

RC100/120 LED Lighting Controllers



Quick Start Guide

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All hardware, software, and documentation is provided on an 'as is' basis. This information is for guidance only. Installers must perform their own risk assessment specific to each installation.

It is essential the user ensures that the operation of the product is suitable for their application.

The user must ensure that incorrect functioning of this equipment cannot cause any dangerous situation or significant financial loss to occur.

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Gardasoft RC100/120 controllers

Your Gardasoft RC100 or RC120 LED Lighting Controller is designed to be quick and easy to use provided you set up the current of your light and connect the controller to an internal or external trigger.

This guide is provided to help you get 'up and running' quickly and easily. It covers connection to a power supply, a light, a PC, and to a trigger. It also gives a brief description of the product – in other words, all you need to know to get started.

Throughout this guide, the RC100 and RC120 are both referred to as RC1xx unless otherwise indicated.

Before you start

Before you use this product, make sure you are satisfied that you understand the section on Safety precautions and that you have checked that the RC1xx controller fulfils your requirements.

When you have done so, you are ready to connect and set up your RC1xx controller.

The full *User Manual* for the RC1xx controller and application notes about it can be found at www.gardasoft.com.

About your RC1xx

Your RC1xx is a single channel LED lighting controller that can be set up from its front panel. Additionally, the RC120 can be set up through its own web pages accessed from its Ethernet connection (see Section 5, "Ethernet operation (RC120)").

Before you can use your RC1xx, you must set the current rating for the light you want to use. See Section 7, "Setting the rating of your light". For other settings, refer to the User Manual.

1 Getting started with your RC1xx

This quick-start guide is designed to help you connect up and use your RC1xx LED Lighting Controller, easily and quickly.

When you are satisfied that you understand its basic operation, you are ready to download the full user's guide, as a PDF, from our website (at www.gardasoft.com/downloads/). That document will provide more information. For example, how to use the range of modes of operation that are available for each channel of your RC1xx, how to operate its timing controller, how to mount the unit, and how to configure it using different connections.

2 Default factory settings

The default factory setting for the RC1xx is that it is set to drive a light with a continuous output at 50% brightness once you have set up the light's current rating. You can use the **CL** command on your RC120 to return the controller to its default configuration.

To get your RC1xx unit working initially, you need to:

- » Connect power
- » Connect a light
- » Set up the current rating of the light on the RC1xx
- » Check that the LED illuminates correctly (**Note:** refer to the safety information before doing so).
- » And, if you intend to pulse the light, connect a trigger or set an internal trigger.

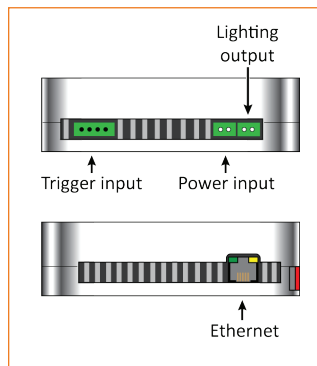
Then you need to read the *User Manual*, to find out how to mount the unit correctly, and how to change the controller's configuration.

3 Connecting your RC1xx

Your RC1xx controller is designed to be mounted on a DIN rail.

Make sure there is adequate ventilation.

The connector positions on an RC120 are shown opposite.

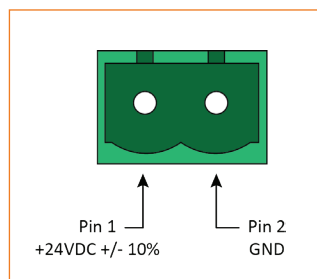


3.1 Connecting a power supply

The power supply connections are shown opposite.

We recommend that any mains supply-derived power source to which you connect your RC1xx controller has a Safety Extra Low Voltage (SELV) output.

Route low voltage wiring to the RC1xx controller separately from mains wiring. If it is not possible to separate low voltage from mains wiring, ensure that the low voltage wiring has appropriately rated insulation or that you apply supplementary insulation.

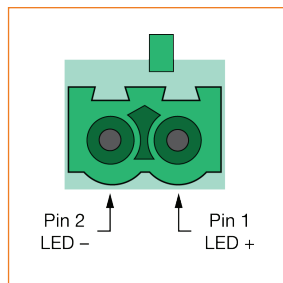


3.2 Connecting a light

The lighting output connections are shown opposite.

Note: Make sure you set up the current or voltage rating of the light before you connect it. See section 7, “Setting the rating of your light”.

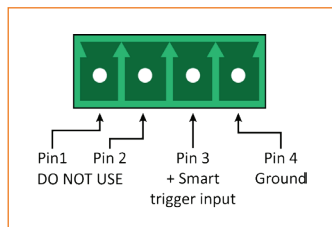
The lighting output connections must not be commoned with any other controllers or grounded in any way.



3.3 Connecting a trigger source

The trigger input is a Smart input; it accepts a range of sources as trigger inputs which are explained in more detail in the User Manual at www.gardasoft.com. The connections are shown opposite.

Note that the Smart input is not isolated. It is ground-referenced to the power supply negative connection.



You can connect NPN, PNP, or TTL trigger sources to your RC1xx controller, or a voltage source where:

<0.9V = logic 0, and

3V to 24V = logic 1

4 Initial configuration

Three modes of operation are provided for the light output:

Continuous - the output is constant, but variable between 0% and 100% in increments of 0.1%.

Pulsed (Strobe) - the output is pulsed once per trigger. The delay from trigger to pulse, the pulse duration, and the brightness can all be set.

Switched - the trigger input can be used to switch the output current on and off.

Note: This Quick Start Guide is mainly concerned with pulse mode operation of your RC1xx controller. For more information on the other modes of operation, see the User Manual at www.gardasoft.com.

The set-up is non-volatile, so your RC1xx controller will resume the same operation after a power cycle.

4.1 Pulse and duty cycle limits

In both pulsed and switched modes, the pulse width and duty cycle are internally limited to prevent damage to the light. The brightness, pulse width, and duty cycle can all be set. For more information refer to the User Manual.

If necessary, your RC1xx controller limits the duty cycle by ignoring triggers that occur too soon after the previous trigger. If the internal temperature gets to high, the display shows **FAt**.

4.2 Pulsed output

The output is off by default. When your RC1xx controller is triggered, it pulses after a delay.

The re-trigger delay is the minimum permitted time from one trigger to the next; this can be set in multiples of 100µs. Any triggers that occur too soon after the previous trigger are ignored.

You can configure the delay, pulse width, re-trigger delay, and pulse intensity. For more information, refer to the User Manual.

4.3 Internal trigger

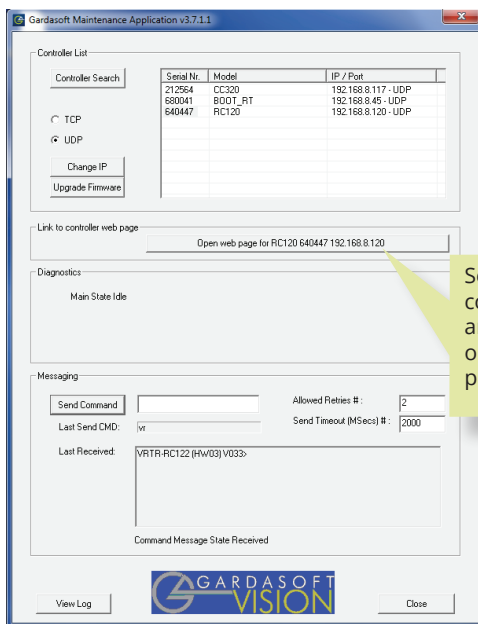
An internal trigger timer is available for continuous triggering in pulse mode. You can configure the period of this trigger's timer. For more information, refer to the User Manual.

5 Ethernet operation (RC120)

An Ethernet connection is provided through the RJ45 socket. The connection is 10Base-T and operates at 10Mbps per second. Using the Ethernet connection enables you to communicate with your RC120 using its web pages.

GardasoftMaint, available as a download from www.gardasoft.com, allows you to identify your RC120 controller on your computer's network and to connect to it. For more information on the use of *GardasoftMaint* and connecting your RC120, refer to the *User Manual* at www.gardasoft.com. Application note APP923, *Troubleshooting Ethernet Problems* is also available from the Gardasoft website.

A screen shot of *GardasoftMaint* is shown below:



Select the appropriate controller from the list and click this button to open the RC120's web pages as shown overleaf.

6 Using the RC120's web pages

Once you have established a network that includes your RC120 controller, you can manage it and any other controllers on your network.

You can set your RC120 controller up for continuous, switched, or pulsed operation. An example of your RC120's channel configuration page is shown below:

The screenshot shows a web browser window with the URL <http://192.168.8.38/channel1>. The page title is "RC120 LED Lighting Controller - Channel 1 Configuration (HW03) V035, serial number 641224". The page has a blue header with the "GARDASOFT VISION" logo and navigation links: "Go To Main Page", "Set up Channel 1", "General Setup", and "Visit Gardasoft.com".

The main configuration area includes the following fields:

- Mode: Continuous (dropdown menu)
- Trigger: Trigger 1 (dropdown menu)
- Brightness (%): 50.0 (text input)
- Characterized up to (%): 0.0 (text input)
- Brightness 2 (Selected Mode) (%): 0.0 (text input)
- Pulse Delay: 1.000ms (text input)
- Pulse Width: 1.000ms (text input)
- Retrigger Delay: 0.0us (text input)
- Flags: Error Detect ☒ Pos Trigger ☒ Autoseense Enabled ☒ Current adjust ☒
- Click to update: Submit (button)

The Status section displays the following data:

- Status: Detecting
- Dissipation: 0.0W
- Measured Current: 0.000A
- Supply Voltage: 24.3V
- SafePower(TM) Voltage: 24.0V
- Lighting Voltage: 0.9V
- Expected Voltage: 0.0V
- Voltage Drop: 23.0V to 23.1V
- Duty Cycle: 0.0%
- Trigger Count: 0, TRIG1 = 0
- Click to Refresh: Refresh (button)

The Rating section at the bottom shows:

- Rating (For example 12V or 0.3A): 0.100A (text input)
- Click to change: Update (button)

7 Setting the rating of your light

You will need to set the rating of your light before using it. You can do this by using the channel configuration web page of an RC120, or by using its front panel buttons. You must use this method for setting the rating of a light with an RC100. The section below explains how to set the light rating using the front panel buttons.

When you turn on your RC1xx controller, the display shows a series of messages (To find a list of their meanings, refer to the User Manual). Two segments of the display then flash alternately.

Press and hold the **SEL** button for one second, then follow the keystrokes overleaf.



CH1 is displayed. Use the ▲ and ▼ buttons to scroll to **rAt**.



Press the **SEL** button.



Use the ▲ and ▼ buttons to select the method you require to set the rating of your light: **CUR** for current and **VOL** for voltage.



Use the ▲ and ▼ buttons to set the current in Amps or the voltage in Volts. Press the **SEL** button.



Your light's rating is set up.

8 Safety precautions

Read this before using the RC1xx. Always observe the following safety precautions. If in doubt, contact your distributor or Gardasoft Vision. The following symbols mean:



Warning: Read instructions to understand possible hazards



Warning: Surface may get hot.



Warning: Possible hazardous voltage.

8.1 Heat



Ensure the RC1xx is mounted correctly and that you do not exceed any of the ratings for the unit.

At its maximum ratings, the RC1xx's enclosure can exceed 65°C which is sufficient to cause a burn if touched. Place in a position where personnel cannot accidentally touch it and ensure there is a free flow of air around the unit.

8.2 Electrical



The RC1xx produces high energy pulses. Take care to connect the outputs correctly and protect the output wiring and load from any short circuits. When switched off, energy remains stored in the RC1xx for about 15 seconds.

- » The RC1xx does not have complete electrical isolation of inputs (including triggering and communications ports) and outputs, therefore, please observe the following guidance:
- » Computer equipment that is connected to the communication or trigger ports must be internally powered or separated from mains electricity by double insulation/reinforced isolation or be approved to IEC 60950-1 standard. All other equipment connected to the triggers or other ports must also have double insulation/reinforced isolation protection from the mains supply.
- » The Power Supply Unit (PSU) used to energise the RC1xx must provide double insulation/reinforced isolation from mains electricity and protected against short circuits and overloads. We recommend using a PSU that limits its output current to the appropriate rating of the controller by design, by setting the current limit on the supply (if possible), or through over current protection. The PSU should be approved to either

IEC 60950-1, IEC 60335-1, IEC 61010-1, IEC61558-1,-2,-16. The PSU may also be approved to equivalent or superior safety standards.

- » Any energised conductors derived from mains electricity must also have Safety Extra Low Voltage (SELV) output.
- » At maximum ratings the temperature of the enclosure can exceed 65°C. Therefore, either all cabling must be rated to at least 100°C, or all cabling must be additionally insulated by an appropriately rated heat resistant sleeve.
- » Power supply cabling to the controller must be rated to at least 6A.
- » The cabling from the channel output to the load must be rated higher than the maximum channel output current.
- » If the controller is setup incorrectly, or in the event of failure, the energy provided by the power supply to the controller may become directly connected to any or all output channels. You must consider this during installation, and if necessary, provide adequate protection.
- » The DC power supply to controller must be externally fused to 3A using a slow blow fuse (T3AH, 50V).
- » The installer must provide a clearly marked, nearby and easily accessible switch as part of the installation to allow the controller to be disconnected from its energy source on both power conductors.
- » Transients caused by inductive loads must be suppressed externally to the RC1xx.

Warning: This is a Class A product. Its use in residential areas may cause radio interference, and such use should be avoided unless special measures are taken by the user to restrict emissions to a level that allows the reception of broadcast transmissions.

8.3 General



The RC1xx must not be used in an application where its failure could cause a danger to personal health or damage to other equipment.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

8.4 Installation guidance (disclaimer)

This information is for guidance only. Installers must perform their own risk assessment specific to each installation. While Gardasoft Vision Ltd has taken every care in the preparation of this advice, Gardasoft Vision Ltd accept no liability for damages of any kind except those required by law. Deliberate acts of endangerment and vandalism are not covered by this document and must be considered by the installer.

9 Sicherheit

Bitte lesen Sie vor Verwendung des RC1xx diese Informationen. Beachten Sie immer die folgenden Sicherheitshinweise. Wenden Sie sich im Zweifelsfall an Ihren Händler oder Gardasoft.



Warnung: Lesen Sie die Hinweise um eine mögliche Gefahr zu verstehen.



Warnung: Oberfläche kann heiß werden.



Warnung: Mögliche gefährliche Spannung.

9.1 Wärme



Stellen Sie sicher, dass der RC1xx korrekt montiert ist und dass Sie die Grenzwerte für das Gerät nicht überschreiten.

Bei den maximalen Grenzwerten kann das Gehäuse des RC1xx 65°C überschreiten, was ausreichend ist um bei einer Berührung zu Verbrennungen zu führen. Positionieren Sie das Gerät so, dass eine versehentliche Berührung durch das Personal ausgeschlossen ist und stellen Sie sicher, dass Luft frei um das Gerät zirkulieren kann.

9.2 Elektrik



Das RC1xx erzeugt Impulse mit hoher Energie. Achten Sie darauf, die Ausgänge korrekt anzuschließen und schützen Sie die Ausgangsverkabelung und Last gegen Kurzschlüsse. Beim Ausschalten bleibt Energie für etwa 15 Sekunden im RC1xx gespeichert.

Das RC1xx verfügt über keine vollständige Nachlaufisolierung der Eingänge (einschließlich Trigger- und Kommunikationsports) und Ausgänge. Beachten Sie daher unbedingt die folgenden Hinweise:

- » Computergeräte, die an die Kommunikations- oder Trigger-Ports angeschlossen sind, müssen über eine interne Stromversorgung verfügen oder vom Stromnetz durch eine doppelte Isolierung/verstärkte Isolierung getrennt sein oder nach dem Standard IEC 60950-1 zugelassen sein. Alle anderen Geräte, die an die Trigger- oder andere Ports angeschlossen sind, müssen ebenfalls durch eine doppelte Isolierung/verstärkte Isolierung vom Stromnetz getrennt sein.
- » Das Netzgerät, das zur Stromversorgung des RC1xx dient, muss durch eine doppelte Isolierung/verstärkte Isolierung von der Stromversorgung getrennt sein und gegen Kurzschlüsse und Überlastungen geschützt sein. Wir empfehlen die Verwendung eines Netzgeräts, das den Ausgangsstrom durch konstruktive Maßnahmen, durch Einstellen der Stromgrenze an der Versorgung (wenn möglich) oder durch einen Überstromschutz auf den geeigneten Nennstrom der Steuerung begrenzt. Das Netzgerät muss nach IEC 60950-1, IEC 60335-1, IEC 61010-1 oder IEC61558-1,-2,-16 zugelassen sein. Das Netzgerät kann auch nach gleichwertigen oder höheren Standards zugelassen sein.
- » Alle stromführenden Leiter, die vom Stromnetz abgeleitet sind, müssen ebenfalls Sicherheitskleinspannung (SELV) am Ausgang erzeugen. Hinweise zu den zulässigen Spannungsgrenzwerten.
- » Bei den maximalen Grenzwerten kann die Temperatur des Gehäuses 65°C überschreiten. Daher muss entweder die gesamte Verkabelung für mindestens 100°C bemessen sein oder die gesamte Verkabelung muss zusätzlich mit einer angemessen dimensionierten wärmebeständigen Tülle isoliert sein.
- » Die Verkabelung der Stromversorgung zur Steuerung muss für mindestens 6A bemessen sein.

- » Die Verkabelung vom Kanalausgang zur Last muss höher als der maximale Kanalausgangsstrom dimensioniert sein.
- » Wenn die Steuerung falsch eingerichtet ist oder im Fall eines Fehlers, kann es vorkommen, dass die von der Stromversorgung an die Steuerung abgegebene Energie direkt mit einem oder allen Ausgangskanälen verbunden wird. Sie müssen dies bei der Installation berücksichtigen und gegebenenfalls für einen geeigneten Schutz sorgen.
- » Die Gleichstromversorgung der Steuerung muss extern durch eine träge Sicherung (T3AH, 50V) bis 3A gesichert sein.
- » Der Installationstechniker muss einen deutlich gekennzeichneten, leicht zugänglichen Schalter als Teil der Installation in der Nähe vorsehen, mit dem die Steuerung an beiden Stromleitern von ihrer Stromquelle getrennt werden kann.
- » Durch induktive Lasten verursachte Einschaltstöße zum RC1xx müssen extern unterdrückt werden.

Warnung: Es handelt sich hierbei um ein Produkt der Klasse A. Die Verwendung in Wohngebieten kann zu Funkstörungen führen und eine solche Verwendung sollte vermieden werden, es sei denn besondere Maßnahmen werden vom Anwender ergriffen, um die Emissionen auf ein Niveau zu begrenzen, das den Empfang von Rundfunkübertragungen ermöglicht.

9.3 Allgemein



Das RC1xx darf nicht in Anwendungen eingesetzt werden, bei denen es durch einen Ausfall des Geräts zu einer Gefahr für die Gesundheit von Personen oder zur Beschädigung anderer Geräte kommen könnte.

Wenn das Gerät in einer anderen als der vom Hersteller vorgesehenen Weise verwendet wird, kann die Schutzvorrichtung des Geräts beeinträchtigt werden.

9.4 Installationsanleitung (Haftungsausschluss)

Diese Informationen dienen nur zur Orientierung. Installationstechniker müssen ihre eigene spezifische Risikobewertung für die jeweilige Installation durchführen. Auch wenn Gardasoft Vision Ltd diese Empfehlung mit größter Sorgfalt erstellt hat, übernehmen Gardasoft

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10 Sécurité

Lisez ce document avant d'utiliser le RC1xx. Respectez les mesures de sécurité suivantes en toutes circonstances. En cas de doute, contactez votre distributeur ou Gardasoft Vision. Les symboles ci-dessous auront la signification suivante:



Attention: Lisez les instructions pour comprendre quels sont les risques éventuels.



Attention: La surface peut devenir chaude.



Attention: Risque d'électrocution.

Lorsque ces symboles apparaissent dans le manuel, reportez-vous aux consignes pour connaître les précautions à prendre.

10.1 Chaleur



Veillez à ce que le RC1xx soit monté correctement et à ne dépasser aucune valeur nominale pour l'unité.

Lorsqu'il atteint ses valeurs nominales maximales, le boîtier RC1xx peut dépasser les 65°C, ce qui est suffisant pour provoquer des brûlures en cas de contact. Placez l'appareil à un endroit où le personnel ne risque pas de le toucher par accident et veillez à ce que l'air circule librement autour de l'unité.

10.2 Électricité



Le RC1xx produit des impulsions d'énergie élevées. Veillez à bien raccorder les sorties et à ce que les câbles de sortie et la charge soient

à l'abri de tout court-circuit. Lorsque le RC1xx est éteint, de l'énergie résiduelle reste dans l'appareil pendant environ 15 secondes.

Le RC1xx ne possède pas de système d'isolation complet des entrées (notamment des ports de déclenchement et de communication) et des sorties. Par conséquent, respectez les consignes suivantes:

- » L'équipement informatique connecté aux ports de communication et de déclenchement doit être alimenté en interne ou séparé de l'alimentation secteur par une isolation double/renforcée, ou être approuvé selon la norme CEI 60950-1. Tous les autres équipements branchés aux déclencheurs ou à d'autres ports doivent aussi posséder une isolation double/renforcée pour être protégés de l'alimentation secteur.
- » Le boîtier d'alimentation utilisé pour mettre sous tension le RC1xx doit fournir une isolation double/renforcée pour isoler le RC1xx de l'alimentation secteur, et le protéger des courts-circuits et des surcharges. Nous recommandons d'utiliser un boîtier d'alimentation qui limite le courant de sortie de l'appareil à la valeur nominale appropriée du contrôleur, en réglant la limite de courant sur l'alimentation (si possible) ou via la protection contre les surcharges. Le boîtier d'alimentation doit être approuvé selon la norme CEI 60950-1, CEI 60335-1, CEI 61010-1 ou CEI 61558-1,-2,-16. Le boîtier d'alimentation peut aussi être approuvé selon des normes de sécurité équivalentes ou supérieures.
- » Tous les conducteurs sous tension dérivés depuis l'alimentation secteur doivent aussi posséder une sortie à tension de sécurité extra-basse.
- » Lorsqu'il atteint ses valeurs nominales maximales, le boîtier du RC1xx peut dépasser les 65°C. Par conséquent, tout le câblage doit avoir une capacité minimale de 100°C, soit être en plus isolé par une gaine suffisamment résistante à la chaleur.
- » Le câblage d'alimentation vers le contrôleur doit avoir une capacité minimale de 6A.
- » Le câblage reliant la sortie de la chaîne à la charge doit avoir une capacité supérieure au courant de sortie maximal de la chaîne.
- » Si le contrôleur est mal réglé ou en cas de panne, l'énergie fournie par l'alimentation au contrôleur peut devenir directement connectée à n'importe quelle chaîne de sortie ou à toutes les chaînes de sortie. Vous devez prendre en compte ce paramètre durant l'installation et si nécessaire, fournir une protection adéquate.

- » L'alimentation en courant continu vers le contrôleur doit être protégée par un fusible 3A en externe, plus précisément un fusible à action retardée (T3AH, 50V).
- » Dans le cadre de l'installation, l'installateur doit fournir un interrupteur clairement marqué, qui soit à proximité et facilement accessible, pour permettre au contrôleur d'être déconnecté de sa source d'énergie sur les conducteurs d'alimentation.
- » Les coupures causées par des charges inductives doivent être supprimées de manière externe vers le RC1xx.

Attention: Il s'agit d'un produit de classe A. Son utilisation en zone résidentielle peut causer des interférences radio. Ce type d'utilisation doit être évité, sauf si des mesures particulières sont prises par l'utilisateur pour restreindre les émissions à un niveau qui permet la réception des transmissions diffusées.

10.3 Généralités



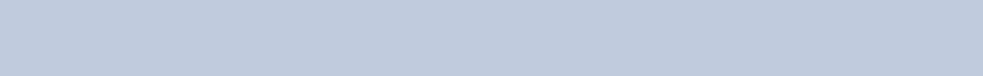
Le RC1xx ne doit pas être utilisé dans une application où la santé des personnes et l'intégrité des équipements seraient mises en danger s'il venait à tomber en panne.

Si l'équipement est utilisé autrement qu'aux fins prévues par le fabricant, la protection offerte par l'équipement pourrait en être altérée.

10.4 Guide d'installation (clause de non-responsabilité)

Ces informations sont seulement à titre indicatif. Les installateurs doivent effectuer leur propre évaluation des risques, pour chaque installation. Même si Gardasoft Vision Ltd a préparé minutieusement ces conseils, Gardasoft Vision Ltd décline toute responsabilité pour tout dommage, quel qu'il soit, à l'exception de ceux requis par la loi. La mise en péril volontaire ainsi que les actes de vandalisme ne sont pas couverts par le présent document et doivent être pris en compte par l'installateur.

These pages are blank for your notes.





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