



# Safeguard Network Adapter Operation & Maintenance Manual



Document Revision CSSNA 02/04  
Safeguard Network Adapter Version 1.05

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## Disclaimer and Revisions

Operation of this equipment in a residential area may cause interference in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

Date	Revision	Comments
23/09/2003	CSSSNA09/03	NK
21/10/2003	CSSSNA10/03	NK – Version 1.02 updates for Operations and Maintenance Manual
11/11/2003	CSSSNA11/03	NK – Version 1.03 updates for Operations and Maintenance Manual
09/12/2003	CSSSNA12/03	NK – Version 1.04 updates. Registration keys/SNMP graphing
03/02/2004	CSSSNA02/04	NK – Version 1.05 updates.

## **Declaration of Conformity**

### **Manufacturer's Name & Address:**

Computer Support Systems Pty Ltd, 373 Johnston Street, Abbotsford VICTORIA 3067,  
Australia.

**Product Name Model:** Safeguard Network Adapter – Version 1.05

## **Warranty**

Computer Support Systems warrants the Safeguard Network Adapter; if used in accordance with all applicable instructions, to be free from defects in material and workmanship for a period of one year from the date of initial purchase.

This warranty is voided if the customer uses the Safeguard Network Adapter in an unauthorized or improper way, or in an environment for which it was not designed. Warranty does not apply to normal wear or to damage resulting from accident, misuse, abuse or neglect.

## **Safety Instructions**

No safety hazards have been identified.



# Contents

<b>COPYRIGHT AND TRADEMARK</b> .....	<b>I</b>
<b>DISCLAIMER AND REVISIONS</b> .....	<b>II</b>
<b>DECLARATION OF CONFORMITY</b> .....	<b>III</b>
<b>WARRANTY</b> .....	<b>IV</b>
<b>1 INTRODUCTION TO THE SAFEGUARD NETWORK ADAPTER</b> .....	<b>1</b>
<b>2 GETTING STARTED</b> .....	<b>3</b>
2.1 REQUIREMENTS .....	3
2.2 HARDWARE INSTALLATIONS .....	3
2.3 THE SAFEGUARD NETWORK ADAPTER CONFIGURATION .....	4
2.3.1 <i>Assigning of an IP Address</i> .....	4
<b>3 THE SAFEGUARD NETWORK ADAPTER WEB INTERFACE</b> .....	<b>7</b>
3.1 THE SAFEGUARD NETWORK ADAPTER MAIN MENU .....	7
3.2 SAFEGUARD VIEWER .....	8
3.3 SAFEGUARD CONFIGURATION .....	8
3.4 SAFEGUARD NETWORK ADAPTER CONFIGURATION .....	8
3.5 THE SAFEGUARD NETWORK ADAPTER LICENSING/REGISTRATION KEYS.....	10
3.6 SECURITY FEATURES ON SAFEGUARD NETWORK ADAPTER.....	11
3.6.1 <i>Password</i> .....	11
3.6.2 <i>Inactivity Timed Redirection</i> .....	12
<b>4 HARDWARE SPECIFICATIONS</b> .....	<b>13</b>
<b>5 TROUBLESHOOTING</b> .....	<b>14</b>
5.1 TECHNICAL SUPPORT.....	16

# 1 Introduction to The Safeguard Network Adapter

The Safeguard Network Adapter is a network node on a computer network. It works in conjunction with Safeguard by providing the network interface for the unit.

This adapter allows viewing the Safeguard units' front panel and to configure it remotely. It also converts any alert, warning or error messages from Safeguard into SNMP traps and sends them over the network to predetermined Network Management Systems (NMS). The Management Information Base (MIB) supplied by Computer Support Systems describes the alerts as they are detected at a NMS.

The adapter is capable of storing present analogue sensor data values rounded up to the closest integer. When used with a NMS (such as HP OpenView), it is able to plot analogue sensor data over a period of time. The data-polling period is set by the NMS.

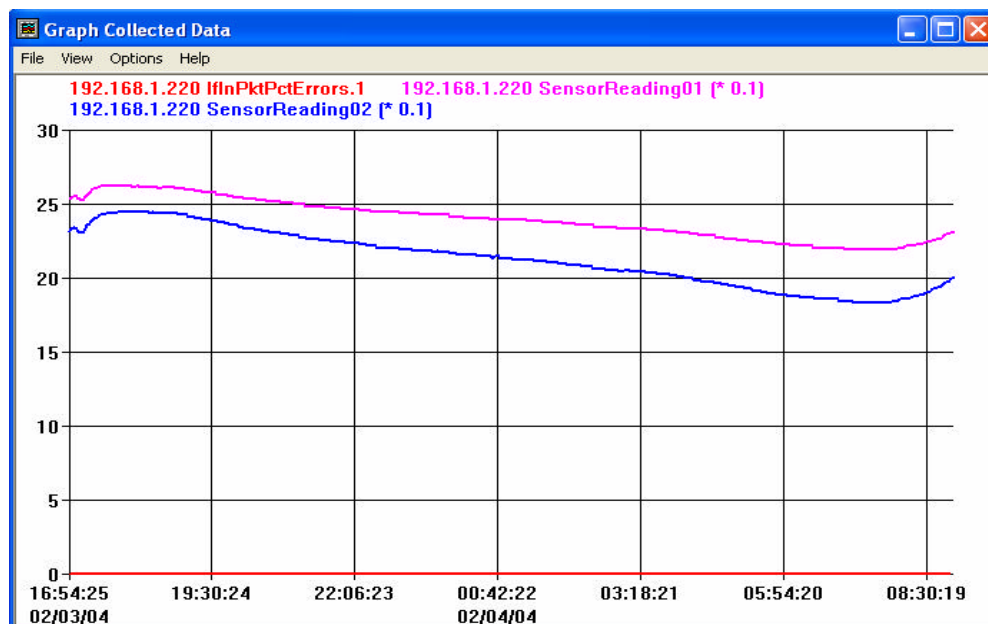
The front panel view of Safeguard can now be viewed by simply using a Java enabled browser. The viewer gives accurate details of the current status of the Safeguard unit, thus giving freedom of remote monitoring. The last twenty events of Safeguard could be retrieved from this panel to determine the previous status of Safeguard.

The extended front panel of Safeguard allows remote configuration. This feature is password protected, thus secure.

Adapter configuration is web enabled. The Safeguard Network Adapter is password protected and hence secure.

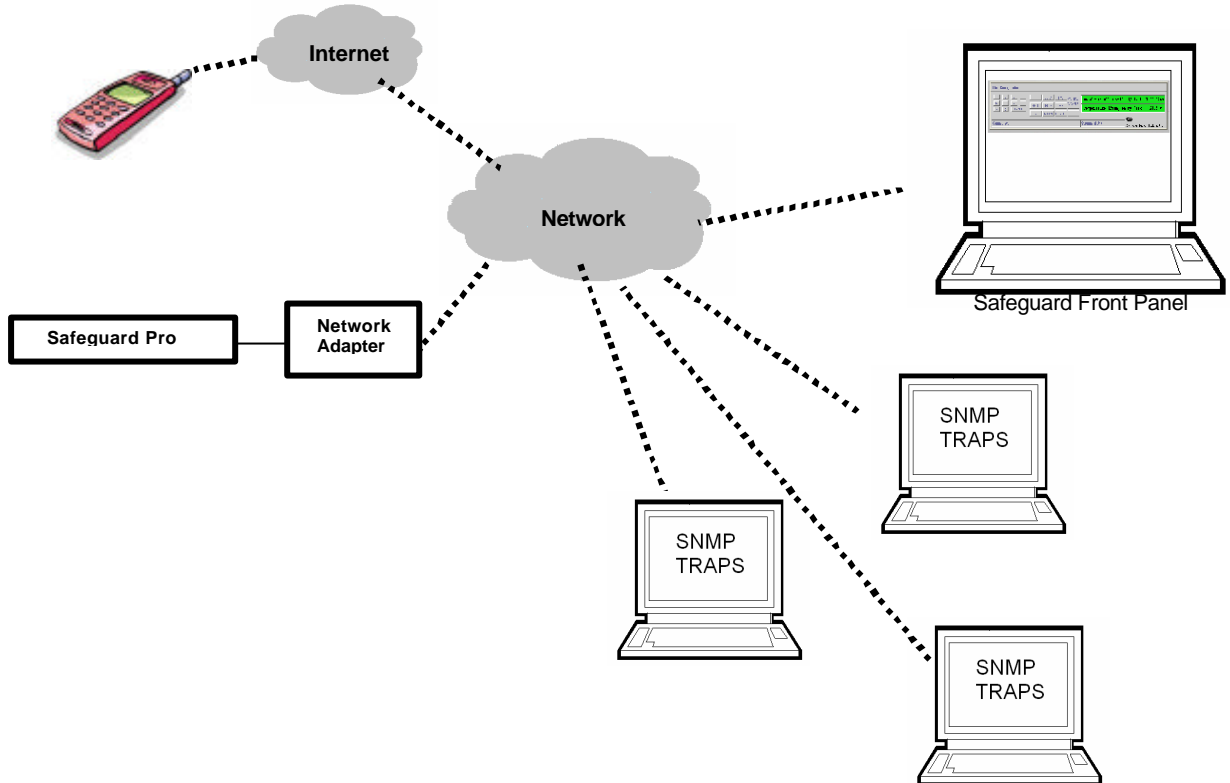
Typical functions of the Safeguard Network Adapter:

- View the Safeguard front panel at a glance by simply loading an applet.
- Get notified by a dialog box when an alert/alarm or a warning occurs.
- Make configuration changes through the applet that mimics the front panel buttons of Safeguard.
- Be informed when the system is up and running by SNMP traps.
- Be informed of a serial link down between Safeguard and the adapter.
- Any alerts, warnings or error messages are sent out as SNMP traps.
- Be informed by SMS messages on alarms, warnings or shutdown messages on individual alarms.
- SNMP Graphing of analogue sensors via a NMS.






### Concept of Safeguard Network Adapter



The Safeguard viewer and Safeguard configuration screen shots are given below

### Safeguard Remote Viewer

View Alert Queue	<b>No alerts All's well 4/ 2/ 4 9:24.58am</b>
Mute	Next
Abort	Reset
Main Menu	<b>Temperature 01Temp demo #1 = 23.8 C</b>
Connected	 Computer Support Systems P/L Safeguard Web Demo

File	Config	About		
1	2	3	4	>
5	6	7	8	SCAN
9	0	ENTER	MENU	MUTE
MAIN MENU		<	ABORT	DISABLE
			RESET	
Connected.		Safeguard Web Demo		 Computer Support Systems P/L

## 2 Getting Started

### 2.1 Requirements

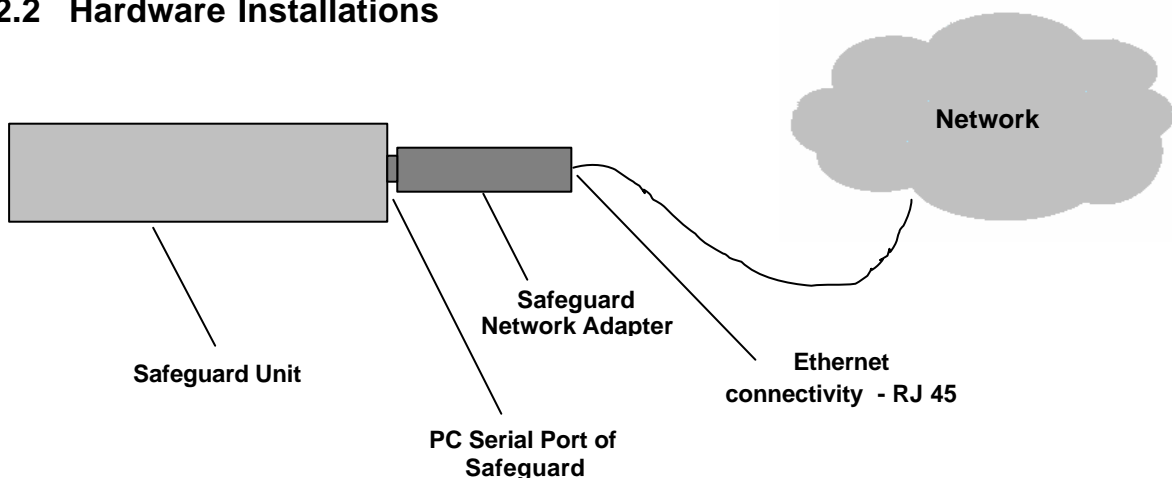
The minimum requirements to run the Safeguard network adapter effectively are as follows:

- Fully configured Safeguard unit with the adapter
- Access to the local network
- Java enabled web browser. (Netscape 4.0 or higher & IE 5.5 or higher recommended)
- Java™ 2 Runtime Environment, Standard Edition, Version 1.4.2.  
(You may install this from <http://java.sun.com/j2se/1.4.2/download.html>)
- To run SNMP check the requirements on the SNMP documentation
- To have the SMS message notifications check the requirements on the SMS documentation

**Note:** Read *install\_notes.txt* & *Java Runtime Environment Notes.txt* for details on minimum system requirements to install Java™ Runtime Environment Version 1.4.2

**Note:** Your registration keys supplied by Computer Support Systems will enable each individual features of the adapter. Registration keys are provided on the CD label supplied at the time of purchasing the Network Adapter.

### 2.2 Hardware Installations



Safeguard Network Adapter ZSP 2007 Front View

Please follow the following steps for hardware installations.

1. Safeguard unit should be **turned off**.
2. **First connect the Ethernet cable** to the RJ45 connection of the adapter.
3. Connect the **adapter to the 'PC' serial port** found at the back of Safeguard and secure connections.
4. Once all connections are **secure** turn **Safeguard on**.
5. Make sure the LED near the RJ45 connection is blinking. Refer to table 1 in trouble shooting for details of LED blink/colour descriptions.
6. Follow instructions in setting the IP address of the Adapter given in the chapter below.

## 2.3 The Safeguard Network Adapter Configuration

The most important configuration aspect is to assign an appropriate IP address, subnet mask and the gateway to the unit.

### 2.3.1 Assigning of an IP Address

The Safeguard Network Adapter default IP address is 0.0.0.0, which enables DHCP. When you initially connect the adapter to the network and connect power, it will automatically allocate an IP address if your server is DHCP enabled.

There are several methods to assign an IP address to the adapter. (Consult your network administrator in determining the appropriate IP address.)

An IP address can be applied to the unit by:

1. DHCP server automatic IP allocation.
2. ARP (Address Resolution Protocol) and Telnet (Recommended)
3. Web browser via the Safeguard Network Adapter configuration page. (Also recommended)

**Note:** *In typical installations, a fixed IP address is recommended. Your network administrator generally provides the IP address. Make sure that your IP address is not a duplicate of an already existing IP address. Obtain the following information before starting to set up your unit:*

Serial No: \_\_\_\_\_ (MAC Address—label on the adapter)

IP Address: \_\_\_\_\_

Subnet Mask: \_\_\_\_\_

Gateway: \_\_\_\_\_

The best method to allocate an IP address is to isolate the adapter from the external network, and use a direct cross over RJ 45 network connection with a PC. Then use ARP and telnet to allocate and IP address as described below in section 2.3.1.2.

#### 2.3.1.1 IP address allocation using DHCP

With the adapter's default IP address of 0.0.0.0, DHCP has been enabled. If your server is DHCP enabled, the adapter will be allocated with an automatic IP address, gateway address and a subnet mask when powered on.

The adapters serial number is the MAC address of the unit. By using a DHCP Client on an administrative right enabled machine you will be able to determine the IP

address allocated by the DHCP server. Please consult your network administrator for further details on finding the DHCP allocated IP address.

(Ensure that you connect the network connection before power for DHCP allocated IP address)

**Note:** When DHCP is enabled, the Safeguard Network Adapter Configuration web interface will not indicate the IP address allocated automatically as the DHCP Server dynamically allocates it. We recommend that you use an appropriate static IP address given by your network administrator.

Once you find out the IP address allocated by the DHCP server by using a DHCP client, use your web browser and point to the IP address to load the adapter menu.

Section 3.4 of this document describes the adapter configuration in order to change any of the parameters.

### 2.3.1.2 IP address allocation using ARP and Telnet

You can use Address Resolution Protocol (ARP) method from UNIX and Windows® - based systems to assign a temporary IP address on to the Safeguard Network Adapter. The steps to configure the Safeguard Network Adapter through the network are as follows.

1. Open command prompt and create an entry in the host's ARP table using the intended IP address and the hardware MAC address, which is found on the devices' serial number label.

```
Eg: arp -s 192.168.1.220 00-20-4a-xx-xx-xx  
    |---- new IP ---- ||--- MAC Address ---|
```

**Note:** For the ARP command to work on Windows® 95, the ARP table on the PC must have at least one IP address defined other than its own. You can verify your ARP table by typing ARP -A at the DOS command prompt.

2. Open a Telnet connection to port 1. The connection will fail quickly, but the Safeguard Network Adapter will temporarily change its IP address to the one designated in this step.

```
Eg: telnet 192.168.1.220 1
```

3. Finally, open a Telnet connection to port 9999, and press Enter within three seconds to go into setup mode. If you wait longer than three seconds, the unit will reboot. If this happens go back to step 2 and start again.

```
Eg: telnet 192.168.1.220 9999
```

4. Set all required parameters by following the instructions given by the menu. Most importantly set a static IP address. Once this is completed you may use the web browser configuration to make further changes. Save settings before exiting.

**Note:** The IP address you just set is temporary and will revert to the default value when the Safeguard Network Adapters' power is reset unless you log into Adapter Configuration Page and store the changes permanently. Refer to Configuration Interface on section 3.4 for instructions on permanently configuring the IP address.

### 2.3.1.3 IP address allocation using a Web Browser

In order to run the Java applets you need to have a Java Runtime Environment version 1.4.2 installed on your system. Read install\_notes.txt for further details on how to install the Java Runtime Environment.

Open your default web browser and direct to the IP address of the Safeguard Network Adapter.

**Note:** *You will need to find the DHCP allocated IP address by contacting your network administrator. If you used ARP and Telnet (Further details on section 2.3.1.2) you would know the IP address already.*

You will be directed to a menu page. Click on the button with "Adapter configuration" label. You will be directed to the adapter configuration page.

Enter the password to login to configuration and click OK. The factory default password is "password".

**Note:** *The password on Safeguard Network Adapter is case sensitive.*

Section 3.4 describes the configuration interface of the adapter. Make appropriate changes to the unit settings and click on the Update Settings button.

### 3 The Safeguard Network Adapter Web Interface

The Safeguard Network Adapter web interface is controlled by Java applets. You will need the Java™ Runtime Environment version 1.4.2 by installed on your computer to load the applets. See section 2.1 requirements for further details.

If your system is not up-to-date with the runtime environment your browser will prompt you to download the latest Java™ 2 Runtime Environment from Sun Microsystems.

The Safeguard Network Adapter uses applets as its Graphical User Interface. This user interface consists of a menu for easy navigation.

The Safeguard Network Adapter is password protected and case sensitive. Factory default password is set to be "password". This password can be changed on the adapter configuration web interface.

#### 3.1 The Safeguard Network Adapter Main Menu

When you direct to the IP address of the device your browser will load the main menu for the adapter.

Alternatively you may configure your WINS (Windows Internet Name Service) to provide a name resolution for the adapter from NetBIOS names to IP addresses for Windows PCs.

---

#### Safeguard Network Adapter Main Menu

- 
- 
- 
- 
- 

Features	Status
SNMP Traps	Enabled
SNMP Graphing	Enabled
Front Panel Configuration	Enabled
SMS Messages	Enabled

Device name: Safeguard Unit    Serial number: 00204A8048BC

- 

Software version 1.04  
 To obtain license key contact [sales@csspl.com.au](mailto:sales@csspl.com.au)  
[Computer Support Systems](#)

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Click on the appropriate button to enter to any of the other web interfaces.

### 3.2 Safeguard Viewer

The operational manual for Safeguard viewer (Safeguard Viewer Instructions V105.pdf) discusses the features of this web interface.

### 3.3 Safeguard Configuration

The operational manual for Safeguard configuration (Safeguard Configuration Instructions V105.pdf) discusses the features of this web interface.

### 3.4 SMS Configuration

The operational manual for SMS configuration (SMS Instructions V105.pdf) discusses the features of this web interface.

### 3.5 Safeguard Network Adapter Configuration

From the main menu click on the button next the label “Adapter Configuration”.

Enter the default password. You are able to change the password at this configuration interface.

## Safeguard Network Adapter Configuration

<p style="text-align: center;"><b>Adapter Settings</b></p> <p style="text-align: center;"><b>Update Settings</b></p> <p style="text-align: center;"><b>Change Password</b></p> <p style="text-align: center;"><b>Main Menu</b></p>	<h3>Adapter Settings</h3> <p>Device Name <input type="text" value="Safeguard Unit"/> ( Max 18 Chars)</p> <p>IP Address <input type="text" value="192.168.1.220"/> Eg: 192.168.1.10</p> <p>Subnet Mask <input type="text" value="255.255.255.0"/></p> <p>Gateway <input type="text" value="0.0.0.0"/></p>
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Software version 1.02

#### Adapter Settings

**Device Name:** An 18 character device name to uniquely identify each network adapter or in effect each Safeguard unit.

**IP Address:** Enter new IP address or 0.0.0.0 to enable DHCP.

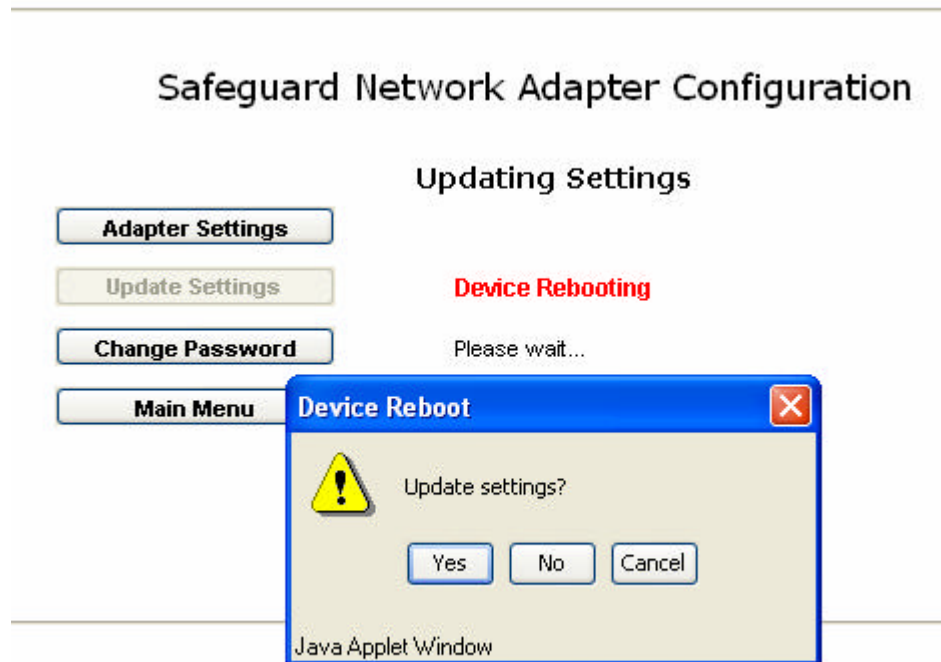
**Subnet Mask:** Indicates the number of subnets in the network. Contact your network administrator for further details on your subnet mask. DHCP will automatically allocate the subnet mask.

**Gateway Address:** Contact your network administrator for further details. DHCP will automatically allocate the gateway address to 0.0.0.0.

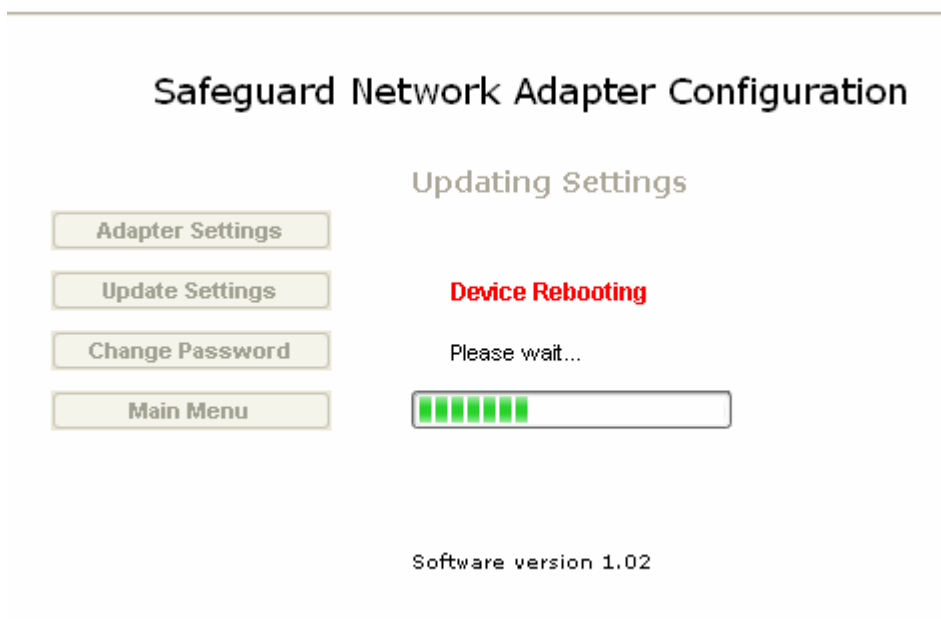
**Password Settings:** Change your password here and click “Apply”. You will be then automatically logged out of the device. You will have to login back with your new password.

### Update Settings

When you click on update settings you will be prompted with a confirmation dialog box to proceed. Click on “Yes” if you want to apply your settings.



If you click yes the new settings are applied to the Safeguard Network Adapter. This will cause the adapter to reboot. A reboot approximately takes about 10 seconds.





You can reach the main menu by clicking “Main Menu” button at any given time.

If you stay inactive for over 5 minutes you will be automatically directed out from the Safeguard Network Adapter configuration back to the menu page.

### **Change Password**

Read on section 3.6 for details on security features of the adapter and changing the password.

## **3.6 The Safeguard Network Adapter Licensing/Registration Keys**

The Safeguard network adapter has the following features.

1. Sending SNMP traps
2. SNMP graphing using a NMS such as HP OpenView
3. Safeguard Front Panel Configuration
4. SMS Messaging for alerts/warnings & alarms

These individual features are enabled only via a unique 9-character registration key. To obtain a registration key(s) contact [sales@csspl.com.au](mailto:sales@csspl.com.au).

The supplied CD contains a label with registration keys you requested.

To enter registration keys click on the button with the label “Licensing/Registration Keys” on the adapter main menu.

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### Safeguard Network Adapter Registration Control

Features	Registration Key	Status
1. SNMP Traps	<input type="text"/>	Enabled
2. SNMP Graphing	<input type="text"/>	Enabled
3. Front Panel Configuration	<input type="text"/>	Enabled
4. SMS Messages	<input type="text"/>	Enabled
<input type="button" value="Update"/>		
<input type="button" value="Main Menu"/>		

Software version 1.04  
To obtain license key contact [sales@csspl.com.au](mailto:sales@csspl.com.au)

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Enter the correct registration key(s) and click on Update. Click on Main Menu to get back to the main menu.

The main menu will show what features have been enabled or disabled.

## 3.7 Security Features on Safeguard Network Adapter

### 3.7.1 Password

A password secures the important configuration pages of the Safeguard Network Adapter. The Safeguard front panel configuration is also password protected.

The factory default password is set to be "password". We recommend that you change it to a desired password with at least four characters.

**Note:** The Safeguard Network Adapter password is case sensitive. The password is limited to a maximum number of eight characters.

#### 3.7.1.1 Changing the Password.

You are able to change the password at the adapter configuration page.

Once you enter the adapter configuration page click on "Change Password".

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## Safeguard Network Adapter Configuration

**Adapter Settings**

**Update Settings**

**Change Password**

**Main Menu**

### Change Password

Current Password

Enter New Password

Confirm New Password

**Apply**

Software version 1.02

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Fill the relevant fields and click on "Apply". The new settings will take in place and you will be prompted for the new password. Enter your new password to re-login.

Click on Main Menu when you have completed your password change.

### 3.7.1.2 Forgetting the Password

If you have forgotten your password there is a method to restore the factory default password on the Safeguard Network Adapter. This method will reset the password back to "password".

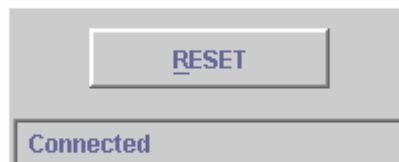
However in order to minimise the risk of any user taking advantage of this method, you will need to have physical access as well as network access to the Safeguard Network Adapter.

**Method:**

1. Go to <http://192.168.1.222/resetsna.html> (replace IP address with your IP address)
2. Click on "Reset" and a count down of 60 seconds will begin.
3. If you want your password to be set back to factory default you will need unplug the serial port of the Safeguard network adapter before this count down is completed. The count down period is set to be one minute. During this period the adapter stops from detecting alarms.
4. If you do not unplug the Safeguard network adapter before the count down is completed your password will remain unchanged.
5. If you are unable to load the default passwords please contact Computer Support Systems technical support.

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## Safeguard Network Adapter Password Reset Utility



[Main Menu](#)  
Software version 1.03

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### 3.7.2 Inactivity Timed Redirection

If you log into any of the Safeguard Network Adapter Configuration pages and be inactive for more than 5 minutes you will be automatically logged out from the web interface back to the main menu. This feature will protect users from forgetting to logout from the adapter and will attempt to prevent unauthorized access to the configuration aspects of the unit.

This only applies to the adapter configuration interfaces and not to the Safeguard front panel viewer or to the Safeguard front panel configuration interface.

## 4 Hardware Specifications

**Device Model:** Safeguard Network Adapter Version 1.05

### Physical Dimensions

- Dimensions: 100 mm L X 40 mm W X 20 mm H
- Weight: 75g

### Network Interface

- RJ45 Ethernet 10Base-T or 100Base-TX (Auto-sensing)
- LED indication: 10Base-T & 100Base-TX Activity, Full/half duplex.
- Network Compatibility: Ethernet: Version 2.0/IEEE 802.3

### Operating Temperature

- Operating range: -40°C to +85°C (-40°F to 185°F)

### Power Requirements

- Operating Voltage: 5 V
- Current Usage: 300 mA

## 5 Troubleshooting

This section of this manual will give you tips to troubleshoot the Safeguard network adapter without having to contact technical support staff from Computer Support Systems.

When troubleshooting the following problems, make sure that the Safeguard Network Adapter is powered up. Confirm that you are using a good network connection. The LED's at the Ethernet connection and the table below (Table 1) will give you your connection type.

Table 1

Left LED	Right LED	Meaning
Off	Off	No Link
Off	Solid Amber	100BASE-T Half Duplex Link
Off	Blinking Amber	100BASE-T Half Duplex; Activity
Off	Solid Green	100BASE-T Full Duplex
Off	Blinking Green	100BASE-T Full Duplex; Activity
Solid Amber	Off	10BASE-T Half Duplex Link
Blinking Amber	Off	10BASE-T Half Duplex; Activity
Solid Green	Off	10BASE-T Full Duplex Link
Blinking Green	Off	10BASE-T Full Duplex; Activity

**Note:** Some unexplained errors might be caused by duplicate IP addresses on the network. Make sure that your unit's IP address is unique.

Table 2

Problem/Message	Reason	Solution
When you load the IP address on your browser, you are directed to back to the Safeguard Network Adapter Menu.	Your computer is not able to connect to port 30718 (77FEh) on the server or your PC could not allocate a port to connect to the adapter.	Make sure that no one else is using the adapter web interface. The Safeguard Network Adapter web interface is a single user system. Make sure that port 30718 (77FEh) is not blocked with any router that you are using on the network. Close your browser, wait for a few minutes and try again.
Your password is not accepted any more or you have forgotten the correct password	Caps lock may be on.	The Safeguard Network Adapter passwords are case sensitive. Make sure you are entering the correct password.
	Password memory location may have been corrupted.	Use the Safeguard Network Adapter Reset applet to load default passwords. See section 3.6.1.2 of this manual for details.
There is no response when you type the IP address on the browser address bar.	The Safeguard Network Adapter may not have rebooted properly.	Ping the IP address for a response to detect if the device is active

		Disconnect the adapter from Safeguard, wait for 20 seconds and then apply power again. Use the standard connection methodology described in hardware setup.
You are able to ping adapter, but not Telnet on port 9999.	There may be an IP address conflict on your network  You are not telneting to port 9999.	Turn the Safeguard Network Adapter off and then issue the following commands at the DOS prompt of your computer: ARP - D X.X.X.X (X.X.X.X is the IP of the adapter)  PING X.X.X.X (X.X.X.X is the IP of the adapter).  If you get a response, then there is a duplicate IP address on the network
When you issue the ARP -S command in Windows, "The ARP entry addition failed: 5" message displays.	Current logged in user does not have the correct rights to use this command on this PC.	A user with sufficient rights needs to complete the task for user rights have to be adjusted.
When you attempted to assign an IP address to the Safeguard Network Adapter via the ARP method, the "Press Enter to go into Setup Mode" error displayed. Now when you Telnet to the adapter, the connection fails.	When you Telnet into port 9999 and do not press Enter quickly, the server will reboot, causing it to lose the IP address.	Telnet back into Port 1. Wait for it to fail, then Telnet to port 9999 again. Make sure you press Enter quickly.
No SNMP traps are sent out	Trap IP addresses may have not been set.  SNMP community access level may not acceptable on your SNMP community.  Make sure the server settings are correct.	Ensure that the first trap IP address is filled.  Contact your network administrator to check the SNMP communities on your network.  Contact your network administrator to check your server settings
SNMP traps are sent but not detected	SNMP may not have been enabled on your machine	Enable SNMP on Windows components.
SNMP traps are sent, detected but SNMP bindings are not shown.	CSS.MIB may not have been configured on your SNMP sniffer/detector	Configure the MIB file on your Network Management System. Read on help files of your software & follow steps on how to insert MIB files.
No SMS Messages are sent	SMS Configuration page settings may not be correct.  Correct target IP address or/and ports are not used as advice by the CSS technical staff.  Correct input numbers are not ticked.  Input tags of Safeguard do not have the input number in front of the label.  Your adapter is not able to make a direct TCP/IP connection to	Check the SMS Configuration page settings.  Check if the correct target IP address and ports are used as advice by the CSS technical staff.  Check if the correct input numbers are ticked.  Check if the Input tags of Safeguard have the input number in front of the label.  Make sure that your adapter is able to make a direct TCP/IP

	the target IP address on the destination port. Refer to your network administrator on setting these parameters	connection to the target IP address on the destination port. Refer to your network administrator on setting these parameters
There is no communication between Safeguard & the adapter No LED is lit when RJ45 cables is connected	Serial link may have been tampered.  Network connection may be not present	Contact Tech Support.  Check the network connection

## 5.1 Technical Support

If you are unable to troubleshoot the Safeguard Network Adapter by using the above table (Table 2) or if you cannot fix your error, you may contact CSS technical support at

Email: [support@csspl.com.au](mailto:support@csspl.com.au)

Telephone: +613-9419 3955

Fax: +613-9419 3509

Please have the following details when you contact CSS technical staff

- Model of product with software version.
- Serial number (Label on adapter or from the main menu)
- Date of purchase
- Clear definition of problem
- Steps taken so far to fix problem