



# Hardware Installation Guide

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## *Clavister SG4200 Series*

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Build: 9.10  
Published 2008-08-21  
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## Table of Contents

Preface .....	5
1. Product Overview .....	6
1.1. Unpacking the Product .....	6
1.2. Keypad, Ports and Connectors .....	7
2. Installation .....	9
2.1. Installation Guidelines .....	9
2.2. Installing SFP modules .....	11
2.3. Connecting Power .....	13
3. Initial Setup .....	16
3.1. Management Workstation Connection .....	16
3.2. Initializing CorePlus .....	17
3.3. Connecting the Console Port .....	19
4. Product Maintenance .....	21
4.1. Replacing the Power Supply .....	21
4.2. Replacing Fan Modules .....	23
5. Warranty .....	25
6. Safety .....	27
7. Hardware Specifications .....	30

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## List of Figures

1.1. ....	7
2.1. A typical 1000 Base LX/SX module .....	11
2.2. Installing a 1000 Base LX/SX module .....	11
2.3. A typical 1000 Base TX module .....	11
2.4. Installing a 1000 Base TX module .....	12
2.5. Side view of the Clavister SG4200 Series showing multiple cable connections. ....	12
2.6. Rear view of the Clavister SG4200 Series. ....	13
3.1. Management Workstation Connection .....	16
3.2. Surfing to the Clavister Security Gateway .....	17
3.3. Logging in to the WebUI .....	17
4.1. Replaceable modules in an SG4200 Series device. ....	21
4.2. Replacing a SG4200 Series power supply. ....	22
4.3. An SG4200 Series AC power supply unit. ....	22
4.4. An SG4200 Series DC power supply unit. ....	22
4.5. An SG4200 Series fan module. ....	23
4.6. Clavister SG4200 Series fan disassembly. ....	23
7.1. SG4200 Series Dimensions and Weight .....	30
7.2. Regulatory and Safety Standards .....	30
7.3. Environmental .....	30
7.4. Power Specifications .....	30

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# Preface

## Target Audience

The target audience for this guide is the user who has taken delivery of a packaged Clavister SG4200 Series appliance. The guide takes the user from unpacking and installation of the device through to power-up and initial network connection.

## Text Structure

The text is divided into chapters and subsections. Numbered subsections are shown in the table of contents at the beginning of the document.

### Text links

Where a "See section" link is provided in the main text, this can be clicked on to take the reader directly to that reference eg. see Chapter 7, *Hardware Specifications*.

### Web links

Web links included in the document are clickable eg. <http://www.clavister.com>

## Notes to the main text

Special sections of text which the reader should pay special attention to are indicated by icons on the left hand side of the page followed by a short paragraph in italicized text. There are the following types of such sections:



### **Note**

*This indicates some piece of information that is an addition to the preceding text. It may concern something that is being emphasised or something that is not obvious or explicitly stated in the preceding text.*



### **Tip**

*This indicates a piece of non-critical information that is useful to know in certain situations but is not essential reading.*



### **Caution**

*This indicates where the reader should be careful with their actions as an undesirable situation may result if care is not exercised.*



### **Important**

*This is an essential point that the reader should read and understand.*



### **Warning**

*This is essential reading for the user as they should be aware that a serious situation may result if certain actions are taken or not taken.*

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# Chapter 1. Product Overview

- Unpacking the Product, page 6
- Keypad, Ports and Connectors, page 7

## 1.1. Unpacking the Product



This section details the unpacking of the SG4200 Series appliance. Open the packaging box used for shipping and carefully unpack the contents. The box should contain the following:

1. The Clavister SG4200 Series Appliance.
2. A mounting kit for 19" racks including rear mounting brackets. The side brackets for this kit are already be attached but can be removed for flat surface operation.
3. Attachable rubber feet for flat-surface mounting.
4. Ethernet cable.
5. DB9 female to RJ45 console cable for RS232 connection.
6. Power cord.
7. CD-ROM containing:
  - Clavister software.
  - Product documentation in PDF format.
8. Certificate of Authenticity



### **Note**

*If any items are missing from your package, please contact your reseller or distributor. All PDF documentation can be freely downloaded from the Clavister website.*

## 1.2. Keypad, Ports and Connectors

This section is an overview of the hardware's external design and construction.

**Figure 1.1.**



The SG4200 Series features a number of connection ports. On the far right is the RS232 console port. On the far left is the device's display and keypad. Between are an array of 14 Ethernet ports.

Each Ethernet port has equal operational capacity and corresponds to a logical interface in the CorePlus software configuration. Going from left to right the Ethernet ports are:

1. 8 x Small Form Pluggable (SFP) Ethernet ports with logical interface names **sfp1** to **sfp8**. These are for Gigabit Ethernet links only.
2. 2 x RJ45 Gigabit Ethernet ports with logical interface names **ge1** and **ge2**. These connections are capable of link speed auto-negotiation and can therefore operate with 10Base-T, 100Base-Tx, or 1000Base-T.
3. 4 x RJ45 Fast Ethernet ports with logical interface names **fe1** to **fe4**. These connections are also capable of link speed auto-negotiation and can operate with 10Base-T or 100Base-Tx.

### Port Status LEDs

On the SG4200 Series there are indicator lights associated with each port which illuminate according to link status and activity. The lights and lighting schemes vary according to port type:

#### **SFP (sfp) ports**

One green light is located directly to the right of the port connection. This is illuminated to show that a link is established.

#### **Gigabit (ge) ports**

Two lights are located at the top-right and top-left of the port. The top-left flashes green to indicate data traffic. The top-right light is: not lit if the link is 10 Mb, green if 100 Mb, yellow if 1 Gb.

#### **Fast Ethernet (fe) ports**

Two lights are located at the top-right and top-left of the port. The top-right flashes green to indicate data traffic. During 10 Mb operation the top-left light is not lit. During 100 Mb operation the top-left light is continuously yellow to indicate the link is established.





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# Chapter 2. Installation

- Installation Guidelines, page 9
- Installing SFP modules, page 11
- Connecting Power, page 13

## 2.1. Installation Guidelines

Follow these guidelines when installing your Clavister SG4200 Series appliance:

- Make sure that the power source circuits are properly grounded, then use the power cord supplied with the appliance to connect it to the power source.
- If your installation requires a different power cord than the one supplied with the appliance, be sure to use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the appliance.
- Ensure that the appliance does not overload the power circuits, wiring and over-current protection. To determine the possibility of overloading the supply circuits, add together the ampere ratings of all devices installed on the same circuit as the appliance and compare the total with the rating limit for the circuit. The maximum ampere ratings are usually printed on the devices near the AC power connectors.
- Do not install the appliance in an environment where the operating ambient temperature might exceed the specified operating range (see Chapter 7, *Hardware Specifications*).
- Make sure that airflow around the sides and back of the appliance is not restricted.



### **Note**

*Detailed information concerning power supply range, operating temperature range etc. can be found at the end of this publication in Chapter 7, Hardware Specifications.*

## Flat Surface Installation

The SG4200 Series device can be mounted on any appropriate stable, flat, level surface that can safely support the weight of the appliance and its attached cables.

The rubber feet supplied with the SG4200 Series unit should be attached to the underside of the device for operation on a flat surface. This protects both the surface and the device from external damage as well as allowing air to circulate underneath the device during operation.

The fitted side brackets for rack installation can be removed by unscrewing the retaining screws.



### **Caution**

*Please ensure there is adequate space around the unit for ventilation and access to operating switches and cable connectors. No other objects should be placed on top of the unit.*

## Rack Installation

A rack mounted Clavister Security Gateway can be installed in most 19" standard racks. Fasten the appliance with screws suitable for the kind of rack you are using. The following guidelines should

be followed:

- A rack or cabinet used for mounting should be adequately secured to prevent it from becoming unstable and/or falling over.
- Devices installed in a rack or cabinet should be mounted as low as possible, with the heaviest devices at the bottom and progressively lighter devices installed above.



**Note**

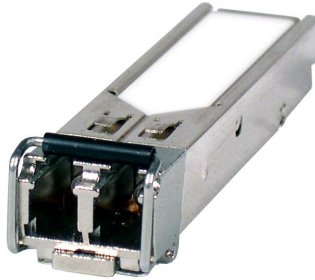
*SG4200 Series devices come with rack-mounting brackets already attached to the unit.*

## 2.2. Installing SFP modules

Small Form Pluggable (SFP) modules come in different forms from different manufacturers. Shown below are some typical units. The SG4200 Series device does not come with SFP modules and these must be purchased separately.

Installation of SFP units is usually similar. With the units shown, the modules are inserted into sockets with the label facing upwards. The module slides gently into position by pressing inwards.

**Figure 2.1. A typical 1000 Base LX/SX module**



**Figure 2.2. Installing a 1000 Base LX/SX module**



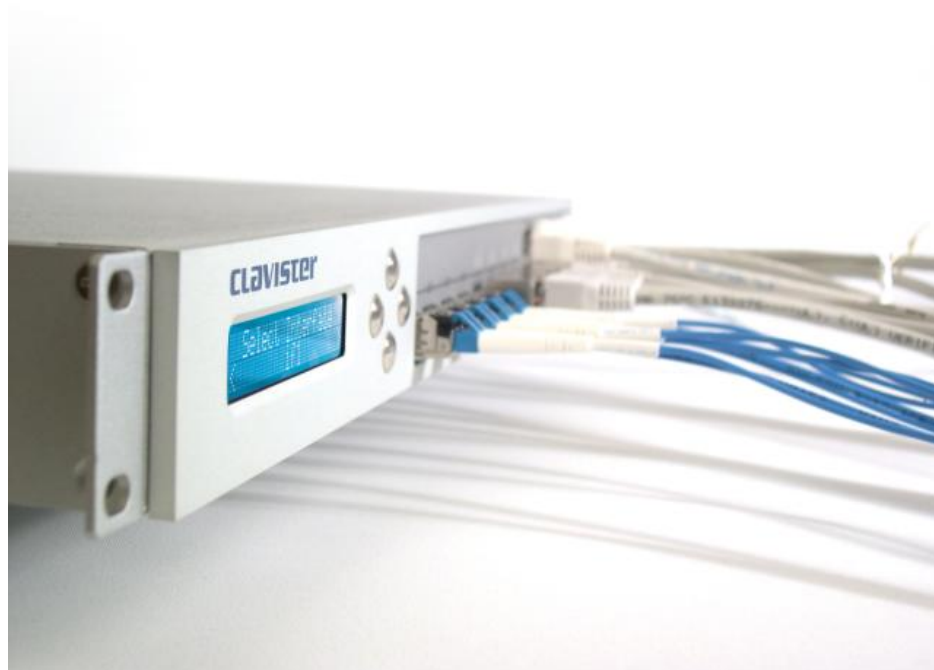
**Figure 2.3. A typical 1000 Base TX module**



**Figure 2.4. Installing a 1000 Base TX module**



**Figure 2.5. Side view of the Clavister SG4200 Series showing multiple cable connections.**



## 2.3. Connecting Power

An SG4200 Series appliance is delivered in a form able to support AC or DC power, but not both. The device should be ordered in either an AC or DC compatible hardware version.



### **Important**

*Please read the advisory concerning electrical safety in Chapter 6, Safety.*

The image below shows the back of the SG4200 Series. To the extreme right is the power cord socket. To the left of the socket is a recessed button for resetting the device to factory defaults.

**Figure 2.6. Rear view of the Clavister SG4200 Series.**



## Connecting AC Power

To connect power, follow these steps:

1. Fit the power cord into the power adapter that comes with the SG4200 Series.
2. Plug the power adapters power plug into the power receptacle on the back panel of the SG4200 Series device.
3. Plug the other end of the power cord into a grounded power outlet.
4. Power on the appliance using the switch at the back of the unit.

## Connecting DC Power

The DC power supply has single DC input supporting +/- 48VDC and return feed. A dedicated circuit breaker supporting the labelled current requirements is needed for the SG4200 Series

It is common that DC power is routed through DC power distribution panels in each rack in a typical site using battery backups providing 48 VDC. It might be located at the top of each rack where the SG4200 Series is to be installed. The SG4200 Series require a pair of cables connected to each set of terminal studs on the power distribution panel.



### **Note**

*Make sure to connect the input and return feed to the correct power distribution feed as there is no standard colouring scheme for DC power cables.*

The device must be connected to earth ground during operation. Connect a cable to a earth ground from the cabinet or other suitable grounding point to the chassis by fastening a U-type lug to the end of the ground wire and fasten it to the chassis with the power supply retaining screw. Alternatively fasten it to the middle DC terminal labelled "FG".

**Warning**

*The power feed ground and chassis ground must be connected to the same earth point at an installation site.*

- Connect the device to earth ground:
  - Ensure a suitably qualified electrician has correctly installed the wiring.
  - Connect one end to the chassis ground point.
  - Connect the other end to the earth ground, for instance to the rack cabinet in which the SG4200 Series is installed.
- Connect cables to the power supply:
  - Be certain that the voltage from all DC power source cables is 0V before and during installation. Take precautions so that power cannot accidentally be restored during installation.
  - Ensure a suitably qualified electrician has correctly installed all power connections.
  - Loosen the screws on the power supply terminal block labeled "+" and "-".
  - Fasten the positive DC source power cable lug to the "+" terminal.
  - Fasten the negative DC source power cable lug to the "-" terminal.

The DC distribution panel should now be powered on and the following done:

- Measure voltage on the power supply terminal blocks and verify that 48VDC is properly provided.
- Set the power supply ON/OFF switch to its **ON** position.
- Verify startup.

**Protecting Against Power Surges**

*It is strongly recommended that the purchase and use of a separate surge protection unit from a third party is considered to ensure that the hardware is protected from damage by electrical power surges. Surge protection is particularly recommended in geographic regions where lightning strikes might occur.*

*A surge protection unit should be installed exactly according to the manufacturer's instructions as correct installation of such units is vital for their effectiveness.*



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# Chapter 3. Initial Setup

- Management Workstation Connection, page 16
- Initializing CorePlus, page 17
- Connecting the Console Port, page 19

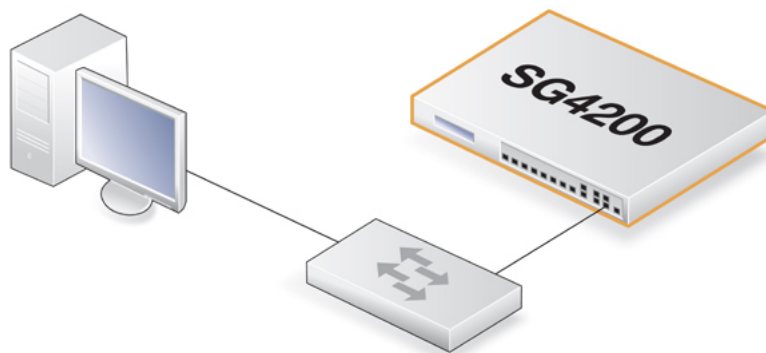
## 3.1. Management Workstation Connection

Initial CorePlus setup is usually done through a workstation running an Internet browser or Secure Shell (SSH) client. The alternative is setup using the CLI through the local serial port and this is discussed later.

An Ethernet interface on both the workstation and Clavister Security Gateway is connected to the same physical network. This is usually done by connecting through a switch or hub using a regular straight-through Ethernet cable as illustrated below.

On the SG4200 Series, the **ge1** Ethernet interface must be used for this initial connection.

**Figure 3.1. Management Workstation Connection**



The SG4200 Series device can be connected directly to the network interface of the management workstation without using any switch or hub, but in that case a crossover cable is required.

A web browser running on the workstation can now be used to configure the SG4200 Series, as described in the following section.



## 3.2. Initializing CorePlus

This section outlines the first steps in initializing CorePlus on the SG4200 Series. A complete description can be found in the separate *CorePlus Setup Guide*.

### Setting the Workstation Static IP

Although the workstation and SG4200 Series are connected to the same network. The static IP address of the workstation interface must be set to the following values for them to be able to communicate:

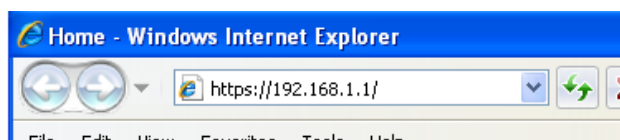
- **IP address:** *192.168.1.30*
- **Subnet mask:** *255.255.255.0*
- **Default gateway:** *192.168.1.1*

A full description of how to set these values for a Windows or MacOS workstation can be found in the *CorePlus Setup Guide*.

### Setup through a Web Browser

Once there is a connection to a management workstation, it is then possible to connect to the SG4200 Series using a web browser (Internet Explorer or Firefox are recommended). On initial power up, the default IP address on the **ge1** Ethernet interface of the SG4200 Series is the internal address *192.168.1.1*. By entering this address in the browser address window and surfing to the Clavister Security Gateway, CorePlus will respond like a web server. Using *https://* is recommended for this although using the less secure *http://* will also work.

**Figure 3.2. Surfing to the Clavister Security Gateway**



When CorePlus responds, it presents a login dialog page as shown below.

**Figure 3.3. Logging in to the WebUI**


Authentication required

Please enter your username and password

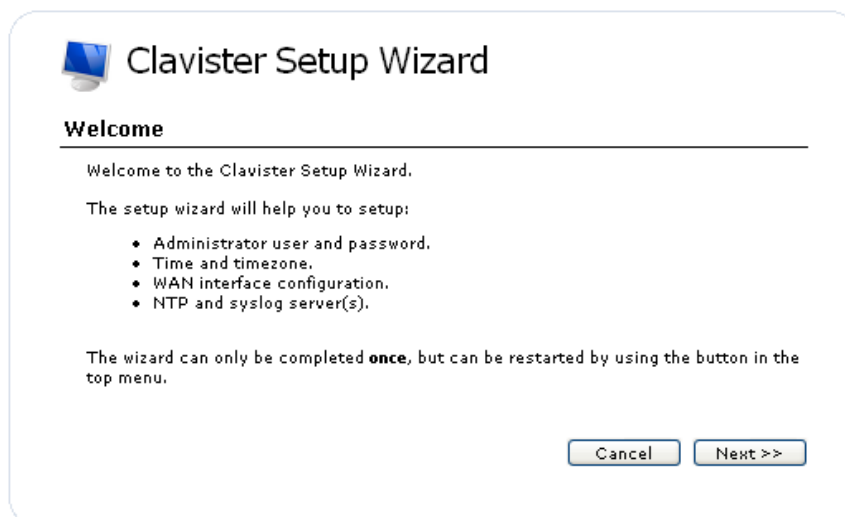
Username:

Password:

Language:



The default username and password are **admin** and **admin**. When the WebUI starts for the first time, a setup wizard will automatically be launched which will take the new user through the essential steps for initial CorePlus configuration and Internet connection before returning to the standard WebUI.

**Note**

*If popup blocking is enabled in the browser, the wizard window must be explicitly allowed.*

This wizard and the software setup process is described more fully in the *CorePlus Setup Guide*.

**Setup through the CLI**

If desired, CorePlus setup can be achieved through the CLI. On power up, CorePlus can be reached directly through the RS232 console port or can be reached with a secure shell client connecting across the local network to IP address *192.168.1.1*.

If the RS232 console port is to be used then a terminal emulator will need to be connected and this is described in the next section. The CLI software setup process is also described fully in the *CorePlus Setup Guide*.

## 3.3. Connecting the Console Port

The serial console port is an RS-232 port that enables a connection to a PC or terminal for monitoring and initial configuration of the SG4200 Series device.



### **Note**

*It is recommended a console password is set using the console boot menu which is described in the CorePlus Administrators Guide.*

### **Equipment Required**

To use the console port, the following is needed:

- A terminal or a computer with a serial port and the ability to emulate a terminal (for instance, the *Hyper Terminal* software included with some Microsoft Windows distributions allows this).
- The terminal should have the following settings:
  - 9600 bps.
  - No parity.
  - 8 bits.
  - 1 stop bit.
  - No flow control.
- An RS-232 cable with appropriate terminating connectors. The SG4200 Series package includes an RS-232 null-modem cable.

### **Connection Steps**

To connect a terminal to the console port, follow these steps:

1. Check that the terminal connection settings are set as described above.
2. Connect one of the connectors on the RS-232 cable supplied, directly to the console port on the SG4200 Series device.
3. Connect the other end of the cable to the terminal or the serial connector of the computer running the communications software.



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# Chapter 4. Product Maintenance

- Replacing the Power Supply, page 21
- Replacing Fan Modules, page 23

The SG4200 Series device allows the on-site replacement of both fan and power supply modules.

**Figure 4.1. Replaceable modules in an SG4200 Series device.**



## 4.1. Replacing the Power Supply

### SG4200 Series power supplies

In the SG4200 Series there is a single power supply unit. If the supply fails then the SG4200 Series device will not function. The power supply can be changed on-site through a simple procedure if a back-up power supply is available.

#### Swapping a Power Supply

To swap a failed power supply:

- Switch off the supply using the power switch at the back of the unit.
- Remove the power supply cord.
- Unscrew the retaining screw to the left of the power supply.
- Gently pull out the failed supply by firmly grasping the pivoted handle at the back of the unit.
- Gently insert the new supply, replace the retaining screw and re-insert the power cord into the new unit.
- Switch on the new unit by using the power-on switch at the back of the unit.
- The green light at the back will illuminate indicating normal operation.

**Figure 4.2. Replacing a SG4200 Series power supply.**



**Figure 4.3. An SG4200 Series AC power supply unit.**



**Figure 4.4. An SG4200 Series DC power supply unit.**



## 4.2. Replacing Fan Modules

### Recommended Replacement Interval

The fan module in a SG4200 Series device is liable to wear from mechanical movement and fan failure can lead to much more serious failures from overheating of electronic components. Although the fan modules are built for prolonged use it is nonetheless a recommended precaution that the fan module (shown below) be replaced every two years.

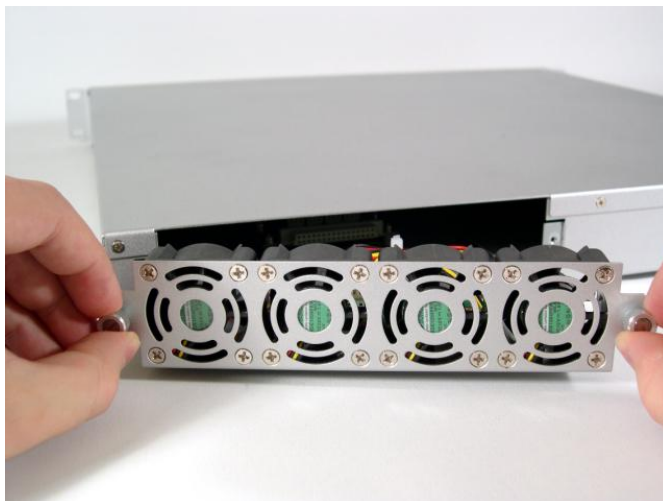
**Figure 4.5. An SG4200 Series fan module.**



### Replacement Steps

- Power off the SG4200 Series device.
- Unscrew the fan module retaining screws
- Pull the fan module outwards while holding the retaining screws (see below).
- Replace with the new module, securing with the retaining screws.

**Figure 4.6. Clavister SG4200 Series fan disassembly.**







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# Chapter 5. Warranty

## Limited Warranty

Clavister warrants to the customer of the SG4200 Series Appliance that the Hardware components will be free from defects in material and workmanship under normal use for a period of two (2) years from the Start Date (as defined below). The warranty will only apply to failure of the product if Clavister is informed of the failure not later than two (2) years from the "Start Date" or thirty (30) days after that the failure was or ought to have been noticed by the customer. The warranty will not apply to products from which serial numbers have been removed or to defects resulting from unauthorized modification, operation or storage outside the environmental specifications for the product, in-transit damage, improper maintenance, defects resulting from use of third-party software, accessories, media, supplies, consumables or such items not designed for use with the product, or any other misuse. Any replacement Hardware will be warranted for the remainder of the original warranty period or thirty days, whichever is longer.

Note that the term *Start Date* means the earlier of Product registration or ninety (90) days following shipment from Clavister.

## Obtaining Warranty Service

Warranty service may be obtained by contacting Clavister within the applicable warranty period, and requesting a Return Material Authorization (RMA) number. If the product in question has not been registered with the Clavister client web pages, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided. If Purchaser's circumstances require special handling of warranty correction, then at the time of requesting the RMA number, the Purchaser may also propose special procedures as may be suitable to the case.

After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be clearly marked on the outside of the package. The package must be mailed or otherwise shipped to Clavister with all costs of mailing/shipping/insurance prepaid. Clavister shall not be responsible for any of the Purchaser's software, firmware, information, or memory data contained in, stored on, or integrated with any product returned to Clavister pursuant to this warranty.

Any package returned to Clavister without an RMA number will be rejected and shipped back to the Purchaser at the Purchaser's expense. Clavister reserves the right in such a case to levy a reasonable handling charge in addition to mailing and or shipping costs.

To issue an Return Material Authorization (RMA) request for warranty or maintenance service for any Clavister appliance product, please fill out the Clavister RMA request form which can be found and submitted online at (clickable link):

**[http://www.clavister.com/support/support\\_rma\\_request.html](http://www.clavister.com/support/support_rma_request.html)**

Should there be a problem with the online form then Clavister support can be contacted by email at: **<mailto:support@Clavister.com>**.

The mail address is:  
Clavister AB  
Torggatan 10  
891 27 ÖRNSKÖLDSVIK  
SWEDEN

Details of the software procedures to follow when installing new hardware can be found in the FineTune guide.

## Customer Remedies

Clavister's entire liability according to this warranty shall be, at Clavister's option, either return of the price paid, or repair or replacement of the Hardware that does not meet Clavister's limited warranty and which is returned to Clavister with a copy of your receipt.

## Limitations of Liability

Refer to the legal statement at the beginning of the guide for a statement of liability limitations.

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# Chapter 6. Safety

## Safety Information

Clavister SG4200 Series devices are safety class I products and have protective ground terminals. There must be an uninterrupted safety earth ground from the main power source to the product's input wiring terminals, power cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

For LAN cable grounding:

- If your LAN covers an area served by more than one power distribution system, be sure their safety grounds are securely interconnected.
- LAN cables may occasionally be subject to hazardous transient voltage (such as lightning or disturbances in the electrical utilities power grid). Handle exposed metal components of the network with caution.

There are no user-serviceable parts inside these products. Only service-trained personnel can perform any adjustment, maintenance or repair.

## Säkerhetsföreskrifter

Dessa produkter är säkerhetsklassade enligt klass I och har anslutningar för skyddsjord. En obruten skyddsjord måste finnas från strömkällan till produktens nätkabelanslutning eller nätkabel. Om det finns skäl att tro att skyddsjorden har blivit skadad, måste produkten stängas av och nätkabeln avlägnas till dess att skyddsjorden har återställts.

För LAN-kablage gäller dessutom att:

- om LAN:et täcker ett område som betjänas av mer än ett strömförsörjningssystem måste deras respektive skyddsjord vara ihopkopplade.
- LAN kablage kan vara föremål för farliga spänningstransienter (såsom blixtnedslag eller störningar i elnätet). Hantera metallkomponenter i förbindelse med nätverket med försiktighet.

Det finns inga delar i produkten som kan lagas av användaren. All service samt alla justeringar, underhåll eller reparationer får endast utföras av behörig personal.

## Informations concernant la sécurité

Cet appareil est un produit de classe I et possède une borne de mise à la terre. La source d'alimentation principale doit être munie d'une prise de terre de sécurité installée aux bornes du câblage d'entrée, sur le cordon d'alimentation ou le cordon de raccordement fourni avec le produit. Lorsque cette protection semble avoir été endommagée, débrancher le cordon d'alimentation jusqu'à ce que la mise à la terre ait été réparée.

Mise à la terre du câble de réseau local:

- si votre réseau local s'étend sur une zone desservie par plus d'un système de distribution de puissance, assurez-vous que les prises de terre de sécurité soient convenablement interconnectées.
- Les câbles de réseaux locaux peuvent occasionnellement être soumis à des surtensions transitoires dangereuses (telles que la foudre ou des perturbations dans le réseau d'alimentation public). Manipulez les composants métalliques du réseau avec précautions.

Aucune pièce contenue à l'intérieur de ce produit ne peut être réparée par l'utilisateur. Tout

dépannage, réglage, entretien ou réparation devra être confié exclusivement à un personnel qualifié.

## Hinweise zur Sicherheit

Dies ist ein Gerät der Sicherheitsklasse I und verfügt über einen schützenden Erdungsterminal. Der Betrieb des Geräts erfordert eine ununterbrochene Sicherheitserdung von der Hauptstromquelle zu den Geräteingabeterminals, den Netzkabeln oder dem mit Strom belieferten Netzkabelsatz voraus. Sobald Grund zur Annahme besteht, dass der Schutz beeinträchtigt worden ist, das Netzkabel aus der Wandsteckdose herausziehen, bis die Erdung wiederhergestellt ist.

Für LAN-Kabelerdung:

- Wenn Ihr LAN ein Gebiet umfasst, das von mehr als einem Stromverteilungssystem beliefert wird, müssen Sie sich vergewissern, dass die Sicherheitserdungen fest untereinander verbunden sind.
- LAN-Kabel können gelegentlich gefährlichen Übergangsspannungen ausgesetzt werden (beispielsweise durch Blitz oder Störungen in dem Starkstromnetz des Elektrizitätswerks). Bei der Handhabung exponierter Metallbestandteile des Netzwerkes Vorsicht walten lassen.

Dieses Gerät enthält innen keine durch den Benutzer zu wartenden Teile. Wartungs-, Anpassungs-, Instandhaltungs- oder Reparaturarbeiten dürfen nur von geschultem Bedienungspersonal durchgeführt werden.

## Considerazioni sulla sicurezza

Questo prodotto è omologato nella classe di sicurezza I ed ha un terminale protettivo di collegamento a terra. Dev'essere installato un collegamento a terra di sicurezza, non interrompibile che vada dalla fonte d'alimentazione principale ai terminali d'entrata, al cavo d'alimentazione oppure al set cavo d'alimentazione fornito con il prodotto. Ogniqualvolta vi sia probabilità di danneggiamento della protezione, disinserite il cavo d'alimentazione fino a quando il collegamento a terra non sia stato ripristinato.

Per la messa a terra dei cavi LAN:

- se la vostra LAN copre un'area servita da più di un sistema di distribuzione elettrica, accertatevi che i collegamenti a terra di sicurezza siano ben collegati fra loro;
- i cavi LAN possono occasionalmente andare soggetti a pericolose tensioni transitorie (ad esempio, provocate da lampi o disturbi nella griglia d'alimentazione della società elettrica); siate cauti nel toccare parti esposte in metallo della rete.

Nessun componente di questo prodotto può essere riparato dall'utente. Qualsiasi lavoro di riparazione, messa a punto, manutenzione o assistenza va effettuato esclusivamente da personale specializzato.

## Consideraciones sobre seguridad

Este aparato se enmarca dentro de la clase I de seguridad y se encuentra protegido por una borna de puesta a tierra. Es preciso que exista una puesta a tierra continua desde la toma de alimentación eléctrica hasta las bornas de los cables de entrada del aparato, el cable de alimentación hasta haberse subsanado el problema.

Puesta a tierra del cable de la red local (LAN):

- Si la LAN abarca un área cuyo suministro eléctrico proviene de más de una red de distribución de electricidad, cerciorarse de que las puestas a tierra estén conectadas entre sí de modo seguro.
- Es posible que los cables de la LAN se vean sometidos de vez en cuando a voltajes

momentáneos que entrañen peligro (rayos o alteraciones en la red de energía eléctrica). Manejar con precaución los componentes de metal de la LAN que estén al descubierto.

Este aparato no contiene pieza alguna susceptible de reparación por parte del usuario. Todas las reparaciones, ajustes o servicio de mantenimiento debe realizarlos solamente el técnico.

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# Chapter 7. Hardware Specifications



Below are the key hardware specifications for Clavister SG4200 Series installation.

**Figure 7.1. SG4200 Series Dimensions and Weight**

Height x Width x Depth (mm)	44 x 440 x 440
Device weight	7.0 kg
Device form Factor	1U
Rack Mountable 19" ?	Yes
Power Supply (AC)	100-240V 50 to 60 Hz AC
Power Supply (DC)	36VDC to 72VDC

**Figure 7.2. Regulatory and Safety Standards**

Safety	UL, CE
EMC	FCC class A, CE class A, VCCI class A

**Figure 7.3. Environmental**

Humidity	20% to 95% noncondensing
Operational Temperature	5 to 55° C
Vibration	0.41 Grms <sup>2</sup> (3-500 Hz)
Shock	30 G

**Figure 7.4. Power Specifications**

Typical Consumption (W)	90 W
Typical Current @ 230V	400 mA
Typical Current @ 110V	800 mA
BTU	308 BTU
PSU Rated Power (W)	230 W

## Further information

For complete product specifications refer to (clickable link): <http://www.clavister.com/products/>