



REDWALL®

SUPER REDWALL®

Installation and Set-up Instructions For WF-3020S WF-4010S WF-404S series

DESCRIPTION

Model **WF-3020S** series is designed to detect human movement within a 30° arc at ranges up to 30 metres (90 feet). See Fig. 5.

Model **WF-4010S** series is designed to detect human movement within a 10° arc at ranges up to 40 metres (125 feet). See Fig. 6.

Model **WF-404S** series is designed to detect human movement within a 6° arc at ranges up to 40 metres (125 feet). See Fig. 7.

The rugged cast aluminium housing allows use in heavy industrial environments indoors or out.

The units require a 3 - 9VDC Alkaline or Lithium Battery. The current draw is about 20µA at 3VDC. Alarm Output is by electrically isolated form C Solid State Switch having a 10VDC 0.01A maximum rating at 10VDC.

The mounting base contains all of the connection terminals, event indicators, logic selector switch, pulse count selector switch, battery saving timer selector switch, walk test mode switch and jack socket for the audio Walk-Tester **OPM-WT**. The removable cover is tamper protected by a normally closed microswitch.

The detector head is factory sealed and has NO user controls or access. The swivel bracket allows 180° panning and is locked into position by 3 allen head screws. Fig. 8. **A matching allen key is supplied with every unit and should be retained for future use.**

Double conductive shielding provides higher stability of the detector against white light disturbances and RFI. A pulse count selector switch has been included to give users the ability to keep the detector stable. This feature is particularly useful to further increase stability in a hostile environment.

QUAD AND DUAL Bi-CHANNEL SYSTEM

The **WF-404S** uses an interleaved 4 element (QUAD) sensor. These, when combined with the optical system, produce two independent sets of zones "A" and "B" accurately interleaved so that when an intruder crosses the detection area, sequential "A" "B" "A" "B" signals will be produced. Each pair of elements feeds a separate processing channel.

The **WF-3020S** and **WF-4010S** models use two independent dual-element sensors which produce two independent sets of zones "A" and "B" accurately interleaved so that an intruder crossing the zones will produce sequential "A" "B" "A" "B" signals. Each dual element sensor feeds a separate processing channel.

These two channels can be set to either "AND" mode or "OR" mode. The "AND" mode works to reduce false alarms, since the alarm is generated only when both "A" and "B" zones are triggered within the present time (10 seconds). When "OR" mode is selected, the unit generates the alarm signal, when either "A" or "B" zones are triggered. Each channel has an LED "Event" indicator. The LEDs indicate the status of each channel independently, regardless of the detection logic selector switch being set to "AND" or "OR".

INSTALLATION

NOTES:

When mounted at the recommended height of 2.3m (7'6) there will be an area directly below the unit extending to 4m (12 feet) where an intruder may not be detected.

When planning the location, remember that **All** P.I.R detectors respond best when the intruder crosses zones.

Fix to a firm rigid surface such as brick or concrete using all four fixing holes.

To gain water tight sealing please use the top hat washers provided for the internal screws to prevent water entering the internal compartment when the unit is mounted. (See figure 1 below)

Do not use silicone sealant to seal the connection enclosure as it will corrode the P.C.B. Failure to do so may invalidate your warranty.

For outdoor installation, steel conduit or armoured cable is recommended.

ELECTRICAL CONNECTIONS

All Electrical connection are stated on the terminal PCB (See Fig. 2), Refer to the specifications at the end of this document for the input voltage requirements.

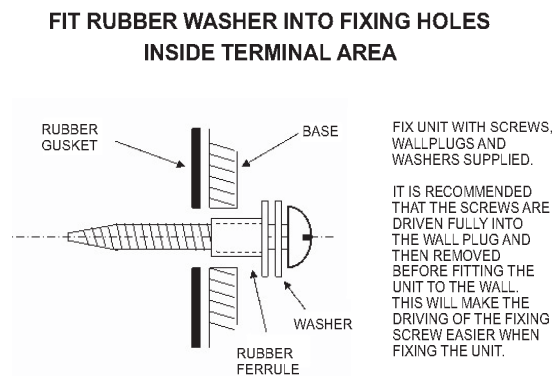


Fig. 1

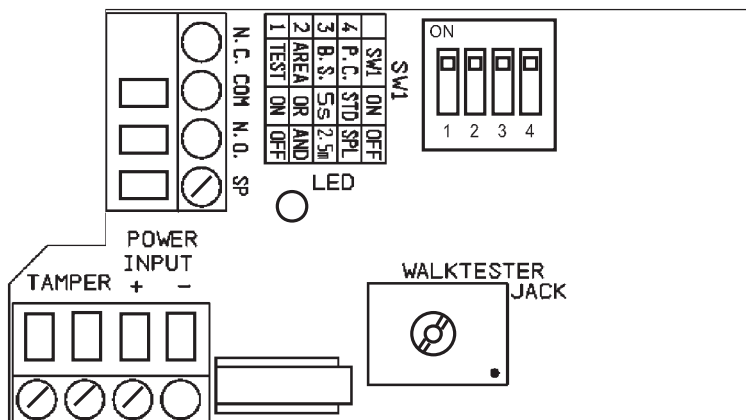


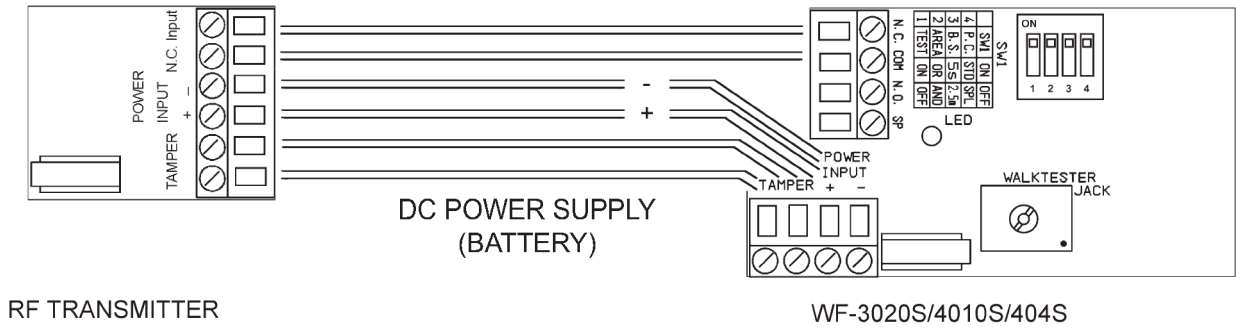
Fig. 2

NOTE:

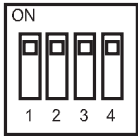
The metal housing and bracket of the detector is connected to negative supply terminal. This means that the power supply negative will be grounded at the detector. In some long distance or metal mounted installations, ground-loop currents may flow if the power supply is also grounded locally.

When mounting on metal poles or metal fixtures, ensure the unit is insulated for its mounting.

ELECTRICAL CONNECTIONS TO TRANSMITTER



DIP SWITCH SETTING



1. Walk Test Mode Selector

ON: LED will light when detector is tripped. Alarm output operates as LED operates.
 OFF: LED is off.

2. Logic Selector

ON: OR
 OFF: AND

It is recommended "AND" setting for the ordinal environment.

3. Battery Saving Timer Selector

ON: 5 sec
 OFF: 2.5 min

The longer battery saving timer helps battery life longer.

4. Pulse Count Selector

ON: Standard
 OFF: Special

It is recommended "Standard" setting for a ordinal environment. It can be selected to "Special" setting for a harsh environment to reduce the false alarms.

INITIAL TESTING

During “Warm-up” the event LEDs are flashing for your reference. Please wait until they stop flashing. Alarm relays will not activate during “Warm up”.

Allow at least 90 seconds before testing.

With NO movement in the area, the event LEDs should be out and the alarm relay energised.

Movement in front of the unit should cause the LEDs to light and the relay to de-energise.

NOTE: Re-set time is approximately 2 seconds.

ALIGNMENT

The top surface of the detector head should be used as an initial guide to alignment. The tops of the main upper zones are parallel with the top surface.

Accurate alignment is essential. Moving the head only one degree will move the end of the detection zones almost one metre. IF THE UNIT DOES NOT RESPOND TO MOVEMENT AT FULL RANGE, IT IS ALMOST ALWAYS BECAUSE THE ZONES ARE EITHER AIMING ABOVE THE TARGET OR HITTING THE GROUND TOO SOON.

USING THE AUDIO WALK TESTER OPM-WT

The **OPM-WT** converts the voltage fluctuations at the detector into a changing audio tone. The tone pitch rises and falls as a zone is crossed. When the unit trips into alarm, the tone pitch suddenly rises in frequency and continues to fluctuate as the zones are crossed. With a little practice, it soon becomes clear where the zone boundaries and alarm points are.

The **WF-3020S**, **WF-4010S** and **WF-404S** are effectively two detectors in one housing, Alignment and Walk-testing are best carried out with one person walking across the zones whilst another observes the detection LEDs and listens to the OPM-WT audio Walk-tester.

With a two channel system, it is not practical to feed both movement signals to the audio Walk-tester therefore the Walk-test jack socket is connected to only one channel. As a result the audio fluctuations and alarm trip points may appear to be off-set from the centre line (depending on direction of walk).

When Walk-testing is completed, double check the tightness of the terminals and head clamping screws. Check the tightness of the main fixing screws. (it is essential that the unit is firmly mounted and unlikely to move or vibrate in windy conditions). Check cable gland is tightly fitted.

Remember, both channels must be activated **within a ten second period to produce** an alarm condition when the switch is in the “**AND**” position.

In some countries, where excessive climatic variations are expected, installers should use the Sun/Snow shield LRP Mini Hood. This will further protect detector from sunlight and snow, etc.

PERFORMANCE CONSIDERATIONS

All P.I.R. detectors will exhibit changes in ultimate detection range. When an intruder moves across a zone he causes a change in the received infrared heat energy. If the temperature difference is large i.e. cold background - warm intruder, the change of energy and therefore alarm signal, is large. Conversely, a well covered intruder against a hot background will produce a small signal. The effect is that the actual final detection point will vary due to variations in background temperature, intruder size, and clothing and speed and direction of motion. The WF-3020S is tested to 30 metres nominal. The WF- 4010S / WF-404S are tested to 40 metres nominal. In some conditions the range may exceed these distances; in other conditions (typically very hot) the ultimate range may be reduced.

UNWANTED ALARMS

The sensors are designed to ignore a wide range of hazards which affect P.I.R. detectors when located outdoors. The heavy metal casing resists sudden temperature changes. The light paint colour keeps internal temperatures low and the comprehensive sealing ensures a draught-free environment for the precision temperature sensors. The most likely cause of unwanted alarms will usually be animals. Over ranging (detection's beyond area to be protected), movement of foliage within the zones and unstable mounting surfaces.

Enclosed is a blanking label which may assist in reducing unwanted alarms.

WF-3020S, WF-4010S blanking label

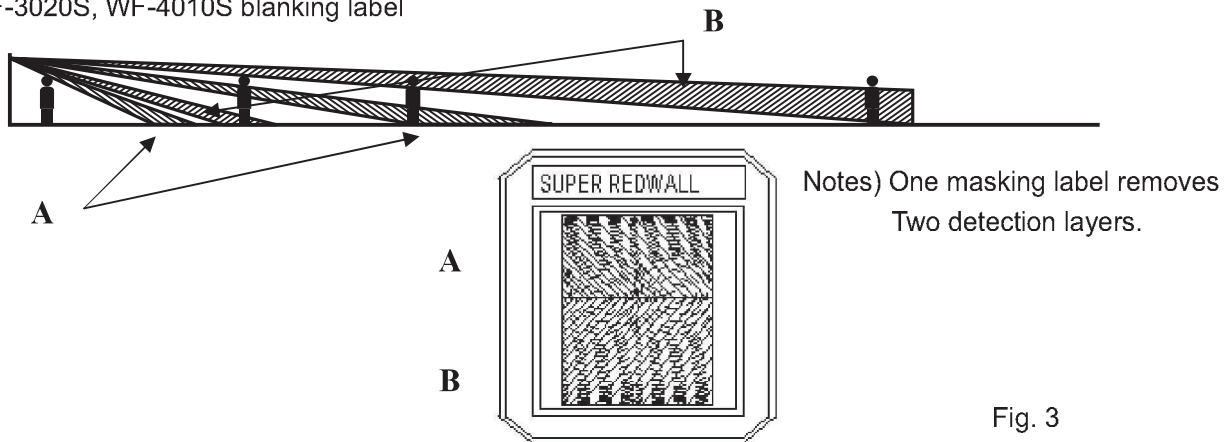


Fig. 3

WF-404S blanking label

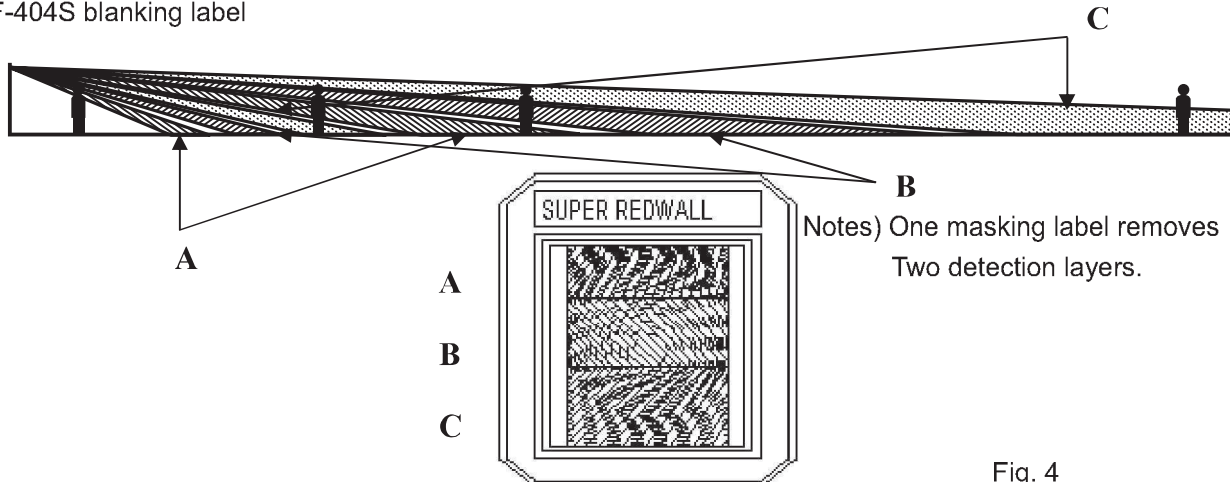


Fig. 4

SPECIFICATIONS			
Model	WF-3020S	WF-4010S	WF-404S
Power Input	3 - 9VDC Alkaline or Lithium Battery		
Operating Voltage	2.5 - 10VDC		
Current Draw	3mA (max) (Walktest, LED on) 20µA (max) (Stand by) at 3VDC		
Detection Method	Passive Infrared		
Range	30 x 20m (90'x 60')	40 x 10m (125'x 30')	40 x 4m (125'x 12')
Detection zones	96 zones (48pairs)	32 zones (16pairs)	24 zones (6 Quad Layers)
Mounting Height	2.3 m (7'6)		
Logic Selection	AND / OR		
Pulse Count	STD (standard) / SPL (special)		
Battery Saving Timer	Approx. 5 sec / 2.5 min		
Alarm Period	Approx. 2.5 sec		
Alarm Output	Form C Solid State Switch : 10VDC, 0.01A		
Tamper Output	N.C opens when cover, head removed 28VDC 0.1A		
Warm-up Period	Approx. 90 sec		
Walktest Indication	Visual : LED Audio : Sounder Available (OPM-WT) Optional		
Operating Temperature	-25 to +60°C		
Weight	850g		
IP Rating	IP 65 (Wiring hole to be sealed)		
Finish	White Powder Coat		

Coverage Pattern WF-3020S

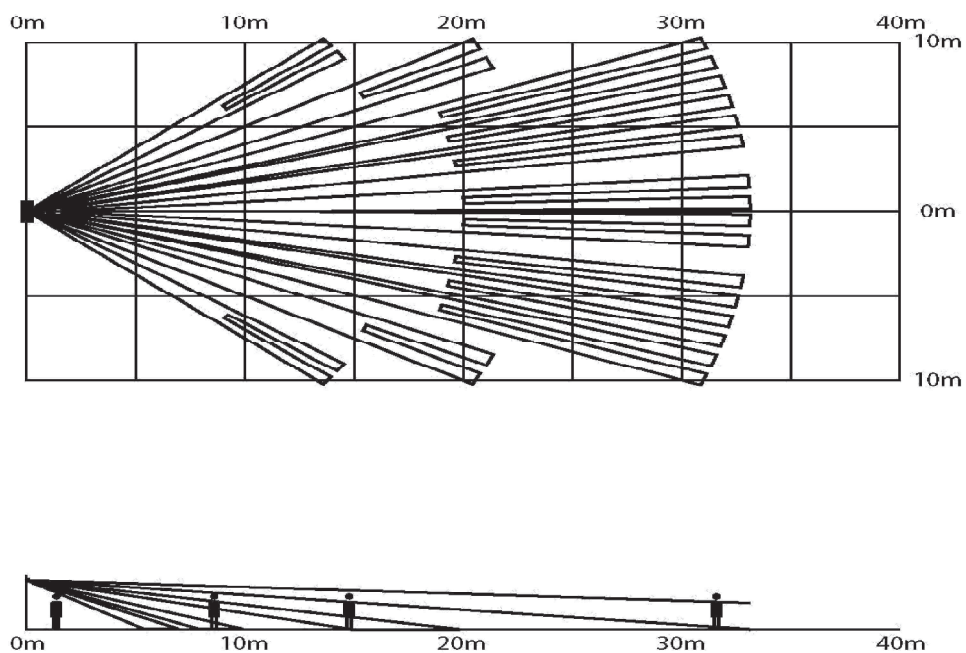


Fig. 5

Coverage Pattern WF-4010S

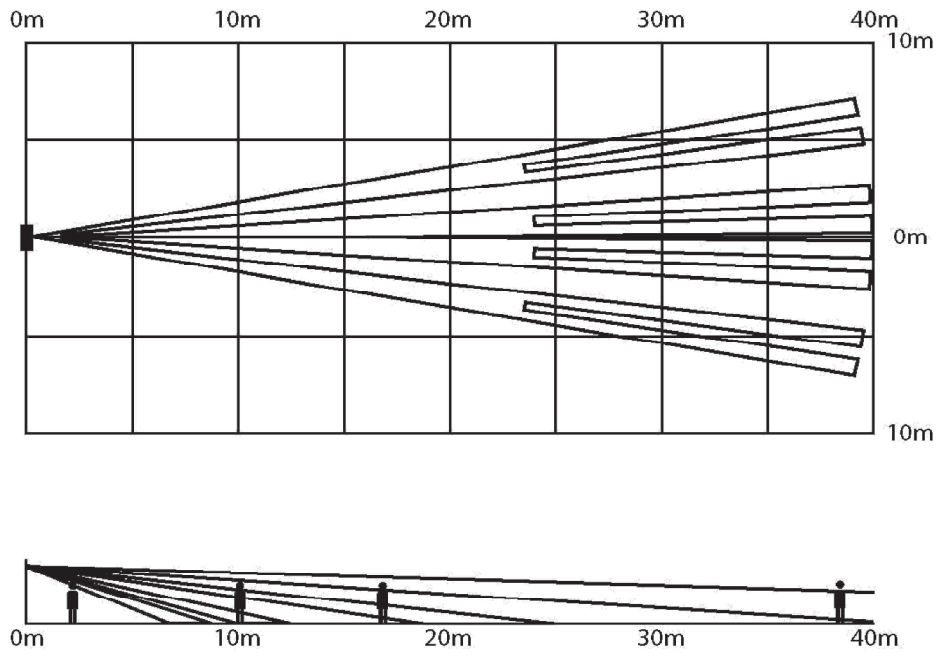


Fig. 6

Coverage Pattern WF-404S

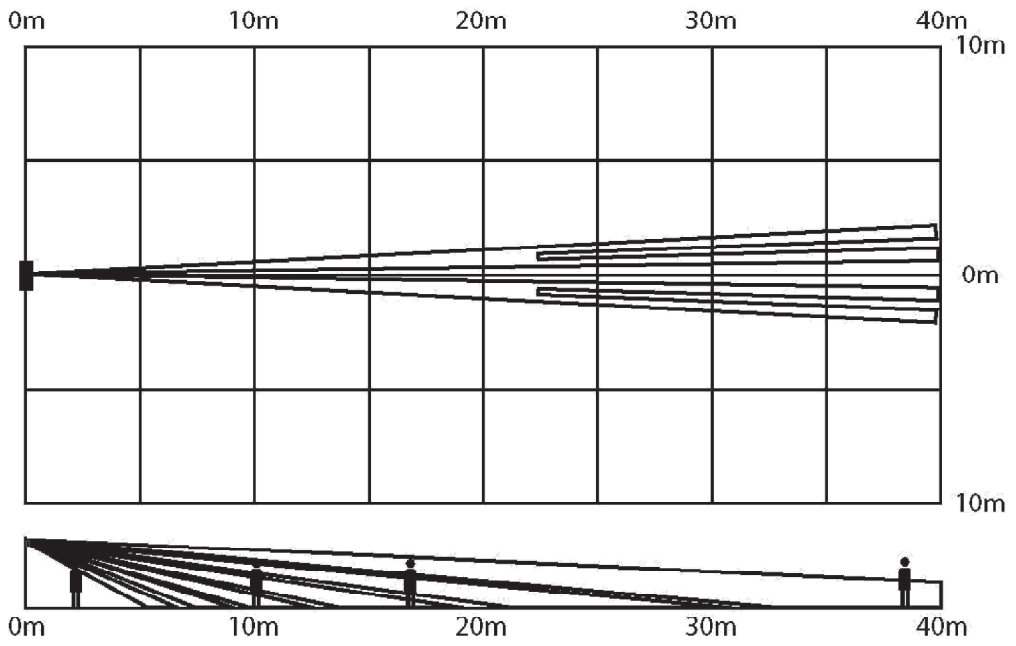


Fig. 7

DIMENSIONS

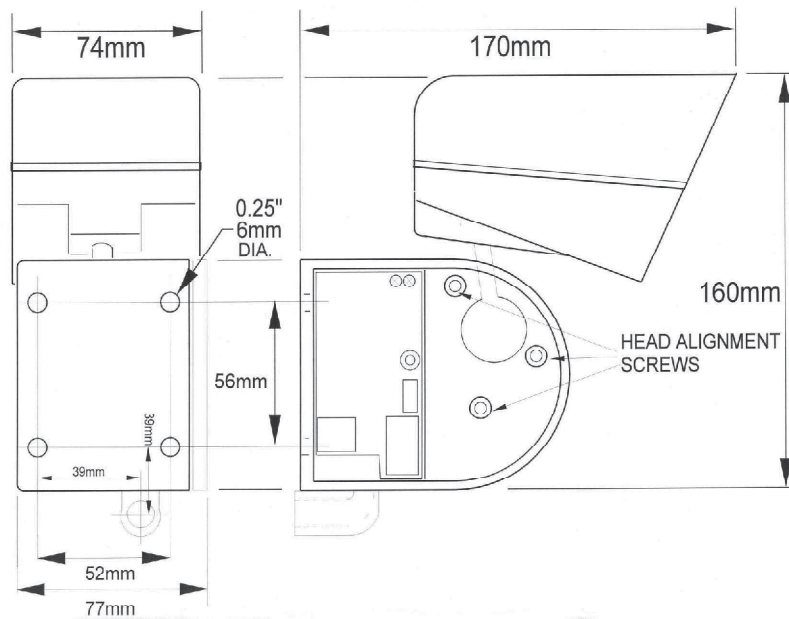


Fig. 8

ACCESSORIES

- Mini RED hood – Hood for MINIRED to protect against sunlight and snow
- LRPSCA – For a pole mount
- OPM-WT – Audio Walk Tester for REDWALL and REDWAVE

Due to constant improvement, specifications are liable to change without notice.

NOTE

These units are designed to detect movement of an intruder and activate an alarm control panel. Being only part of a complete alarm system, we cannot accept responsibility for any damages or other effects resulting from an intrusion. These products conform to the EMC Directive 89/336 EEC.



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