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Sensa-LINX

DETECTOR NETWORKING SYSTEM

QUICK REFERENCE GUIDE

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1 SCOPE OF THIS MANUAL

This Quick Reference Guide provides basic information about complete equipment schedules and set up details for the Sensa-LINX Detector and details to contact the equipment manufacturer.

2 IMPORTANT INFORMATION

2.1 WINDOWS DISKS

The Toughbook computer you have been supplied with does not have an accompanying Windows disk from which to restore it in the event of disk failure (though it does have a recovery partition on the hard disk from which the operating system can be recovered in the event of some disk errors or corruption). It is strongly recommended that you use the Panasonic Recovery Disc Creation Utility to create Recovery disks for your Toughbook. You will need two blank DVDs for this purpose. NOTE that you will only be able to create one set of recovery disks. You should therefore take care not to lose these recovery disks once you have created them.

2.2 USER ACCOUNTS AND PASSWORDS

Your Toughbook computer has been supplied with 2 Windows user accounts – Administrator and User. Both these accounts have been configured to have blank passwords. It is strongly recommended that you should manage user accounts and passwords in accordance with your organization's operating procedures.

2.3 ANTI-VIRUS

Your Toughbook computer has been supplied without any Anti-Virus software. It is recommended that you install anti-virus and security software in accordance with your organization's operating procedures.

3EQUIPMENT OVERVIEW

The Sensa-LINX Detector Networking System has been designed to allow a number of LCD 3.3 detectors (with or without Power/Comms Adaptors (PCA) or Adaptor Pouches) and LCD-NEXUS detectors to be combined as a network, wirelessly connected to a single location to provide centralized recording of data, and control and monitoring of the detectors. Each detector is connected to a specialized radio modem. This set up is termed a Sensor Node which communicates with a radio modem connected to the Controller Laptop at the central monitoring location. This central monitoring location is termed the Base Station Node. The Controller Laptop has the Command & Control (C2) program installed that records, interprets and displays the data supplied by the detectors via the Sensor Node radio modems. The data acquired from the network of detectors can then be used to produce Chemical, Biological, Radiological Nuclear and Explosives (CBRNE) reports.

It is important to note that the data transmissions from the Sensor Nodes can be intercepted, however these transmissions are encrypted using the Sensa-LINX system and cannot read by other agencies.

The radio modems have built-in Global Positioning System (GPS) receivers to obtain position co-ordinates from GPS satellites and display their position on a GIS map. Functioning GPS is not vital to the operation of the Sensa-LINX system. The GPS receiver is activated at startup but may be disabled to conserve battery power if the Sensor Node is used on a Fixed Installation. If the Sensor Node is used in a mobile situation the GPS signal will update the Sensor Node's position when movement is detected.

Depending on the type of radio modem used the network may be either a mesh network or a non-mesh network. In a mesh network the radio modems within transmission range of the Base Station Node 'repeat' the signals from the radio modems of Sensor Nodes beyond the nominal transmission range or where there are 'line-of-sight' problems. In non-mesh networks all of the Sensor Nodes must be within the nominal transmission range with no 'line-of-sight' problems.

4 SETTING UP THE BASE STATION AND BASE STATION SENSOR NODE

Unpack from the C2 Transit Case:

- The C2 Laptop
- One Sensor Node
- One Battery Cassette
- 4 AA Batteries
- The C2 comms cable



Figure 1 - Sensa-LINX Base Station Kit

Insert batteries into the Sensor Node.



Figure 2 - Sensor Node (Battery Insertion)

Connect the Sensor Node to the C2 laptop with the data cable.



Figure 3 - Base Station Laptop Cable Connection



Figure 4 - Base Station Sensor Node Cable Connection



Figure 5 - Base Station Set Up

Start-up the C2 laptop, login and start-up the C2 application.

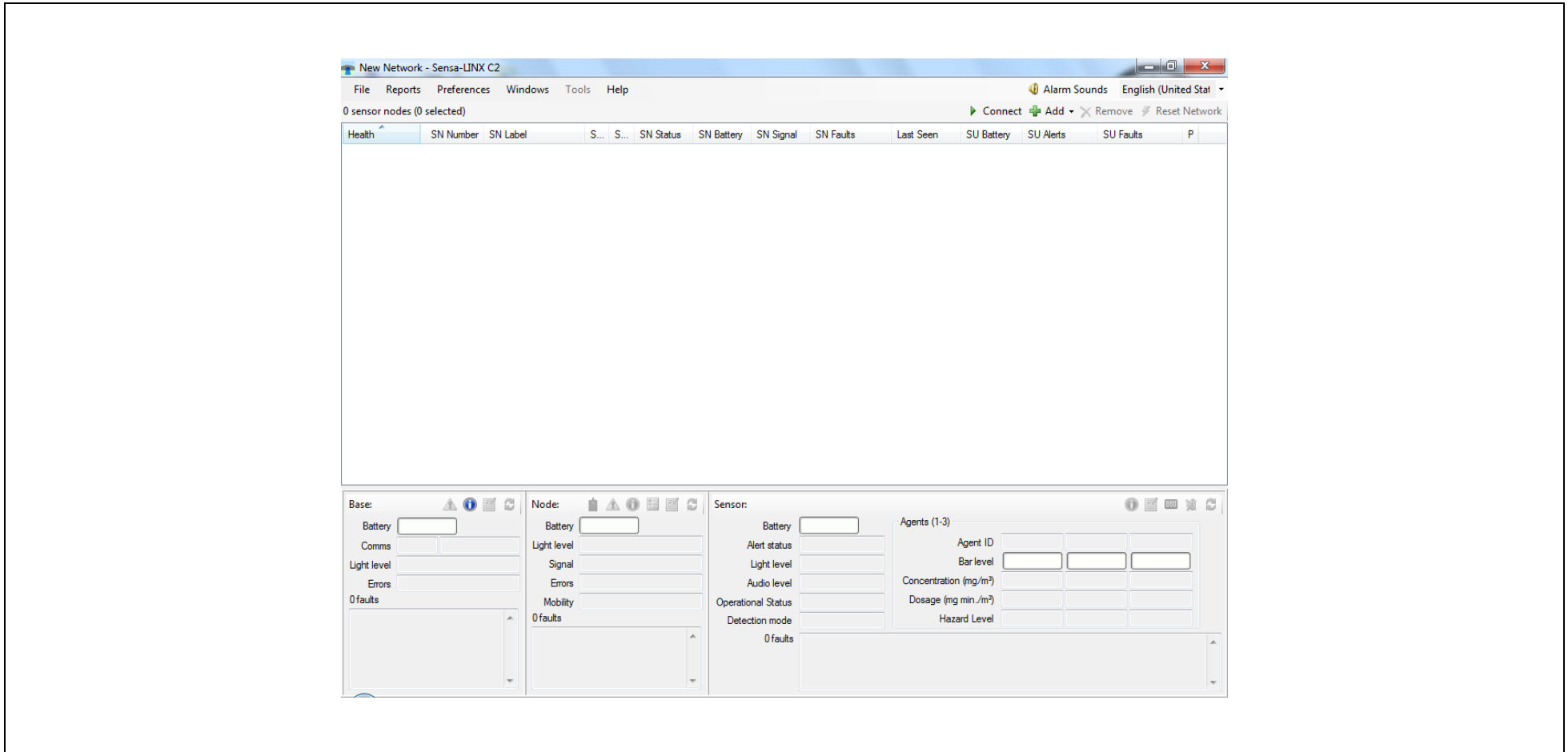


Figure 6 - Sensa-LINX Detector Networking System – C2 Application Main Window

Turn on the sensor node and press the “Connect” button.

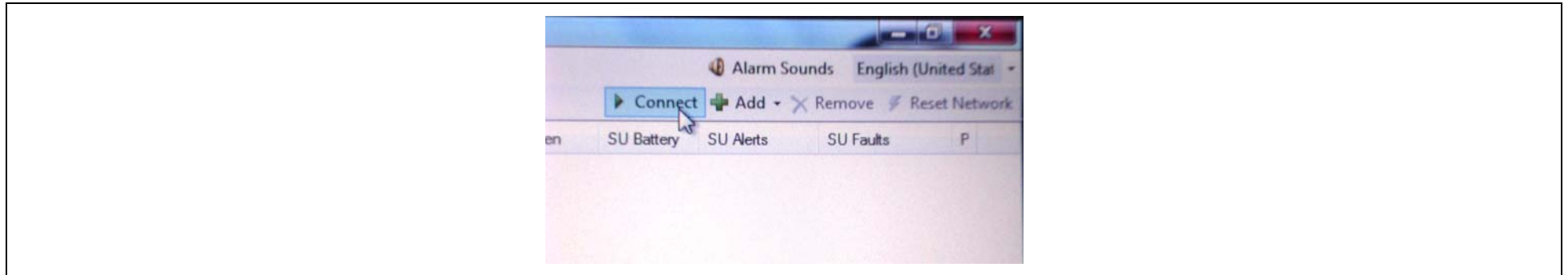


Figure 7 - Sensa-LINX Detector Networking System – C2 Application Main Window – Sensor Node ‘Connect’ Button

Select the COM port (COM1 for the provided Sensa-LINX laptop) and press OK.

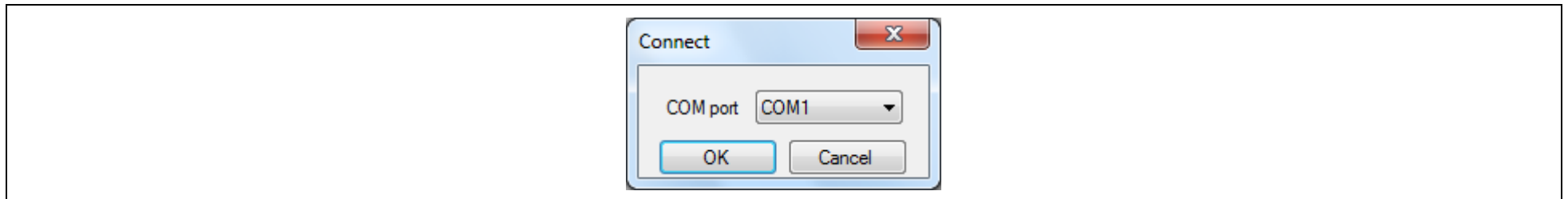


Figure 8 - Sensa-LINX Detector Networking System – Connect Dialog

Wait for the basestation to show that it is connected to the C2.

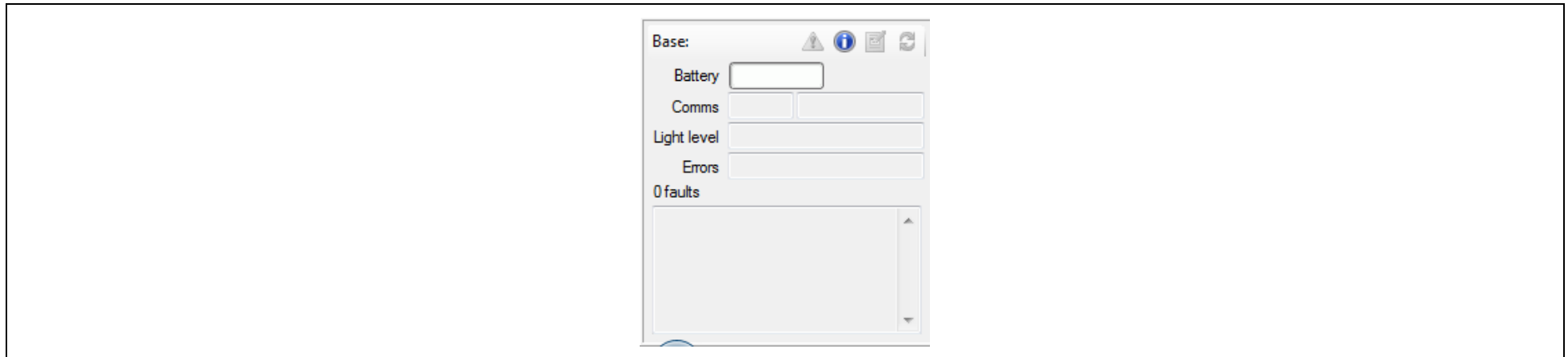


Figure 9 - Sensa-LINX Detector Networking System – Base Station information Window

At the C2 press the “Add” button and select either “Add Single sensor Node...” or “Add Multiple Sensor Nodes”.

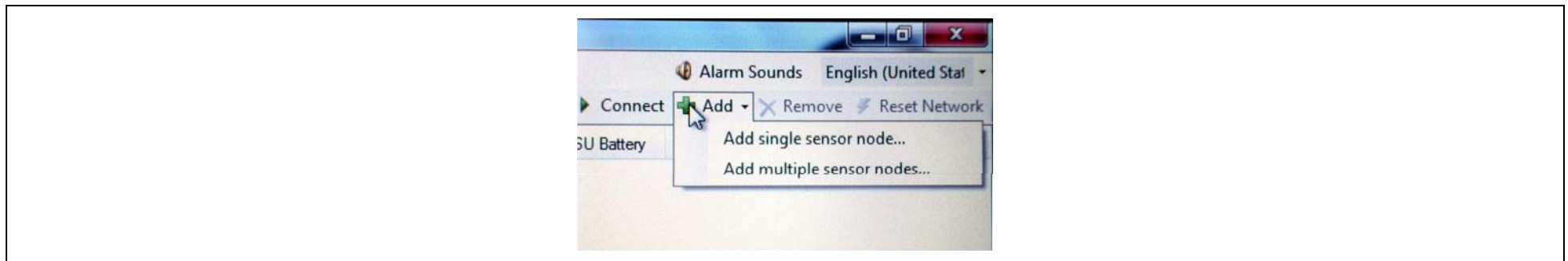


Figure 10 - Sensa-LINX Detector Networking System – C2 Application Main Window – Sensor Node ‘Add’ Button

Enter the serial number(s) of the sensor nodes that you want to be on the network.

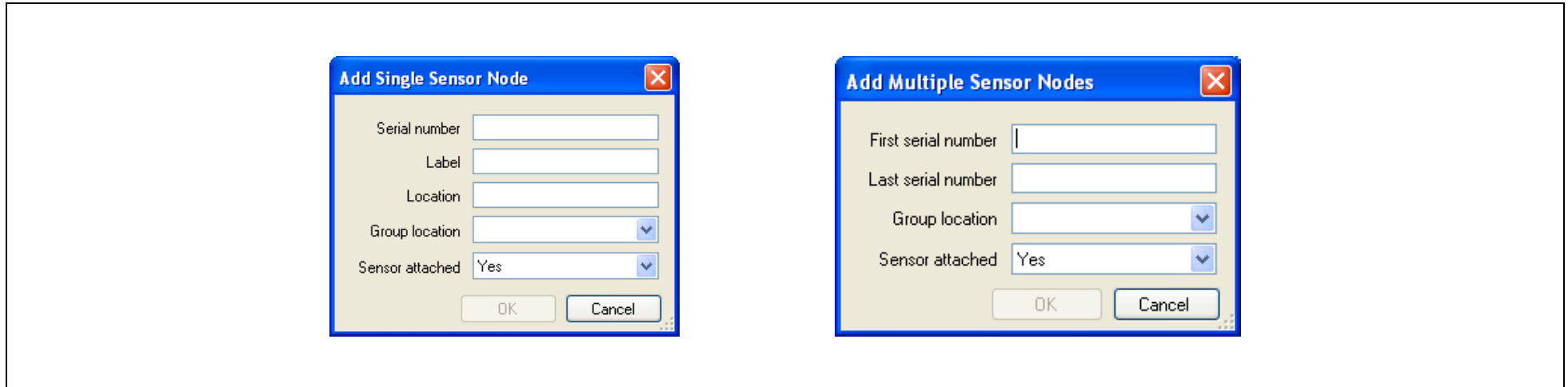


Figure 11 - Sensa-LINX Detector Networking System – Add Single and Add Multiple Sensor Node Dialogs

Use optional accessories as required

E.g. pouch for the Sensor Node, tripod, power supply for laptop and power supply for sensor node. See full manual for details.

5 SETTING UP THE SENSOR NODE USING LCD NEXUS

Unpack from the Sensor Node Transit Case:

- One Sensor Node
- One Battery Cassette
- 4 AA Batteries
- A Sensor node to detector comms cable (different types are available)

Also required (not part of Sensa-LINX): LCD Nexus detector with battery cassette and batteries.



Figure 12 - Sensor Node with LCD Nexus Kit

Insert batteries into the Sensor Node and detector.



Figure 13 - Sensor Node (Battery Insertion)

Connect the Sensor Node to the detector with the data cable. Use optional accessories as required E.g. pouch for the Sensor Node, tripod and power supply for sensor node. See full manual for details.

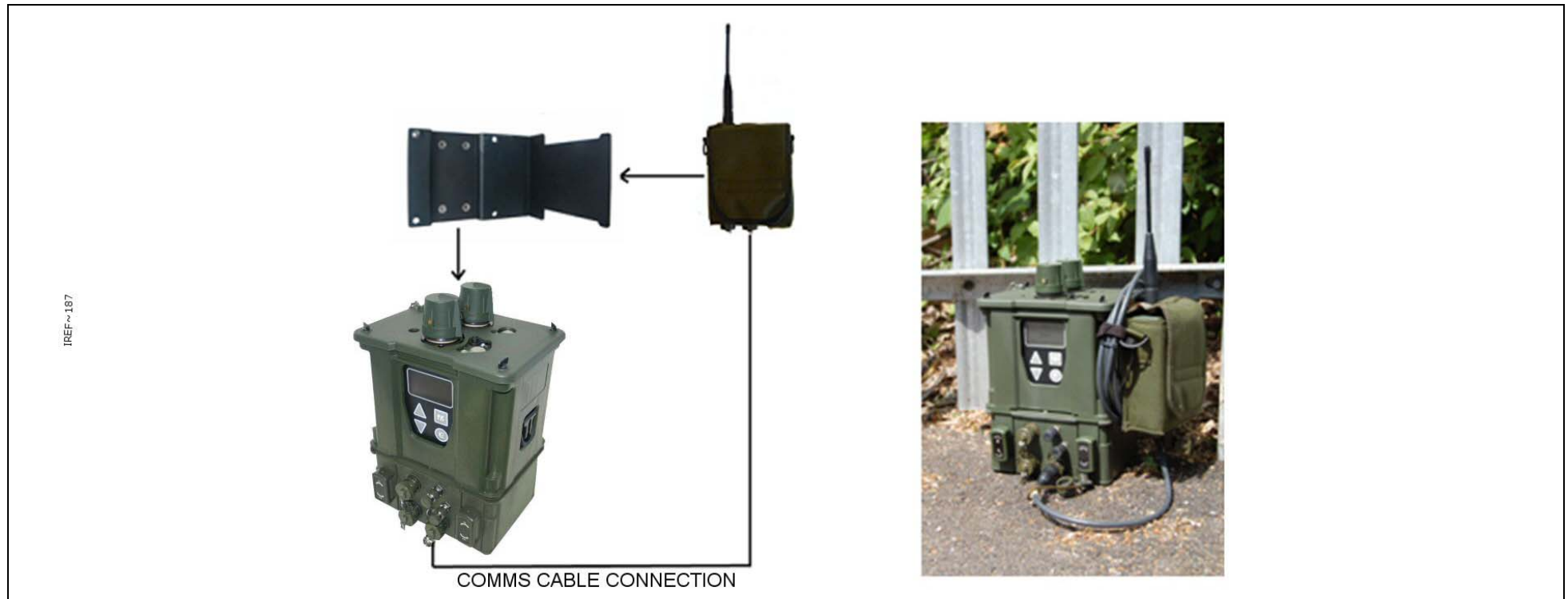


Figure 14 - Sensor Node with LCD Nexus Set Up

Turn on the detector and the Sensor Node. Confirm that the detector reports that the sensor node is connected (U displayed in the upper left hand corner of the detector screen).

Confirm that the Sensor Node indicates communication with the Base Station (LED flashes. Refer to the detector Operators Manual for further information).

6 SETTING UP THE SENSOR NODE USING LCD3.3 WITH DOCK AND POUCH

Unpack from the Sensor Node Transit Case:

- One Sensor Node
- One Battery Cassette
- 4 AA Batteries
- A Sensor node to detector comms cable (different types are available)

Also required (not part of Sensa-LINX): LCD3.3 detector with battery cassette and batteries and Dock and Pouch.



Figure 15 - Sensor Node with LCD3.3 and Dock and Pouch Kit

Insert batteries into the Sensor Node and detector.



Figure 16 - Sensor Node (Battery Insertion)

Connect the Sensor Node to the detector with the data cable. Use optional accessories as required e.g. pouch for the Sensor Node, tripod and power supply for sensor node. See full manual for details.



Figure 17 - Sensor Node with LCD3.3 and Dock and Pouch Set Up

Turn on the detector and the Sensor Node. Confirm that the detector reports that the sensor node is connected (U displayed in the upper left hand corner of the detector screen).

Confirm that the Sensor Node indicates communication with the Base Station ( LED flashes. Refer to the detector Operators Manual for further information).

7 SETTING UP THE SENSOR NODE USING LCD3.3 AND POWER COMMS ADAPTOR

Unpack from the Sensor Node Transit Case:

- One Sensor Node
- One Battery Cassette
- 4 AA Batteries
- A Sensor node to detector comms cable (different types are available)

Also required (not part of Sensa-LINX): LCD3.3 detector with battery cassette and batteries and Power Comms Adaptor (PCA).



Figure 18 - Sensor Node with LCD3.3 and Power Comms Adaptor Kit

Insert batteries into the Sensor Node and detector.



Figure 19 - Sensor Node (Battery Insertion)

Set up the LCD3.3 Detector and PCA. Refer to the LCD3.3 Detector Operators Manual and PCA Operators Manual for further information.

Connect the Sensor Node to the PCA with the data cable. Use optional accessories as required E.g. pouch for the Sensor Node, tripod and power supply for sensor node. See full manual for details.



Figure 20 - Sensor Node with LCD3.3 and Power Comms Adaptor Set Up

Turn on the detector and the Sensor Node. Confirm that the detector reports that the sensor node is connected (U displayed in the upper left hand corner of the detector screen).

Confirm that the Sensor Node indicates communication with the Base Station (▲ LED flashes. Refer to the detector Operators Manual for further information).



Figure 21 - Sensor Node with LCD3.3 and Power Comms Adaptor Set – in situ examples

8 SETTING UP THE SENSOR NODE USING CAM XTR DETECTOR

Unpack from the Sensor Node Transit Case:

- One Sensor Node
- One Battery Cassette
- 4 AA Batteries
- A Sensor node to detector comms cable (different types are available)

Also required (not part of Sensa-LINX): CAM XTR detector with battery cassette and batteries.



Figure 22 - Sensor Node with CAM XTR and Dock and Pouch Kit

Insert batteries into the Sensor Node and detector.



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Figure 23 - Sensor Node (Battery Insertion)

Connect the Sensor Node to the detector with the data cable. Use optional accessories as required E.g. pouch for the Sensor Node, tripod and power supply for sensor node. See full manual for details.



Figure 24 - Sensor Node with CAM XTR and Dock and Pouch Set Up

Turn on the detector and the Sensor Node. Confirm that the detector reports that the sensor node is connected (U displayed in the upper left hand corner of the detector screen).

Confirm that the Sensor Node indicates communication with the Base Station ( LED flashes. Refer to the detector Operators Manual for further information).

9 MONITORING THE SENA-LINX NETWORK

At the C2 computer, check the overall sensor nodes status in the list view.

Green Sensor Nodes are working normally.

Yellow Sensor Nodes have a warning.

Orange Sensor Nodes have a fault.

Red Sensor Nodes are alarming.

Grey Sensor Nodes are not communicating with the Basestation.













Health	SN Number	SN Label	SN Location	SN Group...	SN Status	SN Battery	SN Signal	SN Faults	SU Battery	SU Alerts	SU Faults	Pending
	2				Connected	100%	0 dBm		4 Bars	NEW ALERT		
	3				Connected	100%	0 dBm		4 Bars	None	Change Sieve Pack	
	5				Connected	100%	0 dBm	Battery Critical				
	4				Connected	100%	0 dBm		4 Bars	None	Sieve Low	
	1				Connected	100%	0 dBm		4 Bars	None		
	6				Connected	100%	0 dBm		4 Bars	None		
	7				Connected	100%	0 dBm		4 Bars	None		

Figure 25 - SENA-LINX Detector Networking System – C2 Application – Sensor Node Panel

At the sensor location, check the sensor node status using the LEDs:

TABLE 1 LED Functions	
 <p>GPS</p> <p>Illuminated icons as viewed on front of Radio Modem</p>	
Icon and LED	Function
 Green LED - Power	On - External power. Pulse - Battery Power. Off – Radio Modem switched off or no power
 Green LED – GPS, BIT Indicator	Off – GPS device currently acquiring lock. Single Pulse – GPS device currently in low power mode. Double Pulse – GPS device currently has poor fix. Triple Pulse – GPS device currently has good fix. Long Pulse (3 seconds on, 1 second off) – GPS BIT errors detected
 Green LED - Radio Link Indicator	Short Triple Pulse - Strong radio link achieved and Sensor Node is transmitting. Long Triple Pulse - Strong radio link achieved but Sensor Node is not transmitting. Short Double Pulse - Good radio link achieved and Sensor Node is transmitting. Long Double Pulse - Good radio link achieved but Sensor Node is not transmitting. Short Single Pulse - Poor radio link has been achieved and Sensor Node is transmitting. Long Single Pulse - Poor radio link has been achieved but Sensor Node is not transmitting. Off - Radio link has not been achieved
 Amber LED - Battery Low	Pulse - Low battery power. Off - Good battery power or external power.

On the C2 computer, open a map file to see the sensor node locations.

Select “Windows” / “Show Map 1” and then browse to the location of a window file.

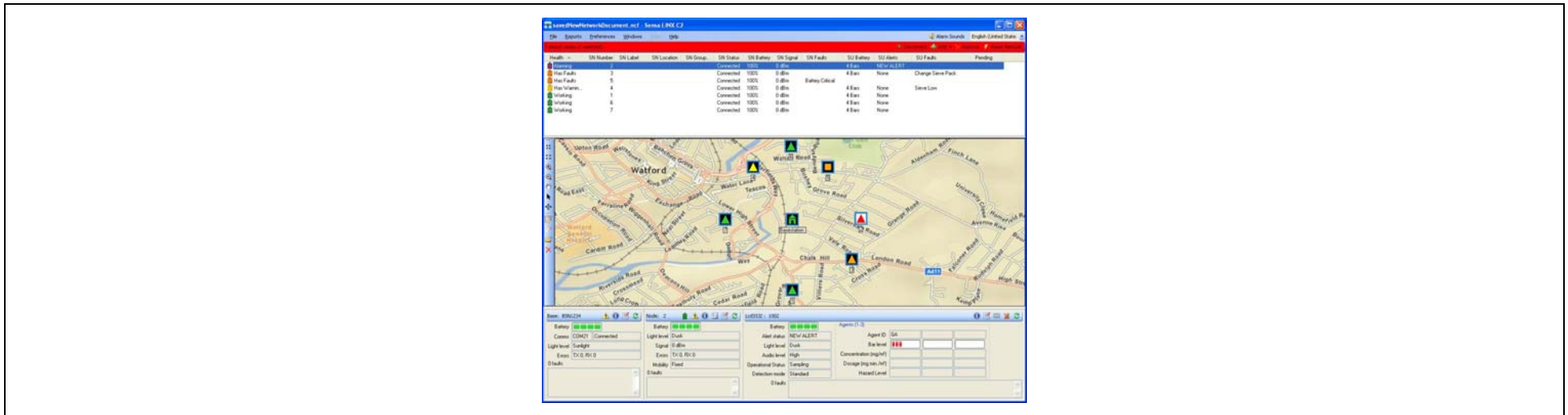


Figure 26 - Sensa-LINX Detector Networking System – C2 Application Main Window

Click on Sensor Nodes from the list or the map to check their detailed status.

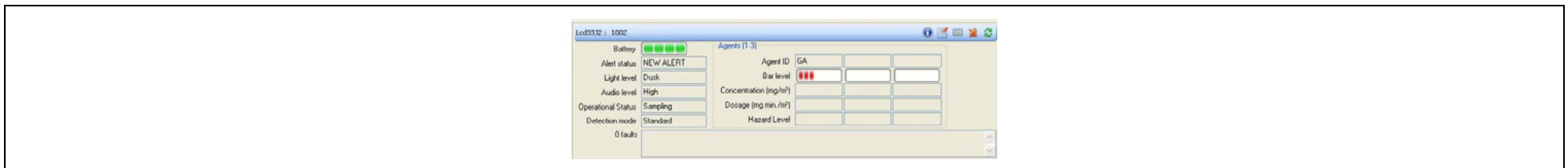


Figure 27 - Sensa-LINX Detector Networking System – C2 Application – Sensor Node Information Panel

Open Alarm, Warnings or Events windows to see historical data:

Select “Windows / Alarms” - a list of alarms that occurred in the past.

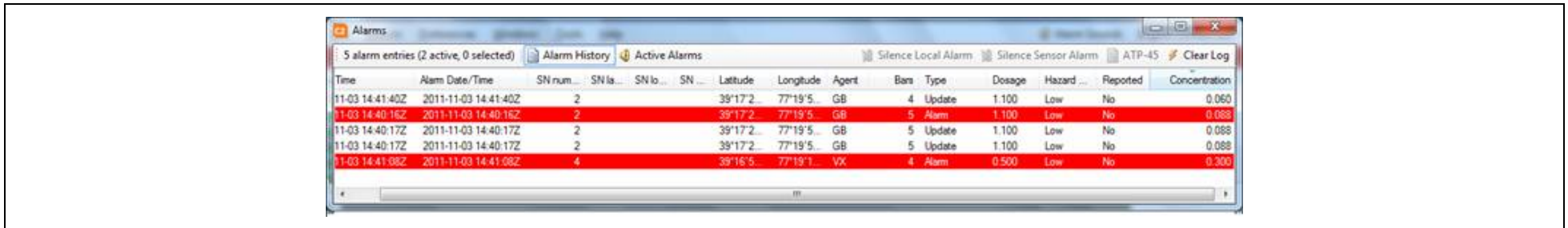


Figure 28 - Sensa-LINX Detector Networking System – C2 Application– Alarms Window

Select “Windows / Warnings” - a list of errors that occurred.

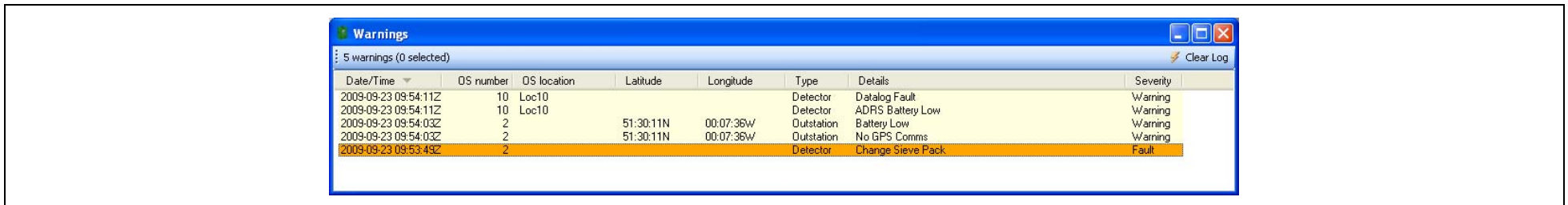


Figure 29 - Sensa-LINX Detector Networking System – C2 Application – Warnings Window

Select “Windows / Events” - a list of other events that are not alarms or warnings.

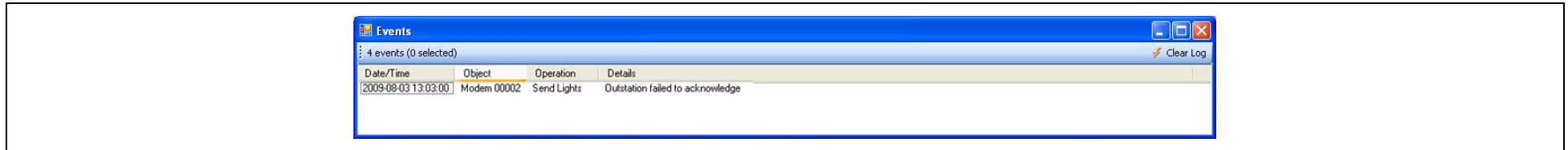


Figure 30 - Sensa-LINX Detector Networking System – C2 Application – Events Window

An alarm will cause a warning window to appear and a warning sound to occur.



Figure 31 - Sensa-LINX Detector Networking System – C2 Application – Alarm Pop Up

To silence the alarm at the PC (but leave the alarm sounding at the detector) Click “Silence Local Alarm” on the Alarms Window

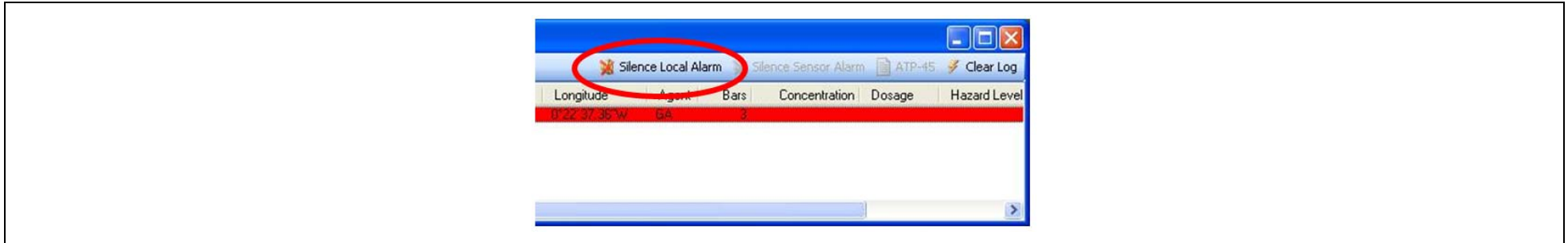


Figure 32 - Sensa-LINX Detector Networking System – C2 Application Main Window –‘Silence Local Alarm’ Button

To silence the alarm at the Detector Click “Silence Sensor Alarm” on the Alarms Window or the Icon on the Sensor Pane

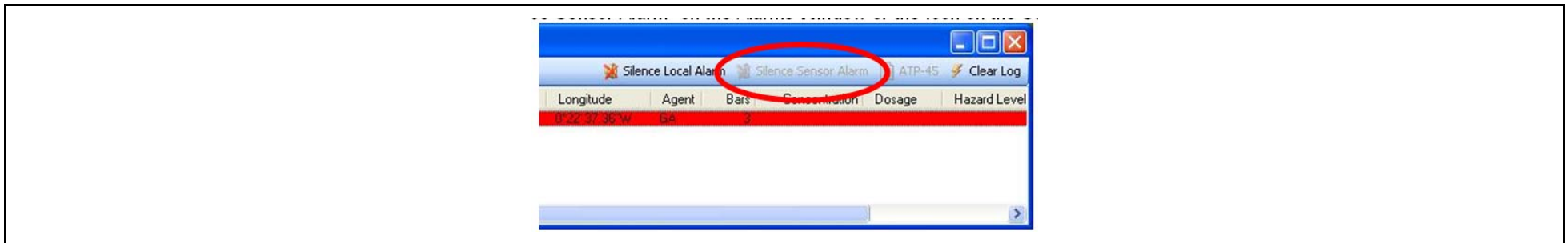


Figure 33 - Sensa-LINX Detector Networking System – C2 Application Main Window –‘Silence Sensor Alarm’ Button

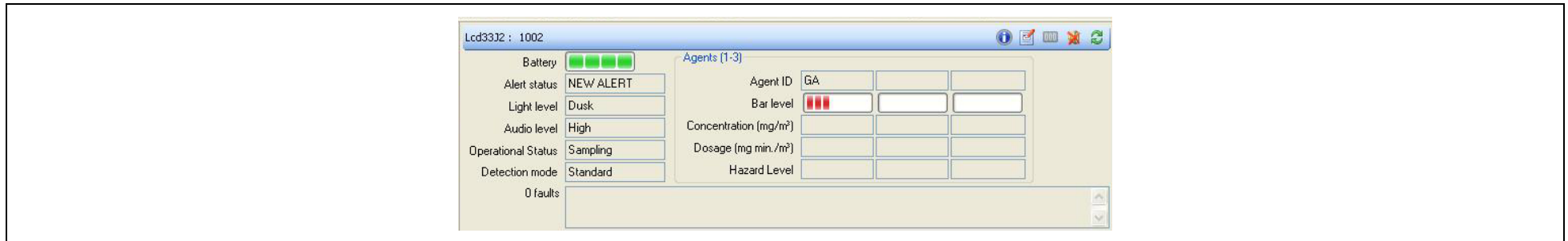


Figure 34 - Sensa-LINX Detector Networking System – C2 Application – Sensor Node Panel in Alarm Condition

To prevent the audible alarm occurring at the PC in future:

Click the Icon on the Main Pane (or turn the PC volume down):



Figure 35 - Sensa-LINX Detector Networking System – C2 Application – Sensor Node 'Alarm Sounds' Button

10 BASIC TROUBLESHOOTING

In the event that equipment appears not to be functioning correctly

- 1 Make sure that equipment has a suitable power supply either fresh batteries or an appropriate mains power supply.
- 2 Make sure that equipment is correctly set up and connected together.
- 3 Make sure that equipment is switched on.
- 4 Cycle the power on/start up routine.

If equipment still appears not to be functioning correctly refer to the Sensa LINX Operational Instructions/User Manual for further Fault Analysis information.

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