



redweb
sentry500

Forensic Alarm System
**Engineer
Installation
Manual**



Each Sentry 500 Pack Contains:

Quantity	Part
1	Sentry 500 unit
1	Water Test Canister
1	Nozzle pack
1	Engineer Installation Manual
1	POS Pack

detect • deter • defend



Contents

Introduction	3
Section 1 – Parts and Layout	3
Section 2 – Installation	4
Section 3 – Configuring and Testing	6
Section 4 – Commissioning	8
Section 5 - If the Sentry 500 has been Activated	9
Section 6 - Fault Finding Guide	10
Section 7 – Technical Specification	11
Section 8 – Engineer’s Notes	12

Important note:

Correct fitting of RedWeb Sentry 500 is critical. If you want to avoid being unintentionally covered in a bright red indelible dye, please ensure that you read these instructions carefully.

With each Sentry 500 Installation you should have a Sentry 500 RedDNA™ canister pack complete with the following:

- 1. Sentry RedDNA™ Canister**
- 2. End User Guide**
- 3. Responsibility Code (Triplicate – copy to: Customer/RedWeb Security/Installer)**

You should also have available a stock of Evidence Bags for the retrieval of RedDNA™ canisters following activation.

Please notify your Administration Manager if you do not have sufficient supply of RedDNA™ canisters and Evidence Bags.

Introduction

The Sentry 500 unit is intended to be used as either an addition to a standard intruder alarm system (integrated unit) or as a stand alone device (standalone unit). The Sentry 500 is a Police approved security system, designed for the marking and identification of intruders. The unit is armed by an external input, and triggered by the onboard microwave sensor. This discharges the entire canister of **RedDNA™**. It must then be refilled by a service engineer. The Sentry 500 has two main types of installation. These are overt – when the unit is fixed overtly to a wall and an overt nozzle is used, or covertly when the unit is located above a false ceiling and uses a ceiling mount bracket, (this is an additional order item) and the tube ceiling nozzle kit. The unit is powered by a 12 volt DC supply and contains a battery backup which will power the unit for a minimum of 24 hours in the event of power loss.

Section I – Parts and Layout

The Sentry 500 is supplied with a pack of nozzles and fixings (fig 1.1). This contains screws and plugs for fitting the unit to a solid wall, an overt nozzle (fig 1.2), a tube coupler (fig 1.3), a canister connector (to be assembled with either of the previous two parts depending on deployment method) (fig 1.4), a length of tube and a nut and washer for use with a ceiling nozzle, a narrow angle ceiling nozzle (for general use at standard ceiling heights) (fig 1.5) and a wide angle ceiling nozzle (denoted by a black mark near the thread) (fig 1.6). Please note that the wide angle ceiling nozzle has been specifically designed for use with high pressure canisters only!

See also the Sentry PCB layout below for the location of various connections and adjustments (fig 1.7).



Fig 1.1



Fig 1.2



Fig 1.3



Fig 1.4



Fig 1.5



Fig 1.6

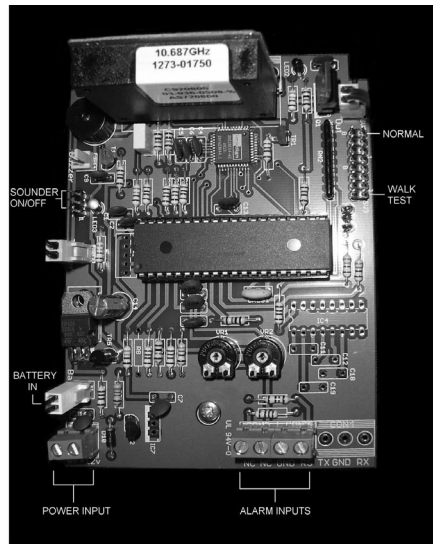


Fig 1.7

Section 2 – Installation

When choosing a location to install the Sentry 500 device, please take the following into consideration:

- The Sentry 500 needs to be mounted ABOVE a target or an entry/exit point
- The Sentry 500 must be mounted vertically and upright
- The Sentry 500 spray must be directed towards the floor
- If you are using the overt **RedDNA™** ensure that the spray will not target items of high value, as the dye is permanent
- Ensure that you have fitted the correct nozzle for the installation (e.g. standard or wide angle spray patterns)

Fitting Sentry 500 Isolation Switch

The purpose of fitting the Sentry 500 Isolation Switch is so that an Intruder Alarm Engineer can isolate the Sentry 500 so as to prevent accidental deployment of the Forensic DNA Product.

Please note that during the isolation period a continuous sounder will be heard.

It is recommended that the keyswitch be fitted inside the control panel, along with the keys. Sentry 500 isolation switch does not come supplied with the standard sentry kit. This can be purchased separately, and full wiring instructions are included in this additional kit.

Fitting Hardware - Overt

- Once a suitable position for the location of Sentry 500 has been agreed, remove the two screws securing the sentry lid, open it, and locate the 4 mounting holes in the rear of the case.
- Fix the Sentry 500 to the wall using suitable fixing hardware (screws and wall plugs are provided for use with solid walls).
- Assemble the overt nozzle and fit to Sentry 500 (fig 2.1, 2.2). Tighten if necessary to ensure a snug fit.
- Angle the nozzle as required by rotating nozzle and adjusting screw in side of nozzle.

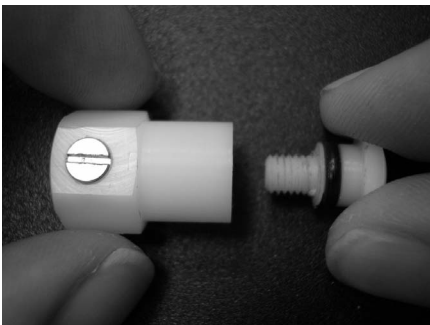


Fig 2.1

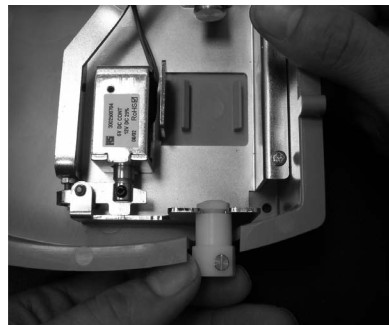


Fig 2.2

Fitting Hardware – Covert

- Decide on exact location for installation.
- Remove adjacent ceiling tile, where available, to enable access into ceiling space to assess desired location of Sentry 500. **As the Sentry 500 uses microwave technology to sense movement, avoid fitting directly above any metal structures, foil coatings or other dense objects such as large wooden joists.**
- Secure the Sentry 500 to the ceiling bracket (sold separately) using the appropriate holes and fix bracket to ceiling structure (fig 2.3).
- Mark the position on the ceiling tile directly below where the Sentry 500 Refill Canister will locate (fig 2.4) and carefully make a neat hole just small enough for the threaded part of your chosen ceiling nozzle to pass through.
- Measure the distance between the bottom of the Sentry 500 swing-arm assembly and the ceiling (fig 2.5).
- Cut the clear tube supplied to this length and attach the ceiling nozzle to one end (fig 2.6), this should be a tight fit.
- From the decorative face of the ceiling, pass the tube and nozzle through and secure with the washer and nut (fig 2.7).
- Assemble the tube coupler, fit to the other end of the tube and fit the coupler to the Sentry 500 (fig 2.8). Tighten if necessary to ensure a snug fit.

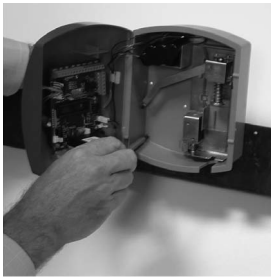


Fig 2.3

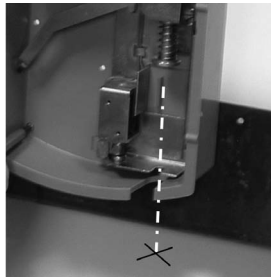


Fig 2.4

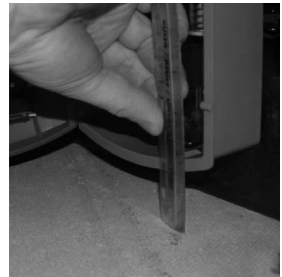


Fig 2.5



Fig 2.6

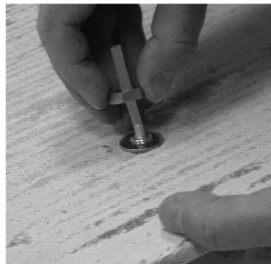


Fig 2.7

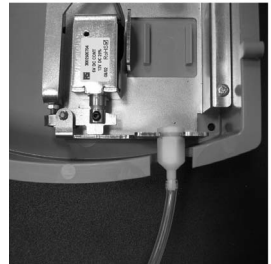


Fig 2.8

Wiring the Sentry 500

The Sentry 500 can be set up for use with an intruder alarm or any external trigger with a volt-free, normally closed contact (e.g. a panic button) through connection of only 4 wires. The unit is supplied with the internal backup battery disconnected, for correct operation this should only be connected after power has been applied to the unit.

Connections for Integrated Unit

Before connecting, power down the alarm system

- Connect power from the alarm system to the terminals on the board marked as **+12v** and **0v**.
- Connect the alarm output to the terminals marked **GND** and **RS**. The alarm output must be a volt free contact of the normally closed type (open when activated). The polarity of this connection is unimportant.
- Fit a wire link between **NC** and **NC**.
- Program the alarm system to activate this output in the event of an intruder, confirmed intruder, PA or whatever is required for your particular install.

Connections for Standalone Unit

- Connect power from a regulated power supply to the terminals on the board marked as **+12v** and **0v**.
- Connect a volt-free normally closed contact from an external arm input (e.g. from a panic button) to the terminals marked **GND** and **RS**. The polarity of the connection is unimportant. A wire link will also be required between **NC** and **NC**.

Section 3 – Configuring and Testing

Applying Power

Power up the intruder alarm (integrated unit) or the regulated power supply (standalone unit). A slow pulsed tone will be emitted from the internal sounder and the red led on the front panel will light. Connect the backup battery connector to the terminal on the board marked as **Battery**. The unit will now emit a fast pulsed tone and the red led will begin flashing. Disconnect and reconnect the backup battery to reset the tamper condition, and stop the sounder.

Sounder

The on-board sounder for the Sentry 500 can be enabled or disabled by configuring the jumpers on the PCB. The unit comes from the factory with the sounder ON, but can be disabled by removing the jumper from the pin header **SVI** (fig 3.1 opposite).

Adjusting the Microwave Sensitivity (Using Walk Test Mode)

- To adjust the sensitivity of the microwave, you will first need to put the Sentry 500 into Walk Test mode. To do this, remove the jumper from pin header nearest to **SV2** mark, and put it across pin header **SV3** (see PCB Overview). Each time the microwave detects motion the Sentry 500 will emit a short tone. The sensitivity of the microwave is adjusted by pot **VR1**. To reduce the sensitivity, turn pot **VR1** anti clockwise - to increase, turn it clockwise (fig 3.2).
- The angle of the microwave can also be adjusted with the use of the adjusting screw near the top of the PCB. The spring loaded screw can be tightened or loosened to achieve a desired angle (fig 3.3).
- Once you have achieved your desired configuration, remove the jumper from pin header **SV3**, and refit to **SV2**. Using this feature the microwave can be configured for optimal performance specific to each installation.
- If the Active Time (see below) runs out during Walk-Test mode, a solid red led will be indicated and the Walk Test function will stop. To re-enter Walk Test, remove and re-fit pin header SV3.

Setting the Active Time

Choose a suitable time for the unit to remain active for, following an ARM input. To set at 15 minutes turn the pot marked **VR2** fully counter-clockwise. For 30 minutes turn fully clockwise.

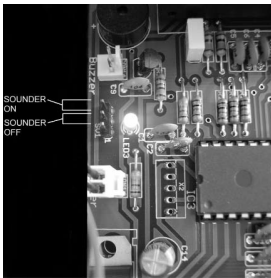


Fig 3.1

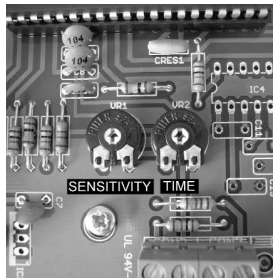


Fig 3.2

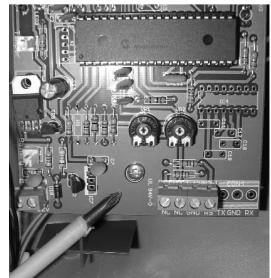


Fig 3.3

Finalising Setup and Testing Unit Function Test-arming the Sentry 500

Ensure there is no canister fitted to the Sentry 500 unit. Close the lid firmly, and ensure that the tamper circuit is clear. This will be indicated by a flashing green LED. Clear the area around the Sentry 500 unit, and simulate an alarm condition, either from the intruder alarm panel or from the external input. The LED colour should change to flashing amber (indicating that the unit is armed). Reset the alarm system or external trigger, and the LED will return to flashing green.

Test Firing a Water Canister

- Open the cover of the Sentry 500. The unit will now emit a fast pulsed tone and the red led will begin flashing.
- Disconnect and reconnect the backup battery to reset the tamper condition, and stop the sounder.
- Carefully move the swing arm to its lowest position and lock in position by holding down the arm retention clip and clipping it over the end of the swing arm (fig 3.4, 3.5).
- Locate the base of the water canister against the plunger, and insert the valve carefully into the overt nozzle or tube coupler (fig 3.6). This may require some pressure to push the canister up against the plunger. Ensure that the canister valve is correctly located in the nozzle or coupler otherwise when triggered the system will not spray correctly.
- Close the unit and move away from it (the LED should be flashing green). Activate the input device – the LED on the Sentry 500 unit should now be flashing amber. Make a movement underneath the Sentry 500 unit, this will cause the water canister to be discharged. Check that the discharge pattern is as expected. If this is not the case then adjust the nozzle and repeat the test with a new water canister.
- Disarm the input device and open the Sentry 500 unit. Disconnect then reconnect the battery to reset the unit if required. Reset the swing arm as above and remove the empty water canister.

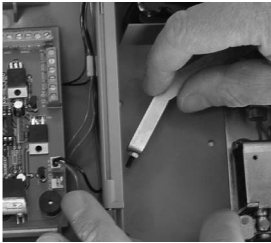


Fig 3.4

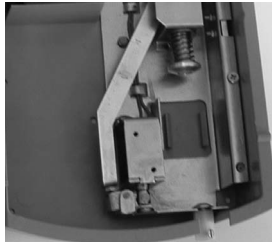


Fig 3.5



Fig 3.6

Section 4 – Commissioning

Fitting RedDNA™ or Covert RedDNA™ Canister

Fit the canister in the same manner as the water canister described previously. Ensure you have recorded the DNA serial number on the side of the canister. When the door to the unit is closed the led should flash green to indicate that the unit has been recharged and is ready for use. If the unit flashes red, check the power is connected and the ARM input is deactivated. If necessary reset the tamper by removing and reconnecting the backup battery as described previously. Install the two small screws in the side of the lid to secure it.

Ensure that all staff on site are aware of how to use the system. Issue the customer with the user guide with your installation company's details filled out on it.

Important: When Sentry 500 setup is complete, place tamper seal across the base and top moulding (found in RedDNA™ canister pack).

Section 5a – If the Sentry 500 has been Activated

Resetting the Swing Arm

Remove the two screws in the side of the lid holding it closed. Open the unit taking care not to damage any of the wiring. Carefully return the swing arm to its lowest position and lock in place by holding down the arm retention clip and clipping it over the end of the swing arm (fig 3.4, 3.5).

Important:

Since the Sentry 500 canister has been activated, it is imperative to ensure the forensic integrity of the Sentry 500 unit. Any tubing, couplers or nozzles which have come into contact with the **RedDNA™** or **Covert RedDNA™** will need to be forensically cleaned. This is done by completing the following steps:

- Remove the spent **RedDNA™** or **Covert RedDNA™** Canister.
- Install a Cleaning Fluid Canister in to the Sentry 500.
- Fire the Sentry 500 and deploy the cleaning fluid in such a manner as to contain the spray and to protect eyes, skin and surrounding valuable items. Avoid breathing in the spray.
- Remove the empty canister.
- Repeat the above process with a water canister.
- The system is now clean, and ready to accept a new **RedDNA™** or **Covert RedDNA™** canister and have its unique code recorded.

Section 5b– If a crime has been committed

If a crime has been committed, the following steps should be applied:

- Put on forensic gloves (supplied in Evidence Bag).
- Check that the tamper seal on Sentry 500 is in place.
- Open Sentry 500 lid (2 screws on right hand side) and remove **RedDNA™** canister and place in evidence bag.
- Clean away any overspray from Sentry 500 and place gloves and wipe inside evidence bag.
- Insert cleaning canister into the Sentry 500.
- Fire the Sentry 500 and deploy the cleaning fluid in such a manner as to contain the spray and to protect eyes, skin and surrounding valuable items. Avoid breathing the spray.
- Remove the empty canister.
- Repeat the above process with a water canister.
- Remove new **RedDNA™** canister from sealed clamshell and insert into Sentry 500. Close unit. Ensure you have noted down the unique **RedDNA™** serial number located on the tin.
- Place tamper seal in place between top and base moulding on Sentry 500 unit.
- Complete MG1 I (Section 9 Witness Statement) (supplied with **RedDNA™** canister) and place in evidence bag
- Complete RWF 06 Scene of Crime Checklist (supplied with **RedDNA™** canister).
- Hand the evidence bag to the police.

Please refer to the more detailed protocols at www.redwebsecurity.com

Section 6 – Fault Finding Guide

Fault Observed

Possible Cause

Unit disarmed all the time

- Short on wiring to terminal RS
- Intruder Alarm output not functioning
- External input not functioning

No sound from unit

- Sounder jumper not fitted correctly

LED does not change from red to green when door closed

- Tamper switch not connected – check plug onto PCB

Short bleeping sounds when door closed

- Battery not fitted correctly
- Battery flat
- Input trigger still open circuit

Long bleeping sounds when door closed

- +12v not connected

Fast bleeping sounds and fast flashing red LED

- Wires not connected properly to RS + GND
- Input trigger still open circuit

Light and Sounder Key

Condition	LED	Sounder (if enabled)
12v supply lost or low	RED	LONG BEEPS
Internal battery low	RED	SHORT BEEPS
Tamper activated	RED (FAST FLASH)	FAST BEEPS
Sentry 500 in standby mode	GREEN (FLASHING)	-
Sentry 500 armed	AMBER (FLASHING)	-
Sentry 500 Active Time timed-out	RED (FAST FLASH)	-
Sentry 500 deploying	RED	CONTINUOUS
Sentry 500 requires resetting following deployment	RED (FLASHING)	LONG, OCCASIONAL BEEPS
Sentry 500 in Walk Test mode	GREEN	-
Sentry 500 detecting motion in Walk Test mode	AMBER	LONG BEEPS
Sentry 500 Walk Test mode timed-out	RED	-

Section 7 – Sentry 500

Technical Specification



Detection range:	30-1200cm (adjustable by VR1) Walk Test selectable (SV3)
Arm time-out:	15/30 minutes (selected by VR2)
Inputs:	1 arm, deploy on microwave (RS/GND) 1 immediate deploy (NC/NC) Unused inputs should be shorted out Lid tamper
Audible sounder:	Selectable (SV1)
Visual indicator:	Tri-colour LED
Supply voltage range:	13 VDC +/- 10%
Power consumption:	100mA max
Backup battery:	7.2v 1,300mAh Ni-MH (70 hours backup)
Dimensions (HxWxD):	198x153x100mm
Operating temperature:	-10° to +50°C
Weight:	930g
Accessories:	Ceiling grid mounting plate Intruder alarm Isolation Switch

Section 8 – Engineer’s Notes

A large rectangular box containing 25 horizontal lines, intended for handwritten notes.