of the divided areas (Area A1, Area A2, Area B1 and Area B2).

4-3 CONNECTING WALK TESTER

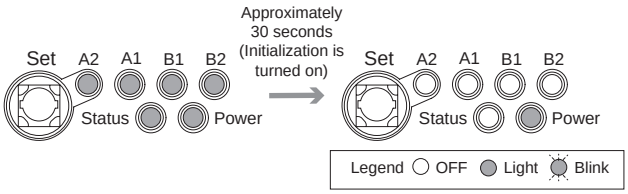


① Turning on the power selector switch after plugging the cable into the Walk Tester Connector generates a continuous beep at a constant sound level.
② The beep sound becomes stronger and continues for a longer period if an object is detected.

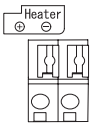
4-4 POWERING ON



Connect 24 VAC/DC to the power input terminal to turn power on.
As power is turned on, the indicators (A1, A2, B1, B2, Status and Power) light for about 30 seconds and then go out.
During this period, REDSCAN initializes itself.
Indicator Power remains lit as long as power is turned on.

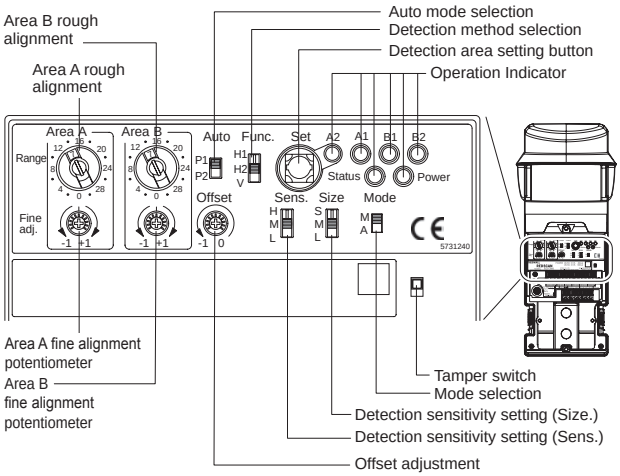


4-5 HEATER POWER INPUT

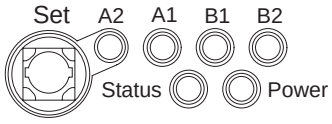


Connect 24 VAC/DC to the heater power input terminals to utilize the heater.
The heater is controlled by a thermostatic switch which turns on when the temperature drops to approx. 5 °C (41 °F), and turns off when the temperature rises to approx. 18 °C (64 °F).

4-6 SWITCH LAYOUT



4-7 LED FUNCTIONS



-In the normal operation

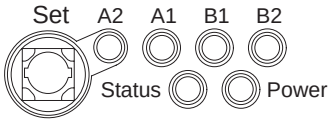
Symbol	Colour	DETECTOR STATUS
A2	Red	Area A2 alarm output
A1	Red	Area A1 alarm output
B1	Red	Area B1 alarm output
B2	Red	Area B2 alarm output
Status	Yellow	Lit during auto setup of the unit. (Turned off during normal operation.)
Power	Green	Lit when power is turned on

-When an abnormality occurs

Status		A2	A1	B1	B2	Status	Power
D.Q.		☼	☼	☼	☼	○	☼
Anti-masking		○	☼	☼	☼	○	●
Anti-rotation		☼	☼	☼	○	○	●
Soiling of the window		☼	☼	○	☼	○	●
Sensor error	Error 1	○	○	☼	☼	○	●
	Error 2	○	☼	○	☼	○	●
	Error 3	☼	○	○	☼	○	●
	Error 4	○	☼	☼	○	○	●
	Error 5	●	●	●	●	○	●

Legend ○ OFF ● Light ☼ Blink

4-8 INITIALIZATION TO FACTORY DEFAULT



You can restore the sensor to the factory default settings (IP ADDR 192.168.0.126) using the following procedure.

- Turn power on, and push and hold down “Set” button within 20 seconds.
- Keep holding the button down until the green power indicator is exinguished.
- Only the “Status” indicator is lit during the initialization.
- When ALL indicators are extinguished, power cycle (off/on) the Redscan.

5 SETTING HORIZONTAL DETECTION AREAS 1 AND 2

5-1 SELECTOR SWITCH OPERATION

-Detection method selection

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Select the desired method using the detection method selector switch.

Func.

H1
H2
V

SELECTOR POSITION	FUNCTION
H1	It selects Horizontal Detection Area 1.
H2	It selects Horizontal Detection Area 2. (Factory default)
V	—

-Selection of the area setting method

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Select the desired method using the mode selector switch.

Mode

M
A

SELECTOR POSITION	FUNCTION
M	Selects the Manual setting.
A	Selects the Auto setting. (Factory default)

-Selecting the Auto mode

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Select it using the Auto mode selector switch.

Auto

P1
P2

SELECTOR POSITION	FUNCTION
P1	Turns on the Auto Learning. (Factory default)
P2	Turns on the Auto Tracing.

-Selecting the detection sensitivity

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Set the detection sensitivity using the SIZE and SENS selector swithes as per the following chart.

Size
S
M
L

Sens.
H
M
L

SELECTOR POSITION	FUNCTION	
S	Approx. 150 mm (0.5 ft.) or above	This switch specifies the width of the target object to be detected.
M	Approx. 300 mm (1 ft.) or above (Factory default)	
L	Approx. 1000 mm (3.3 ft.) or above	
H	Approx. 500 mm (1.6 ft.) or above	This switch specifies the distance that the object has to move before it is considered to be an intruder.
M	Approx. 1000 mm (3.3 ft.) or above (Factory default)	
L	Approx. 2000 mm (6.6 ft.) or above	

5-2 MANUAL SETTING OF HORIZONTAL DETECTION AREA

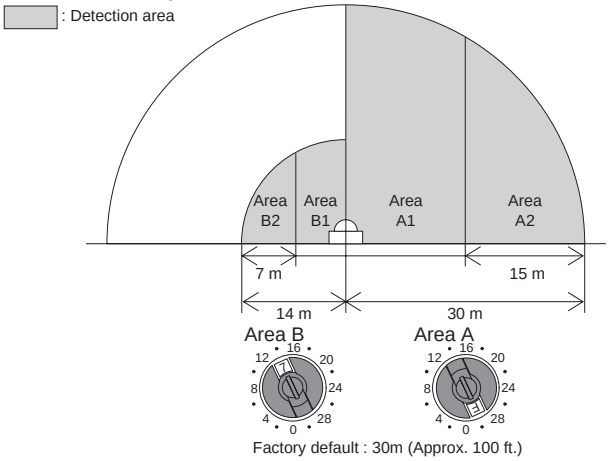
H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Set a fan-like detection area using the rough alignment rotary switch and fine alignment potentiometer.

-Rough alignment rotary switch

You can specify the radius in the range of 0 to 30 m in 2 m steps. Setting the rough alignment rotary switch to 0 m deletes the detection area.

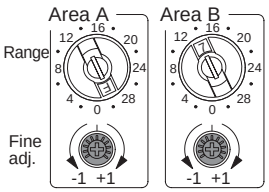
Example: if you specify “Detection distance in Area A: 30 m” and “Detection distance in Area B: 14 m” in a location where the radius is 30 m or more without obstacles within the detection area, the following detection areas will result.



Factory default : 30m (Approx. 100 ft.)

-Fine alignment potentiometer

This potentiometer can fine tune the value set with the rough alignment rotary switch by +/- 1 m. within the range of 0 m minimum and 30 m maximum.



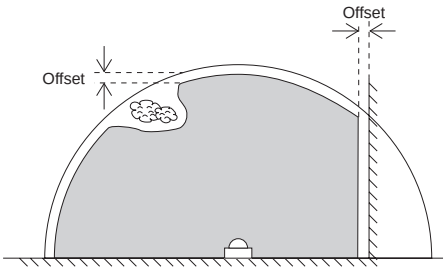
Setting done in rough alignment	Range available for fine alignment
When 0 m is set	0 to +1 m (From -1 to 0 m on the scale is not usable)
When 2 to 28 m is set	±1 m
When 30 m is set	-1 to 0 m (From 0 to +1 m on the scale is not usable)

-Offset adjustment

You can reduce a set detection area using the offset potentiometer. Use this adjusting function when windblown grass or tree branches interfere with the currently set detection area.

You can adjust the boundary of a given detection area inward (toward the sensor) in the range of 0 to -1 m.
Recommended setting is 10cm minimum.

Factory default:
Approx. -0.5 m



5-3 STARTING SECURITY PROTECTION IN MANUAL MODE

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

When “Manual” is chosen from the mode selector switch, turning the power on starts the security protection in manual mode.

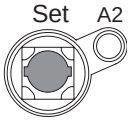
Cautions >>

In “Manual” mode, obstacles in the detection area may cause false alarms.
If there are obstacles in the detection area always use “Auto” mode.

5-4 AUTO SETTING OF HORIZONTAL DETECTION AREA

-Function of the detection area setting button

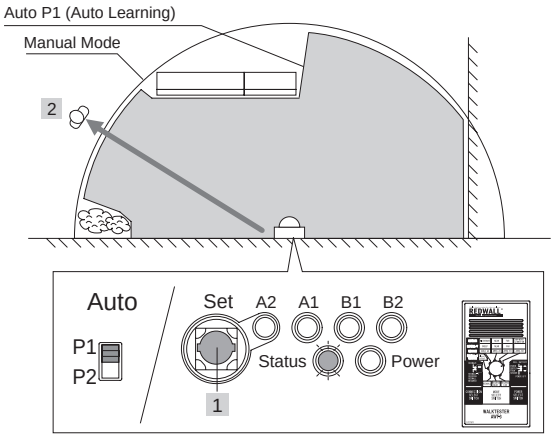
H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto



This button starts the auto function of either P1 or P2 whichever has been selected.

-Setting P1 (Auto Learning)

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto



	Sequence of operation	Status indicator	Time	Action of REDSCAN/ Response of Walk Tester
1	Hold down the detection area setting button for 1 second.	Flashing starts	For 1 second	Pitch of Walk Tester sound changes for 2 seconds
2	Evacuation from the area	Flashing (*1)	For 15 seconds	—
	—	Fast flashing (*2)	For 10 seconds	Scan of the detection area is executed
	—	ON	For 15 seconds	Scan of the detection area is completed and the data are saved
	—	Flashing	For 3 seconds	—
	—	OFF	—	Security protection of the detection area is started

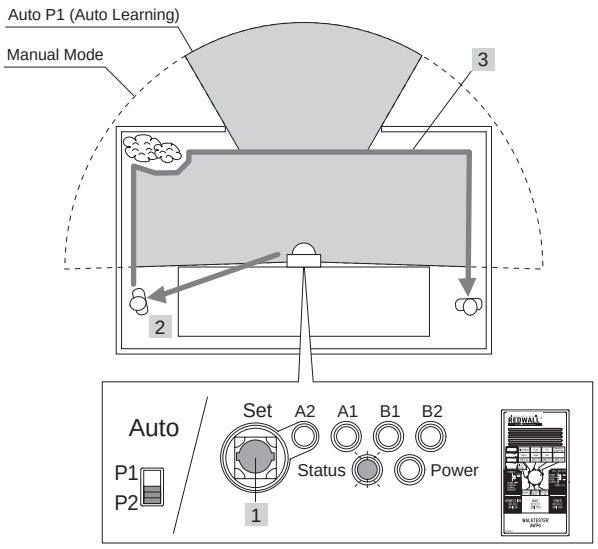
*1: Flashes once a second
*2: Flashes twice a second

Cautions >>

Do not enter the area while the area scan is being carried out. An unwanted object in the area interferes with the correct scanning of the target area.

-Setting P2 (Auto Tracing)

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto



	Sequence of operation	Status indicator	Time	Action of REDSCAN/ Response of Walk Tester
1	Hold down the detection area setting button for 1 second.	Flashing starts	For 1 second	Pitch of Walk Tester sound changes for 2 seconds
2	Evacuation from the area	Flashing (*2)	For 15 seconds	—
	—	Fast flashing (*3)	For 10 seconds	Scan of the detection area is executed
3	Walking along the boundary of the area (*1)	Flash (*4)	For 5 minutes	Tracing started Pitch of the Walk Tester sound changes in 3-second cycles
			(Last 30 seconds)	Pitch of the Walk Tester sound changes in 1-second cycles
	—	ON	For 15 seconds	Tracing is completed and the data are saved
	—	Flashing	For 3 seconds	—
	—	OFF	—	Security protection of the detection area is started

*1: The tracing is automatically ended after 5 minutes. When movement of the target object along the area boundary has finished before this time, you can terminate the tracing without waiting for 5 minutes by holding down the detection area setting button for 3 seconds.
*2: Flashes once a second
*3: Flashes twice a second
*4: A flashing sequence of flashing twice a second and not flashing for a second is repeated

Cautions >>

Do not enter the area while the area scan is being carried out. An unwanted object in the area interferes with the correct scanning of the target area.

Note >>

Any area left untraced will revert to the Auto learning area settings.

6 SETTING VERTICAL DETECTION AREA

6-1 SELECTOR SWITCH OPERATION

-Detection method selection

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Select the desired method using the detection method selector switch.

SELECTOR POSITION	FUNCTION
H1	—
H2	—
V	Selects the vertical detection area.

-Selection of the area setting method

H1 Manual | H1 Auto | H2 Manual | H2 Auto | **V Auto**

Select the desired method using the mode selector switch.

Mode

M
A

SELECTOR POSITION	FUNCTION
M	NOT APPLICABLE
A	Selects the Auto setting. (Factory default)

-Selecting the Auto mode

H1 Manual | H1 Auto | H2 Manual | H2 Auto | **V Auto**

Select it using the Auto mode selector switch.

Auto

P1
P2

SELECTOR POSITION	FUNCTION
P1	Fixed detection area. (Factory default)
P2	Adaptive detection area.

-Setting the detection sensitivity

H1 Manual | H1 Auto | H2 Manual | H2 Auto | **V Auto**

Set the detection sensitivity using the SIZE and SENS selector switches as per the following chart.

	SELECTOR POSITION	FUNCTION	
Size (S M L)	S	Approx. 250 mm (0.8 ft.) or above	This switch specifies the height from offset position of the target object to be detected.
	M	Approx. 350 mm (1.2 ft.) or above (Factory default)	
	L	Approx. 500 mm (1.6 ft.) or above	
Sens. (H M L)	H	100 ms or longer. This setting is recommended when the target object can run through the detection area.	This switch specifies the duration during which the target object stays in the detection area.
	M	150 ms or longer (Factory default)	
	L	200 ms or longer.	

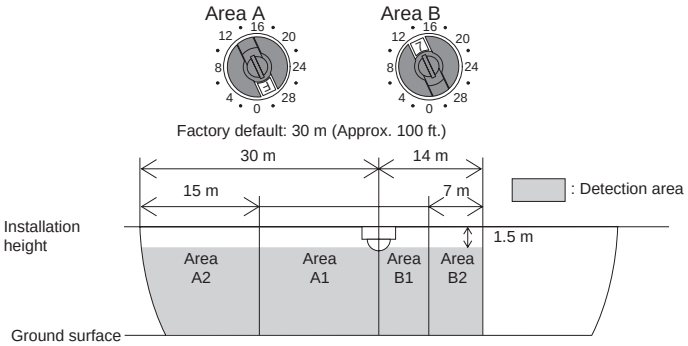
6-2 SETTING DETECTION AREA IN VERTICAL DETECTION AREA

H1 Manual | H1 Auto | H2 Manual | H2 Auto | **V Auto**

Set a fan-like detection area using the rough alignment rotary switch and fine alignment potentiometer.

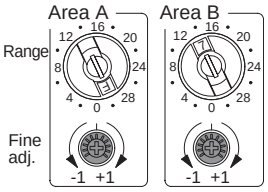
-Rough alignment rotary switch

It can specify the radius in the range of 0 to 30 m in 2 m steps.
Setting the rough alignment rotary switch to 0 m deletes the area.



-Fine alignment potentiometer

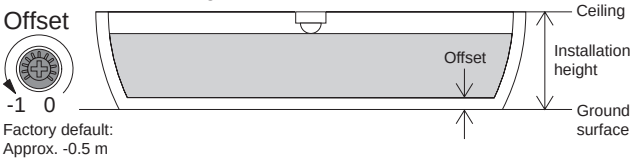
This potentiometer can fine tune the value set with the rough alignment rotary switch by +/- 1 m. within the range of 0 m minimum and 30 m maximum.



Setting carried out in rough alignment	Range available for fine alignment
When 0 m is set	0 to +1 m (From -1 to 0 m on the scale is not usable)
When 2 to 28 m is set	±1 m
When 30 m is set	-1 to 0 m (From 0 to +1 m on the scale is not usable)

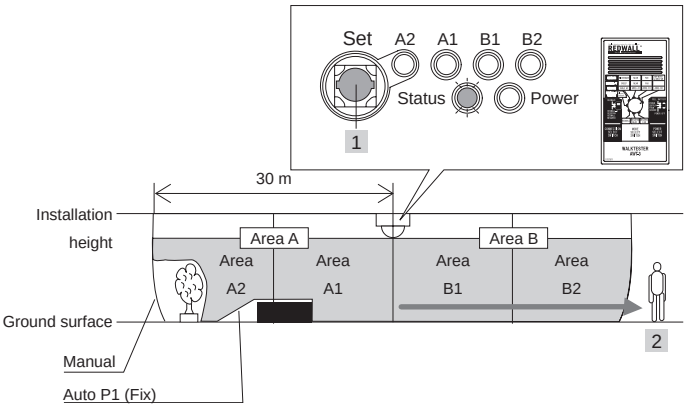
-Offset adjustment

You can reduce a set detection area using the offset potentiometer. Use this adjusting function when windblown grasses or tree branches interfere with the currently set detection area.
You can adjust the dead zone from the ground in the range of 0 to -1 m.
Recommended setting is 10cm minimum.



6-3 AUTO SETTING OF VERTICAL DETECTION AREA

H1 Manual | H1 Auto | H2 Manual | H2 Auto | **V Auto**



	Sequence of operation	Status indicator	Time	Action of REDSCAN/ Response of Walk Tester
1	Hold down the detection area setting button for 1 second.	Flashing starts	For 1 second	Pitch of Walk Tester sound changes for 2 seconds
2	Evacuation from the area	Flashing (*1)	For 15 seconds	—
	—	Fast flashing (*2)	For 10 seconds	Scan of the detection area is executed
	—	ON	For 15 seconds	Scan of the detection area is completed and the data are saved
	—	Flashing	For 3 seconds	—
	—	OFF	—	Security protection of the detection area is started

*1: Flashes once a second
*2: Flashes twice a second

Cautions >>

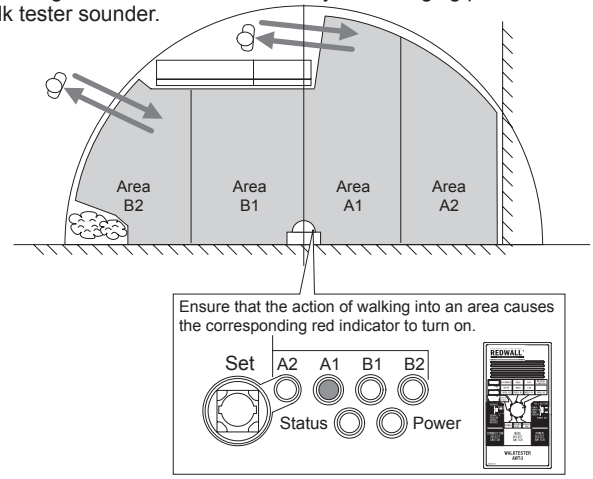
Do not enter the area while the area scan is being carried out. An unwanted object in the area interferes with the correct scanning of the target area.

7 AREA CHECKUPS

7-1 WALK TEST

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

Ensure that the detection area has been correctly set by observing the red LED indicators or by the changing pitch of the walk tester sounder.



-When a detection area has not been correctly set

1 Before pressing the detection area setting button, ensure that the detection method switch and the detection mode switch are set to the correct position, respectively.

2 Set the detection again with reference to " 5-4 " for the horizontal detection area and " 6-3 " for the vertical detection area.

Caution>>
Conduct a walk test at least once a year.

7-2 CHANGING THE SETTINGS DURING SETUP

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

You can change the settings as required during the set up without the need to press the area setting button after each change.

If you shift the mode selector switch from Manual (M) to Auto (A), the area that has been specified previously in Auto (A) is selected as the detection area. When the area is not set in Auto, set it with reference to the procedure described in " 5-4 " or " 6-3 ."

Summary of detection area switch settings

Function	AUTO MODE (Press Detection area setting button to initiate)		MANUAL MODE
	P1	P2	
H1	Automatically learns the detection area within 1 m (*1) x area set by Rough alignment rotary switches and Fine adj. potentiometers	N/A	Detection area is 1 m (*1) x Area set by Rough alignment rotary switches and Fine adj. potentiometers
H2	Automatically learns the detection area within the area set by Rough alignment rotary switches and Fine adj. potentiometers	Automatically learns the detection area by tracing a person walking a boundary within the area set by Rough alignment rotary switches and Fine adj. potentiometers	Detection area is the Area set by Rough alignment rotary switches and Fine adj. potentiometers
V	Automatically learns the detection area within the area set by Rough alignment rotary switches and Fine adj. potentiometers	Automatically adapts to the changing shape of the ground area below the REDSCAN	N/A

*1: The Redscan Manager, optional setup software, can change this value.

7-3 SYSTEM FUNCTION AFTER POWER FAILURE

H1 Manual | H1 Auto | H2 Manual | H2 Auto | V Auto

The REDSCAN setup is not lost after a power interruption.

8 IP CONNECTION WITH REDSCAN

8-1 DEFAULT SETTINGS

- IP address : 192.168.0.126 (Can be changed)
- Subnet mask : 255.255.255.0 (Can be changed)

8-2 REDSCAN MANAGER (Ver.4.0.0.0 or later)

(Optional Setup Software, attached to RLS-AT)

REDSCAN Manager is a software program that allows you to configure various settings easily via a local network when installing the REDSCAN unit or performing maintenance work. REDSCAN Manager can register and manage the REDSCAN unit located within the local network and display the area information and the switch setting information obtained from the REDSCAN unit. Also, it enables you to change the obtained detection area and switch settings and set them back into the REDSCAN unit.

REDSCAN Manager also provides the following useful functions.

Selectable application template
- *Outdoor (Default)
- *Indoor
- *Indoor Ceiling / Wall Protection
- *Vehicle Detection
- *Fence/Wall top Protection
- *Loriteriong Detection

Selectable detection area pattern
- *4 zone / 8 zone
- *Various zone template
- *Advanced area setting (Area masking / Area Allocating)
- *Selectable Detection Areas

Activate / Inactivate functions
- *Environmental resistance function
- *Alarm hold function
- *Anti-masking function
- *Anti-rotating function
- *Soiling of the window function
- *D.Q. function

Customize parameters
- *Detection width adjustment in H1 mode
- *Auto adjustment height in V mode
- *Non detection area adjustment in V mode

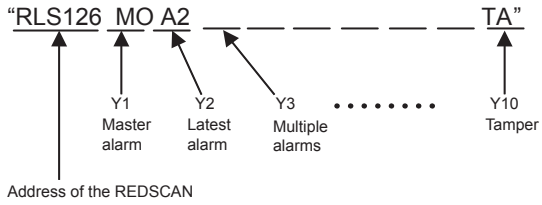
Redwall Event Code setup
- *Protocol
- *Destination IP address

Note >>
For detailed features and operations, see the help attached to the REDSCAN Manager.
These functions are supported by REDSCAN Manager Ver. 4.0.0.0 or later.

8-3 REDWALL EVENT CODE

REDSCAN generates event codes which can be used by a NVR or VMS software to control PTZ cameras and other devices. Redwall event code can be sent to the assigned port using UDP or TCP protocol. The default port number is "1234".

Code format



	Status Code/Clear Code	Status
Y1	MO/CL	Master alarm
Y2	A1-B2 (A11-B22)	Latest alarm
Y3	AA-BB	Multiple alarms
Y4	CC	Multiple alarms
Y5	DQ/dq	Environmental disqualification
Y6	AR/ar	Anti-rotation
Y7	AM/am	Anti-masking
Y8	TR/tr	Trouble
Y9	SO/so	Soiling of the window
Y10	TA/ta	Tamper

9 SPECIFICATIONS

9-1 SPECIFICATIONS OF THE MAIN UNIT

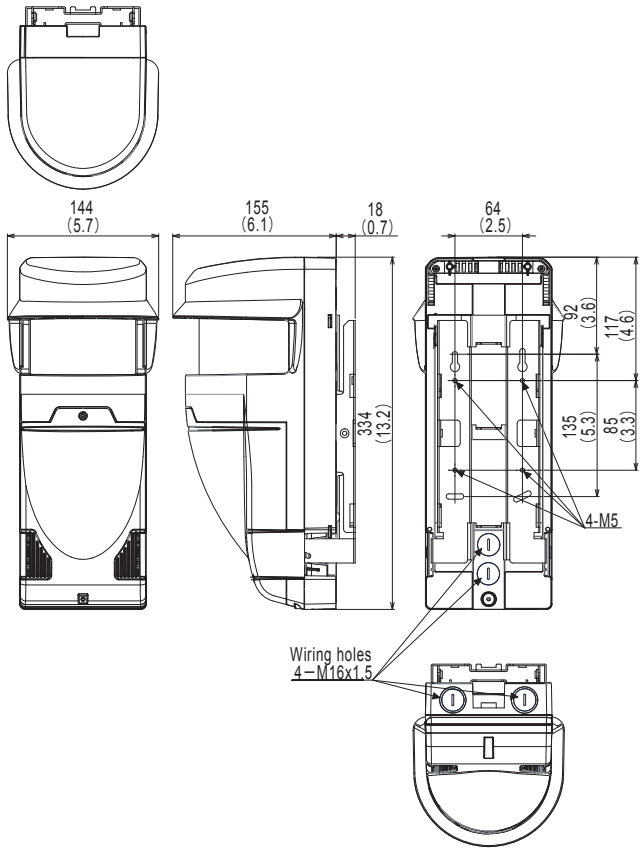
Model	RLS-3060SH
Detection method	Infrared Laser Scan
Laser protection class	Class 1 IEC / EN60825-1 Second edition 2007 Class I FDA 21CFR 1040.10,1040.11 (Laser Notice No.50)
Wavelength of laser emission	905 nm (infrared laser)
Coverage for vertical mounting	Radius: 30 m (Approx. 100 ft.), Arc: 180°
Coverage for horizontal mounting	MAX. 60 m (Approx. 200 ft.)
Detection resolution	0.25°
Power input	19.2-30V DC / 24V AC ± 10% (*UL-9)
Current draw	400 mA(24V DC) 600mA(24VAC) (*UL-9)
Heater power input	19.2-30V DC / 24V AC ± 10% (*UL-9)
Heater current draw	400 mA(24V AC/DC) (*UL-9)
Vertical mounting height	From 4 m (Approx. 13 ft.) to 15 m (Approx. 50 ft.) (recommended)
Horizontal mounting height	0.7 m (28 in.) (recommended)
Communication port	Ethernet, RJ-45, 10BASE-T/100BASE-TX
Protocol	UDP, TCP/IP *Redwall event code
Walk tester com. port	Special terminal for optional walk tester, AWT-3.
Area alarm output	N.O. 28V DC, 0.2A × 4 outputs Resistive load only
Master alarm output	Form C, 28V DC, 0.2A max. Resistive load only
Trouble output	Form C, 28V DC, 0.2A max. Resistive load only
Tamper output	N.C. 28V DC, 0.1A max Resistive load only
Environmental disqualification circuit	Form C, 28V DC, 0.2A max. Resistive load only
Alarm period	Approx. 2 sec. Off delay time r
Warm-up period	Approx. 30 sec.
Operating temperature	-20 – +60 °C (-4 – +140 °F)
Operating temperature with heater	-40 – +60 °C (-40 – +140 °F)
IP rating	IP66 (*UL-10)
Dimensions (H × W × D)	334 × 144 × 155 mm (132 × 5.7 × 6.1 in.)
Weight	2.5 kg (88 oz.)
Accessories	Mounting screw, anchor fixing for wall, mounting holes template, cable gland and Installation Instructions

* Specifications and design are subject to change without prior notice.

*UL-9: AC power input shall not be used for UL Listed application.

*UL-10: IP rating is not a feature of UL Listed application.

9-2 DIMENSIONAL DRAWING



Unit:mm (inch)

9-3 OPTIONS

AWT-3 : Audio Walk Tester
RLS-PB : Pole mount bracket
RLS-SB : Adjustable angle mounting bracket
LAC-1 : Laser area checker
RLS-AT : Redscan Adjusting Tools
(Laser area checker and Redscan Manager software)

Conversion Table (meter to feet)

m	0	1	2	4	6	8	10	12	14
ft.	0.0	3.3	6.6	13.1	19.7	26.2	32.8	39.4	45.9

m	16	18	20	22	24	26	28	30
ft.	52.5	59.1	65.6	72.2	78.7	85.3	91.9	98.4

CE
EMC Directive 2004/108/EC
EN50130-4:1995+A1:1998+A2:2003
EN55022:2006
EN50121-4:2006

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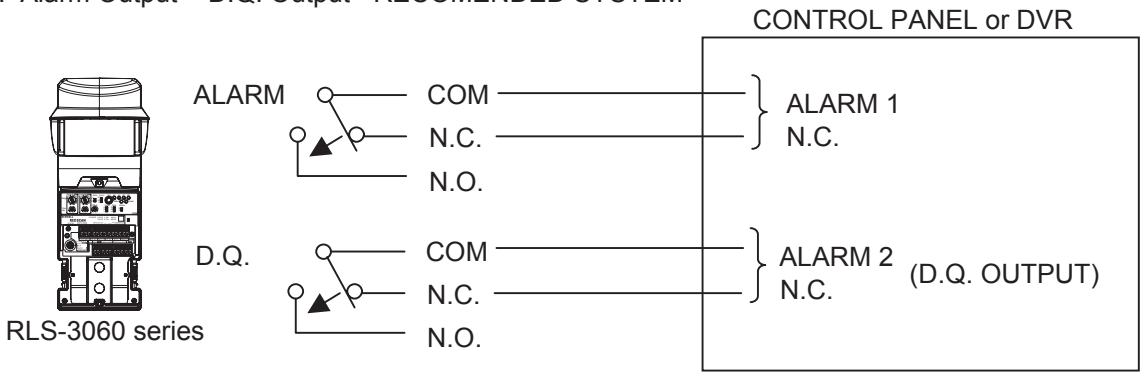
D.Q. OUTPUT (ENVIRONMENTAL DISQUALIFICATION)

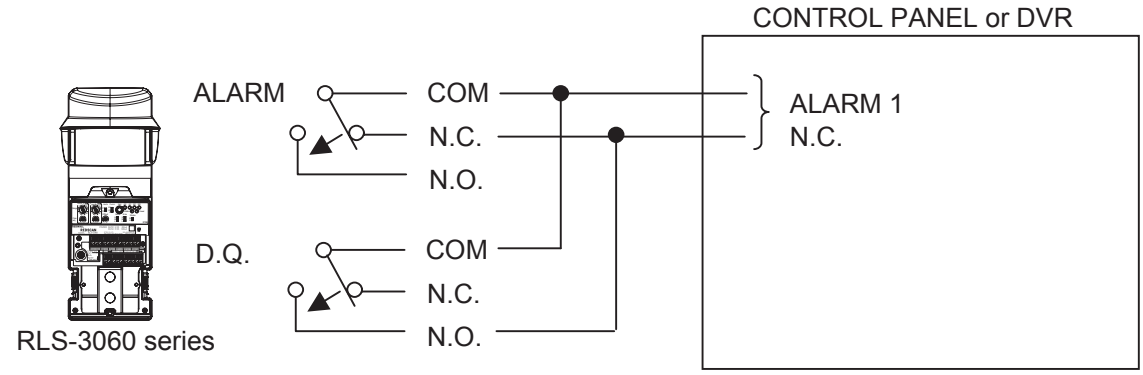
The algorithm specific to REDSCAN allows detection of an intruder during fog. However, during severe conditions such as heavy rain, dense fog or snow storms the Redscan detection capability may be reduced. During such conditions, the Enviromental DisQualification (D.Q.) output will be activated. When this output is activated, other solutions are required to secure the area.

UL-11: D.Q.output shall be connected to a compatible UL Listed control unit trouble circuit.

A. Alarm Output + D.Q. Output <RECOMENDED SYSTEM>



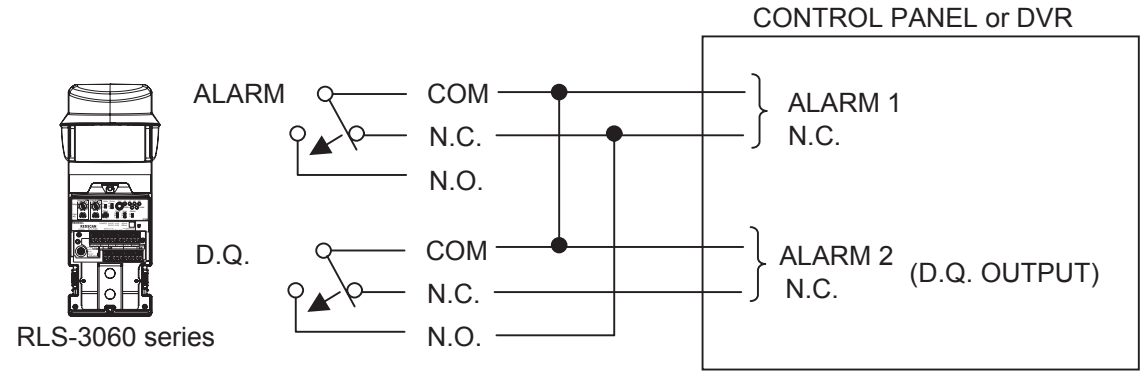
B. Bypass Alarm when DQ is activated



Note: With this connection, when the D.Q. output is activated, the alarm circuit is held closed.

UL-12: This connection shall not be used for UL Listed installation application.

C. Bypass Alarm when DQ is activated + D.Q. Output



Note: With this connection, when the D.Q. output is activated, the alarm circuit is held closed. In case of that the control panel's or Digital Video Recorder's input terminals share the same COM terminal, the alarm output and DQ output can be triggered simultaneously.

NOTES : Options B and C above, should only be used in cases where high numbers of false alarms are being encountered during adverse weather conditions.