Full Installation and Setup Guide

VARIO2 IP 16 Series

Installation by suitably trained and qualified personnel only
Suitable for Internal and External Applications

Box Contents: (Standard Specification)

VARIO2 16 IP Illuminator - Infra-Red (IR) or White-Light (WL)
containing 35° x 10° beam angle ILS (Inter-changeable Lens System)
60° x 25° beam angle ILS
Waterproof RJ45 connector

Accessories (optional):

80° x 30° beam angle IHD
120° x 50° beam angle IHD

System requirements: PC running Windows 7 with IE9 (or equivalent) and network access.

Version : Vario2 IP 16 Instruction Guide Rev 1.0.0 Full

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Warnings

- Install in a well ventilated area
- Do not stare at the illuminator for prolonged periods
- **IR Variants:** CAUTION - IR emitted from this product – Risk Group 2. Avoid prolonged exposure or use appropriate shielding or eye protection. Risk Group 2 for cornea / lens infrared hazard. At a distance of more than 1840mm for all products the unit is in the exempt group.
- **White Light Variants:** Risk Group 2 Classification. Caution – Possible hazardous optical radiation emitted from this product. May be harmful to eyes, do not stare at the illuminator. Hazard distance is 1840mm.

Product Introduction

VARIO2 IP is a Network Illuminator designed to connect to a suitable network and is provided with an integrated Web Interface. The RayLED Discovery Tool allows for easy identification and connection to the illuminator or you can connect directly to the illuminator via its IP address.

The illuminator has a CAT 5 cable for data connection, can be powered and is supplied with a waterproof CAT 5 connector.

The illuminator has a photocell for automatic day/night switching and has an External Input (to act as a telemetry, trigger input, volt free or TTL) and an External Output (volt free output). It also benefits from RayLEDs interchangeable lens system so that the correct angle of illumination can always be achieved easily.

The illuminator has Operator and Administrator log-in and access rights. The Operator has access to the Homepage and Diagnostic pages. The Administrator has access to all pages.

An API is available for programmers for integration within a VMS / BMS environment. The illuminator also

has a HTTP API to control the illuminator via HTTP commands.

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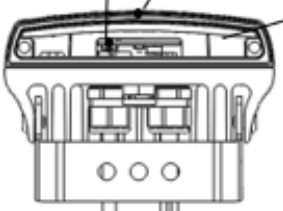
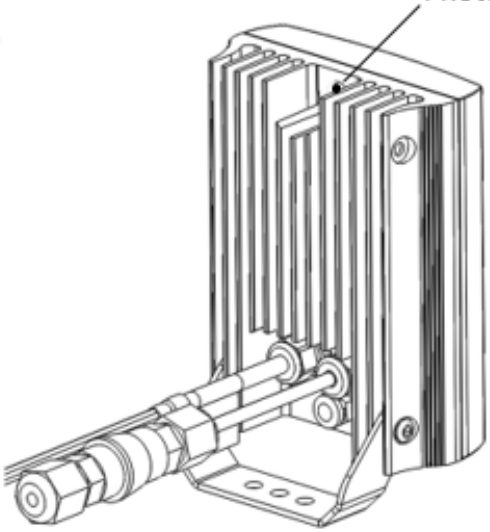
Hard Reset

Interchangeable Lensing

Please note: base plate has been removed for illustrative purposes.



Photocell



Please note: Waterproof connector is supplied loose – and is shown fitted for illustrative purposes

Auxiliary Cable

24V DC power input – red (+ve) & black (-ve)

External Input, volt free or TTL – orange (TTL +ve) &

purple (TTL GND)

External Output, volt free – yellow & white

CAT 5 Cable for Data

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Basic Steps

(Quick Installation Guide P1-21/ Detailed Guide P22)

STEP 1: Safety Information (Pg. 2)

STEP 2: Wiring (Pg. 6)

Apply 24V DC to red and black cores of auxiliary cable and use standard CAT 5 or better for data connection. Connect external inputs and external output wires as required.

IMPORTANT:

Ensure 24V PSU are suitably rated

Ensure Cat 5 cable and auxiliary cable are correctly terminated and waterproofed after installation

STEP 3: Lens Selection and Physical Installation (Pg. 7)

Adjust interchangeable lens if required.
Fix to wall, pole or camera unit using U bracket provided or other RayLED bracketry.

IMPORTANT:

Ensure illuminator is rated to provide required viewing distances and select correct angle

Ensure illuminator is orientated in the correct direction

STEP 4: Change IP address and connect to the illuminator (Pg. 9)

All VARIO2 IP have the same default IP address and this must be changed immediately to avoid any potential conflicts or communication errors.
We recommend the easiest and fastest way to identify and connect to illuminators is using the RayLED Discovery Tool where the IP address can be altered or DHCP enabled.

Alternatively, type the IP address of illuminator into a web browser – default is 192.168.2.80 – and use the web interface to manually alter IP address.

IMPORTANT:

We recommend RayLED Discovery Tool as the easiest way to establish communication. If using IP address for direct communication, illuminator and computer must be in same network range.

STEP 5: Illuminator Set-Up (Pg. 12)

RayLED Discovery Tool Basics
Log-in, Security & Basic Illuminator Setup
Basic Web Page Functionality

STEP 6: Basic Troubleshoot (Pg. 19)

Full, detailed instructions begin on page 21

Wiring

The illuminator is supplied with a terminated CAT 5 cable with a waterproof Ethernet connector (supplied loose i.e. not fitted) and an auxiliary multi-core cable.

Network Connections

Ensure you make a waterproof connection to the RJ45 as shown below. Ensure the connector is waterproof and sealed after the connection is made.

To illuminator RJ45-RJ45 connector To Network

24V DC PSU

Connect **24V DC** to the red (+ve) and black (-ve) cables of the auxiliary cable.

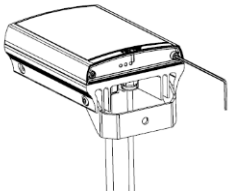
Ethernet cable is a data connection only.

Connect external input trigger and external output as required – see table below:

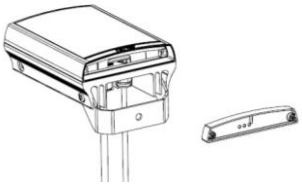
Colour	**Description**	**Wire Gauge (AWG)**
Orange	External Input -Volt free or TTL +ve	22
Purple	External Input -Volt free or TTL GND	22
Yellow	External Output – Volt free	22
White	External Output - Volt free	22

WARNING: To maintain the IP rating of the product the multi-core auxiliary cable must be waterproofed and terminated appropriately even if it is not in use.

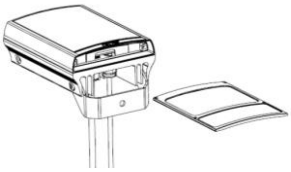
Interchangeable Lenses: Changing the Angle



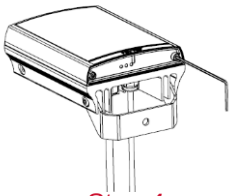
Step 1
Unscrew baseplate



Step 2
Remove baseplate



Step 3
Remove / Replace diffuser lens



Step 4
Replace baseplate & tighten

The illuminator is delivered with a 35° beam angle. To alter to 10°, remove the baseplate from the bottom of the product and remove the existing lens and then re-attach the baseplate securely. With no lens insert the product produces a 10° beam angle.

To alter to any other angle, remove the existing lens and insert the required lens which will have its angle indicated on it. Ensure the baseplate is securely re-attached to maintain waterproof integrity of the product.

The angles available as standard are: 10°x10° (NO lens / diffuser in place), 35°x10° and 60°x25°. Other angles are available to order: 80°x30° and 120°x50°.

Installation

VARIO2 IP is delivered as standard with a bracket at the bottom of the unit. This can be moved to the top of the unit if required.

Attach illuminator to wall, housing or pole using U-bracket provided or dedicated RayLED bracketry.

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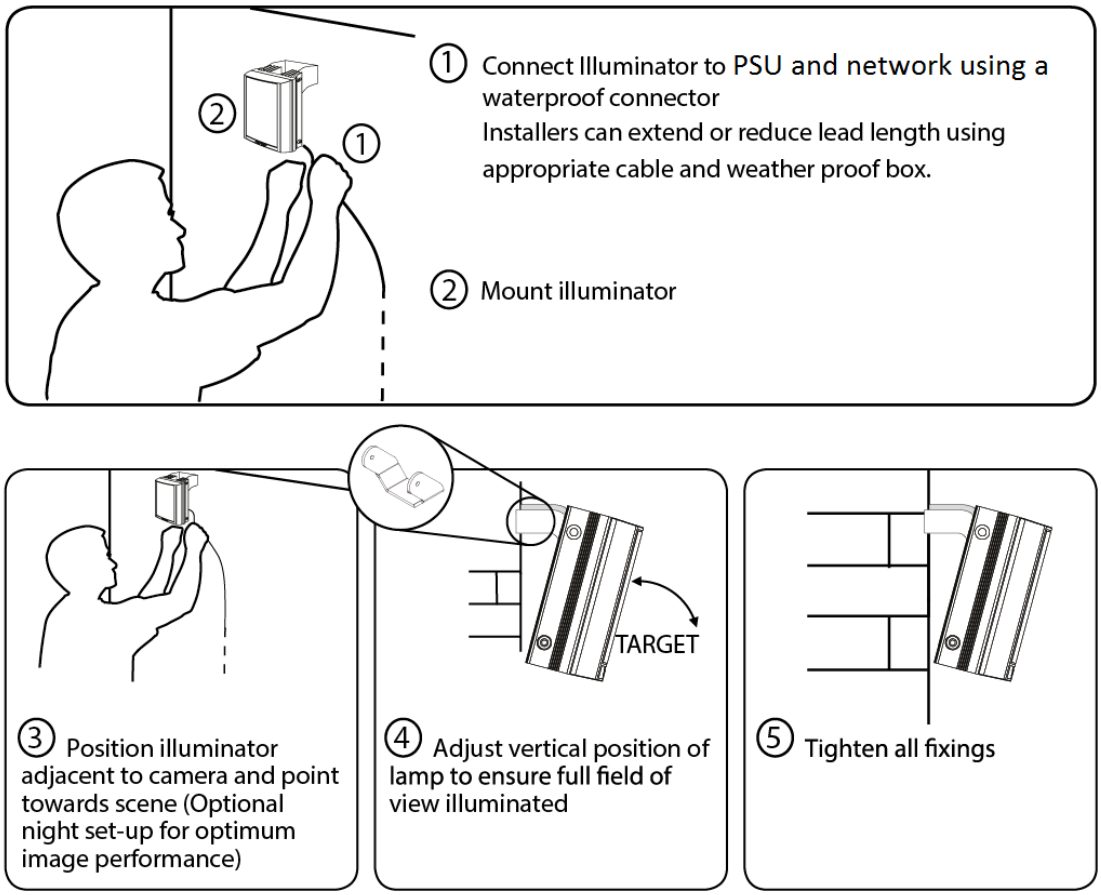
Connect Lamp to PSU and Network



Notes :

To maintain the IP rating of the product, any cable not in use must be waterproofed and terminated appropriately.

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Connecting to the Network

Assign an IP Address

All VARIO2 IP have the same default IP address (192.168.2.80) and this must be changed immediately to avoid any potential conflicts or communication errors.

There are two main ways to change the IP address of an illuminator:

OPTION 1: RayLED Discovery Tool

We recommend the easiest and fastest way to identify and connect to illuminators is using the RayLED Discovery Tool where the IP address can be altered or DHCP enabled. Using the RayLED Discovery Tool avoids the need to have the computer and illuminator in the same network range in order to alter the IP address. This free application is downloadable from our website or please contact RayLED.

To change the IP address using the RayLED Discovery Tool so that you can communicate with the illuminator(s) you can:

Use DHCP

Run the RayLED Discovery Tool. Single click on illuminator to highlight it. Select ***Network*** from bottom menu. Highlight DHCP option. Press ***OK,*** then ***OK*** again to the "Confirm Changes" dialog box. Press ***Discover***. The illuminator should now appear with a valid IP address. You can now double click illuminator to navigate to it. WARNING: Your network must have DHCP capability.

Manually set the IP address

Run RayLED Discovery Tool. Single click on illuminator to highlight it. Select ***Network*** from bottom menu. Type in a new IP address and subnet mask - which must be

compatible with your network. Check with your IT manager. After changing the IP address and subnet mask, press ***OK,*** then ***OK*** again to the "Confirm Changes" dialog box. Press ***Discover***. You can now double click illuminator to navigate to it.

OPTION 2: Use the Illuminators Web Interface

Alternatively, type the IP address of illuminator into a web browser – default is 192.168.2.80 – and use the web interface using the "Network" tab on the left hand side to manually alter the IP address or enable DHCP. For manual allocation of a static IP address it is important that the network administrator controls and ensures the IP addresses issued are unique and not repeated. In order to establish communication the computer and illuminator must be in the same network range.

In either option above, if DHCP is enabled, your network must have DHCP capability.

Note: - If assigning the IP address fails, check that there is no firewall blocking the operation and that the computer and illuminator have IP addresses in the same range.

RayLED Discovery Tool Basics

The RayLED Discovery Tool is downloadable from our website or you may request it from RayLED.

During the initial set-up we strongly recommend that you use the RayLED Discovery Tool on a computer on the same network as the VARIO2IPilluminators to discover and establish connection.

The illuminator responds to multicast messages - and therefore does not need to have a valid IP address in the same network range for the RayLED Discovery Tool to find it. But it does require a valid IP address for connection and communication. ALL IP addresses need to reside within the same network address range to ensure these

components can communicate with each other.

With the VARIO2 IP powered and attached to the same network, press ***Discover*** and the RayLED Discovery Tool will display a list of illuminators available on the network.

See instructions above on how to change IP address or enable DHCP in order to allow communication with the illuminator.

Once the IP address of the illuminators have been changed, you can double click on the illuminator from the RayLED Discovery Tool to navigate directly to the illuminators web interface.

The RayLED Discovery Tool allows you to:-

- Discover all illuminators on the network – illuminators do not need a valid IP address to be discovered
- Alter IP address of illuminator – the illuminator must have a valid IP address to allow communication
- Enable DHCP
- Navigate directly to each illuminator – once a valid IP address has been assigned
- See the illuminators status
- See whether the illuminator is ON / OFF
- View the MAC address of each illuminator
- Change Network Settings
- Change the Name and Group Name
- See additional illuminator details including name, firmware version, model and the time the illuminator has been powered.

Hierarchy of Photocell vs. Telemetry

- If the telemetry function is enabled, then the photocell must detect that it is dark for the telemetry function to operate.
- The photocell overrides the telemetry function during the day. If the external input/telemetry function needs to be operated 24 / 7, then the photocell function should be disabled from the settings / groups page.
- If the external input/telemetry is not active, then the unit will follow the photocell settings.

The system requires 15 seconds of light to deactivate the photocell and turn the illuminators off to avoid accidental turn off of the illuminators via car headlights or torches.

If illuminators are in groups, the following rules apply:

- ANY sending illuminator within a group which says it is dark will turn all the illuminators in the group on (subject to local illuminator settings)
- ALL illuminators in the group need to say it is light before all the group illuminators will go off together (subject to local conditions)

Log-in, Security & Basic Illuminator Setup

Log-in using Operator or Administrator user names and passwords. Operator has limited access rights. Administrator has full access rights.

Defaults (User Names & Passwords are case sensitive):

Users & Passwords	**Name**	**Password**
Operator	user	password
Administrator	admin	password

In order to maintain maximum security of your system, we recommend you change the passwords at the earliest opportunity (for further information, please see page 49 of full installation instructions).

Take instant control of a illuminator by pressing the Override button on the home page. This will countdown for 30 minutes to allow the user to control the illuminator and then will revert to standard settings automatically or if the Override button is deselected. Override is only available when the illuminator mode is set to ***Local***, ***HTTP + Local*** or ***VMS + Local***.

To operate the illuminator via a VMS or third party application that uses the RayLED API, then the illuminator mode should be set to ***VMS*** or ***VMS + Local***. In VMS mode the illuminator will ignore Photocell and External Input triggers and respond only to valid VMS commands. In ***VMS + Local*** mode the illuminators can be controlled via a VMS system whilst also still responding to local photocell and telemetry triggers.

To operate the illuminator with an application that uses the HTTP API, then the illuminator mode should be set to ***HTTP*** or ***HTTP + Local***. In HTTP mode the illuminator will ignore Photocell and External Input triggers and respond only to valid HTTP commands. In ***HTTP + Local*** mode the illuminators can be controlled with HTTP commands whilst also still responding to local photocell and telemetry triggers.

VMS integration allows the illuminator(s) to be directly controlled and triggered by events within the VMS environment such as scheduled events, alarm triggers, camera commands, etc.

HTTP Integration allows the illuminator to be directly controlled and triggered on receipt of valid HTTP commands generated on the network from VMS, cameras or other components capable of generating HTTP commands.

The illuminator mode can be changed on the Settings / Groups page. The default illuminator mode is ***Local***.

Standard Setup – Factory Defaults

The illuminator is operating in Local mode and will respond only to its own photocell and telemetry status. By default the illuminator is NOT assigned to a group.

The illuminator will turn ON / OFF automatically when the photocell detects it is dark / light at 100% (soft start) via the photocell.

The External Input will activate the illuminator at 100% (NOT soft start) for the duration of the input provided the photocell detects it is dark.

External Output: activated by photocell and will become short circuit when active.

Factory Defaults

Name	**VARIO2 IP**
Group Name	<<Deliberately Left Blank>>
IP Address	192.168.2.80

Enable DHCP Checkbox	Not Selected – IP addresses will NOT be automatically allocated. If illuminator is being operated on a DHCP enabled network, DHCP can be selected for automatic allocation of IP address.
Illuminator Mode	*Local:* Control the illuminator using the web interface. Illuminator will respond to its own photocell and telemetry events.

	Photocell	***External Input***
Trigger Control	Illuminator Control	Illuminator Control
Respond to Group Commands	No, ignore group command	No, ignore group command
Illuminator Mode on Trigger	On	On
Power (%)	100%	100%
Duration	All night	Duration of Input
Soft Start	On	Off

Deterrent

Pattern = SOS

Frequency = Slow

Advanced Settings

Manual Override

Photocell Sensitivity = 20 lux

Countdown Duration = 30 mins

External Input

Type of Input = Volt Free

Active State = Short Circuit / Low

External Output

Trigger State = Photocell Only

Active State = Short Circuit / Low

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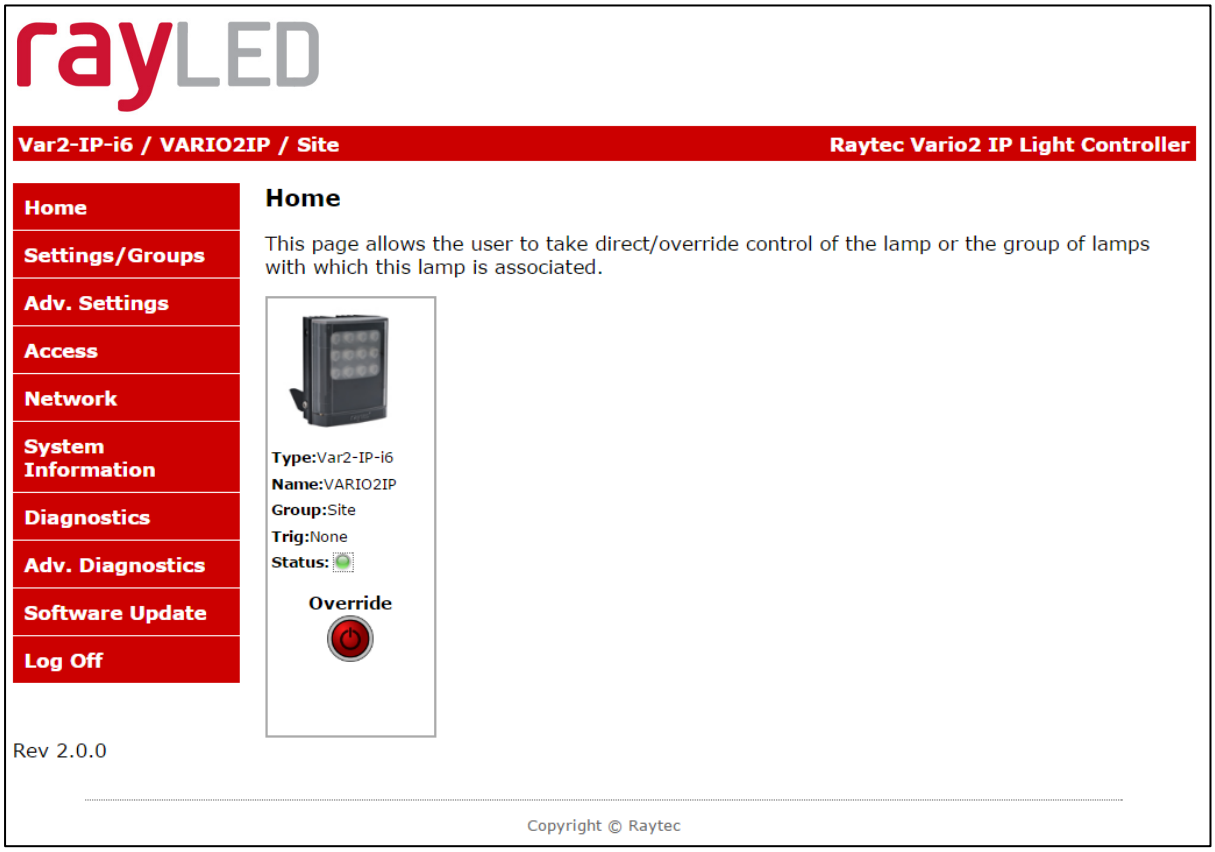
Basic Web Page Functionality

All web pages have the following information in the header bar

Model Type / Lamp Name / Group Name



User has access to Home Page and Diagnostics pages.

Admin has access to all pages.

Page Name	Functions available
Home Page	Allows manual control of an individual illuminator or group of illuminators including power adjustment, boost and deterrent controls. Select override to operate above functions.
Settings / Groups	Allows detailed set-up and configuration of the illuminator including how it responds to Photocell and External Inputs, duration on period, power levels, soft start, response to group commands, deterrent patterns and speeds. Allows illuminators to be allocated to a group or to create a new group. Selectable control of illuminator either locally, by VMS or HTTP commands.
Adv. Settings	Allows for further detailed setup of External Input, External Output, Photocell sensitivity level and duration of Override.
Access	Change passwords
Network	Allocate IP address and other network settings, select DHCP operation, allocate illuminator name
System Information	Indicates basic information about the illuminator. Ability to restore factory settings or restart illuminator.
Diagnostics	Basic diagnostics to enable 1st level troubleshooting
Adv. Diagnostics	Advanced diagnostics to enable 2nd level troubleshooting
Software Update	Indicates current software / firmware version. Ability to upload updated software / firmware version.
Log Off	We recommend logging off illuminator after every session

Illuminator web interface note

You may see the model name of your illuminator cut short on the home page of your illuminator like below:

Due to a change to the format of our model names, the size of the illuminator details box above has been increased. If you have previously used a Vario IP on your machine, your browser will have remembered the old style and will re-use this. You can force your browser to pull the size change in by removing temporary Internet files, this procedure is explained for Chrome and Internet Explorer browsers below.

Chrome

1. Hold Ctrl-Shift-Del keys
2. Change drop down box to "the beginning of time"
3. Tick "*Cached images and files*" **ONLY. If others are ticked, untick.**
4. Select *Clear browsing data*

Internet Explorer

1. Hold Ctrl-Shift-Del keys
2. Tick *"Preserve Favourites website data"* and *"Temporary Internet files and website files"* **ONLY**. **If others are ticked, untick.**
3. Select *Delete*

After performing the steps above, refresh the illuminator home page and the longer illuminator details box will appear.

Instructions for this procedure for other browsers can be found online.

Ping

The illuminator will respond to a standard Ping command sent to its valid IP address. For the ping command to work the illuminator and computer must reside in the same network range.

Basic Troubleshoot

- Check if the camera and illuminator are aligned correctly.

- For Infra-Red illumination, ensure that a Day and Night or Black and White camera is used and that the camera switches correctly into night mode.

- Check camera and lens. Is iris fully open at night and set correctly. Ensure camera is fully operational and has correct night time settings and capability.

- Ensure correct illuminator lens angle selected for required distance – check stated performance.

- Check the LED status indicator: if green LED indicator is lit on the bottom of the unit, then the unit is receiving power.

- Check voltage applied and that power supply is suitably rated for the VARIO2 IPunit – see page 6 for required ratings.

  Check connection and wiring of CAT5 / 6 cable to VARIO2 IP. Verify link has been established with the router / switch to which the illuminator is connected .

- If the illuminators are correctly wired to the network, run the RayLED Discovery Tool and try to discover the illuminator on the network.

  If the illuminator is discovered and the "State" indicator is grey, this indicates that there is no communications with the illuminator. Ensure IP Address and Subnet Mask of computer and illuminator are set within the same range. If not, alter IP address of illuminator or Enable DHCP on illuminator for

automatic allocation of suitable IP address.

Use a Ping command to see if the illuminator and device are on the same network and have communication.

- If still unsuccessful try a different web browser.

- If unit still cannot be discovered then type default IP address into browser: 192.168.2.80

- If no communication possible after above steps, please contact RayLED for further support or consider a Hard Reset of the illuminator.

Detailed Installation Guide

Contents

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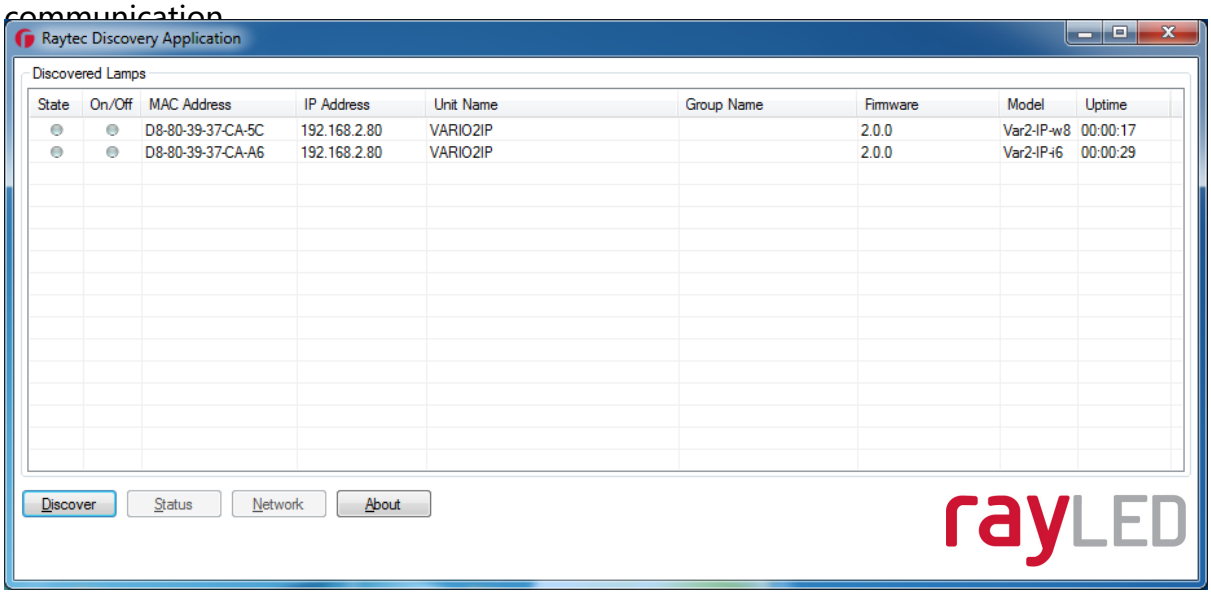
RayLED Discovery Tool in Depth

The RayLED Discovery Tool can be obtained from the RayLED website. Once installed, run the application and press ***Discover***.

The RayLED Discovery Tool will discover and display all VARIO2 IP Illuminators on your network.

The illuminator responds to multicast messages - and therefore does not need to have a valid IP address in the same network range for the RayLED Discovery Tool to find it. But it does require a valid IP address for connection and communication.



The RayLED Discovery Tool allows you to:-

- Discover all illuminators on the network – illuminators do not need a valid IP address to be discovered
- Alter IP address of illuminator – it must have a valid IP address to allow communication
- Enable DHCP
- Navigate directly to each illuminator – once a valid IP address has been assigned

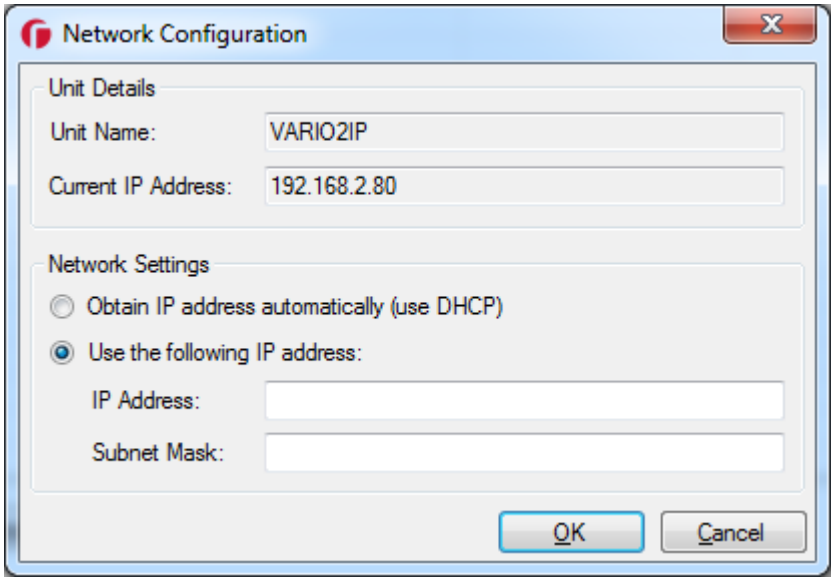
- See the illuminators status
- See whether the illuminator is ON / OFF
- View the MAC address of each illuminator
- Change Network Settings
- Change the Name and Group Name
- See additional illuminator details including name, firmware version, model and the time the illuminator has been powered.

On the image above, two illuminators have been discovered on the network. They are unique in that they have different MAC addresses, but the same IP Address and Unit Name. The application allows the illuminators to be configured.

Network Settings

To change the network settings, highlight the illuminator to be changed and press ***Network***.

The "Network Configuration" screen will be shown.

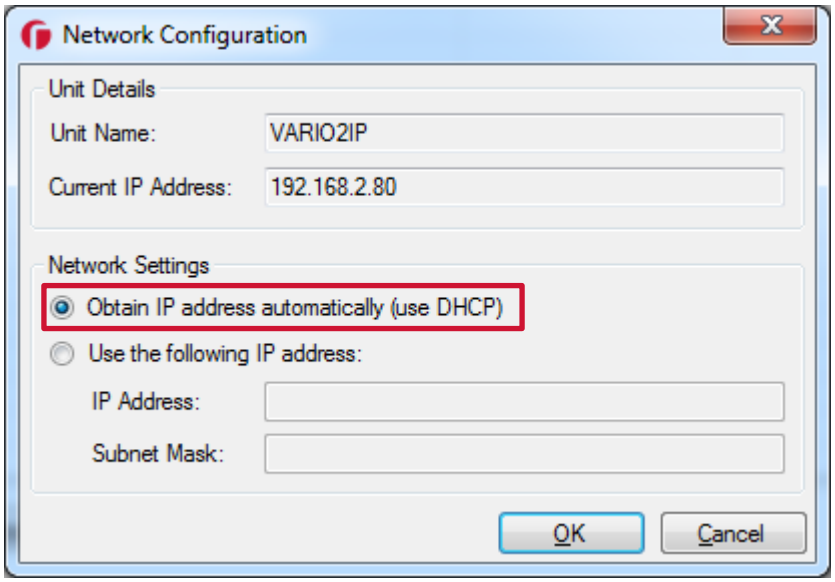


Two options are available to set the IP Address at this stage:-

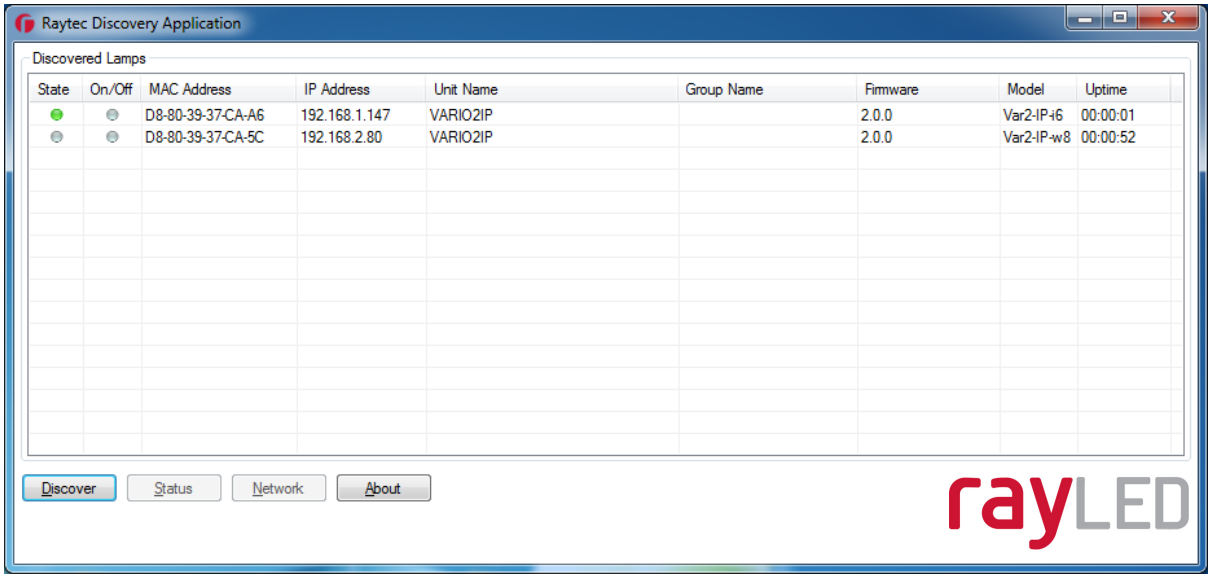
1. Enable DHCP – if the network is DHCP enabled
2. Enter a Static IP Address and Subnet Mask

DHCP – Automatic allocation of IP address

Select ***Obtain IP address automatically (use DHCP)*** and press ***OK***.

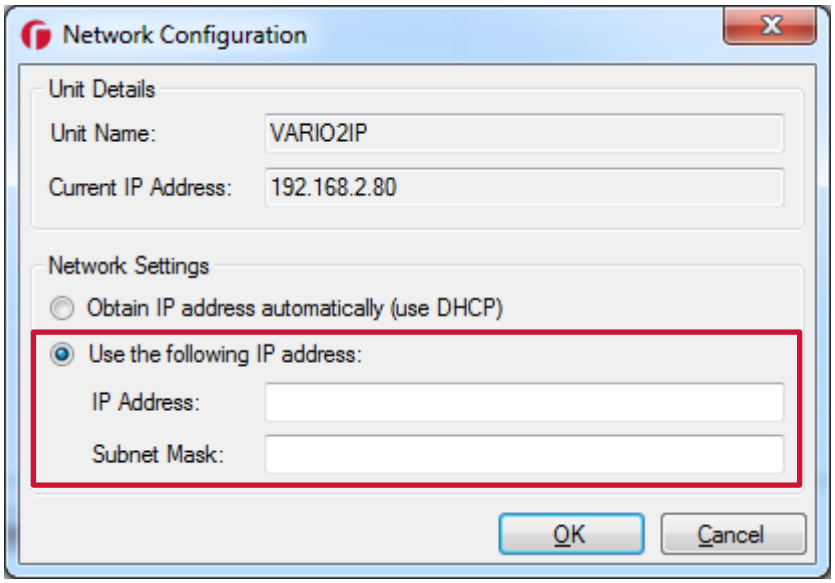


The unit will now be allocated an IP Address via the networks DHCP server. Refresh the RayLED Discovery Tool by pressing ***Discover*** . The illuminators IP address should automatically be updated into the required range and the illuminator can now be accessed directly from the RayLED Discovery Tool by double clicking on the illuminator from the list of discovered illuminators.

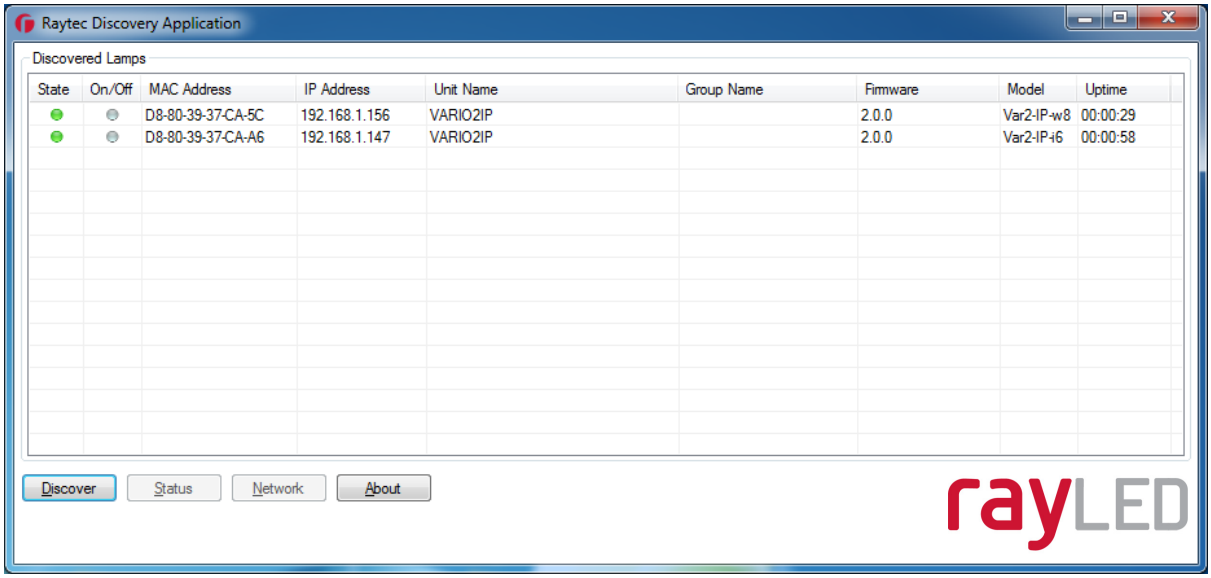


Static Network Configuration – Manual allocation of IP address

To use static network configuration it is important that the network administrator controls and ensures the IP Addresses issued are unique and not repeated. Enter the appropriate IP Address and Subnet Mask having selected ***Use the following IP address*** and press ***OK***.



The unit will now be allocated the IP Address as entered. Refresh the RayLED Discovery Tool by pressing ***Discover*** .



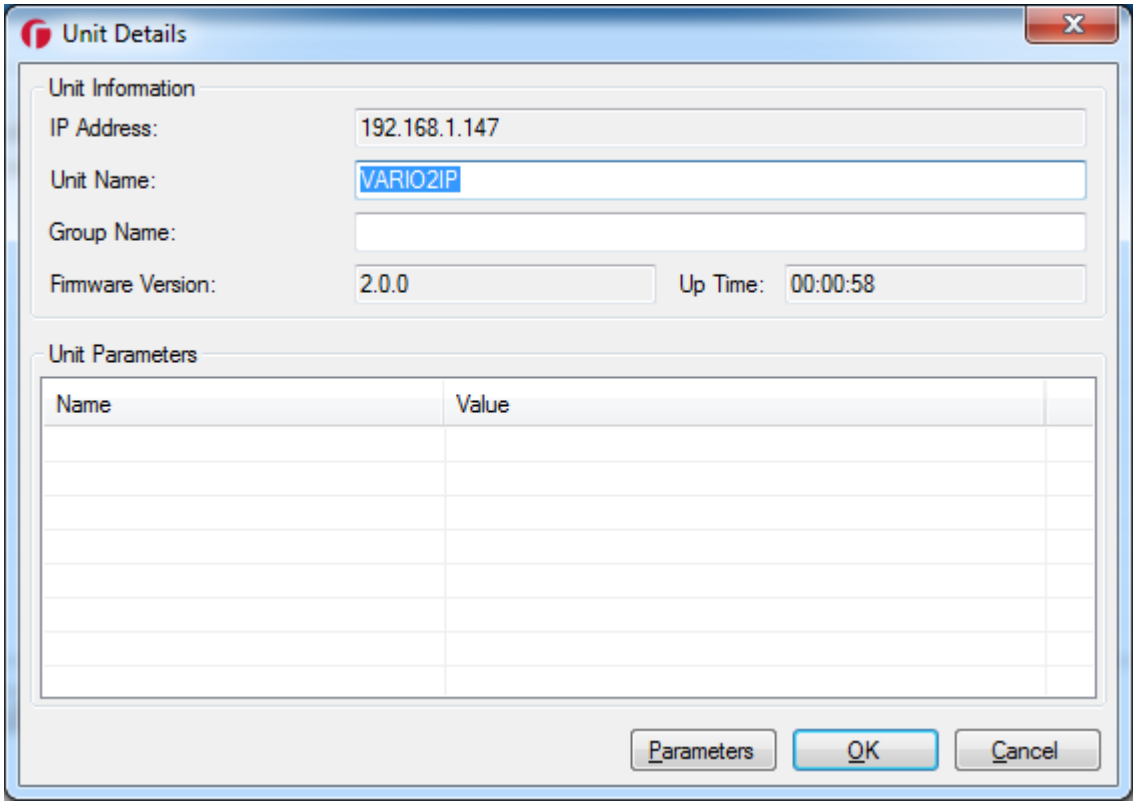
Name and Group Name

All illuminators have the default name of "VARIO2IP". This should be changed so that the illuminator can be easily identified.

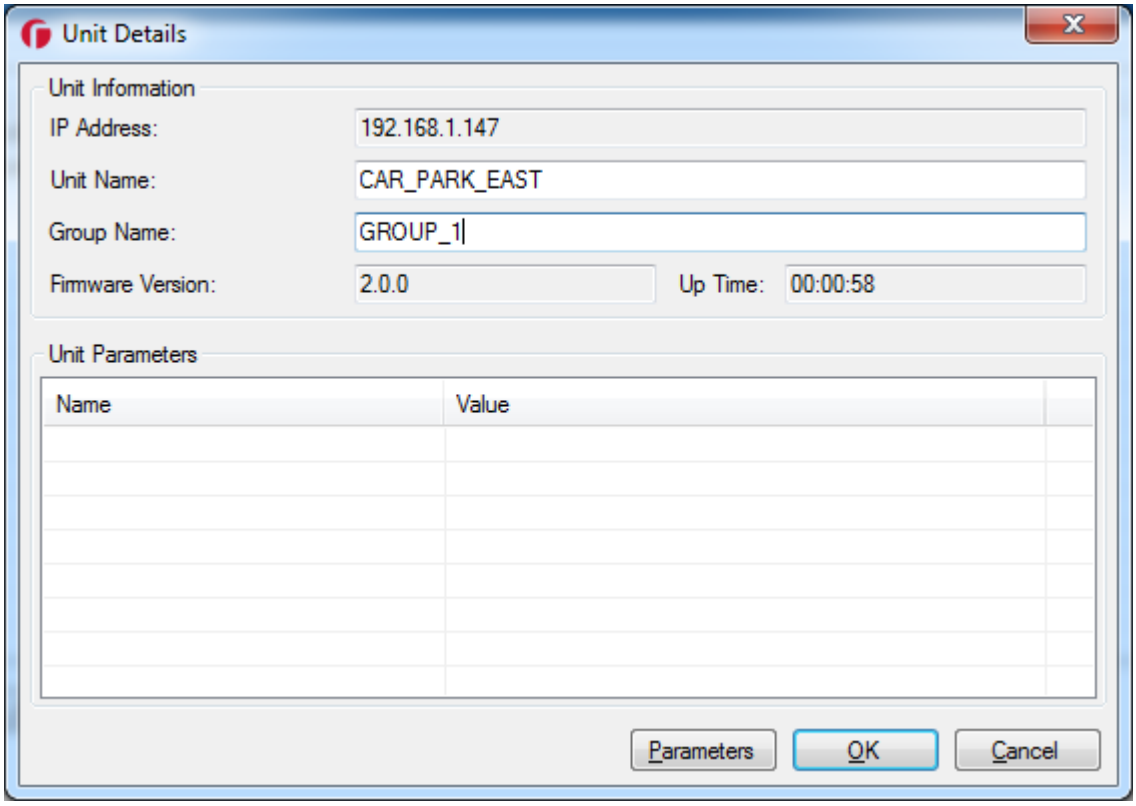
The group name is left blank by default. The group name is used to associate / group illuminators together and allows them to interact using group commands.

Both "Name" and "Group Name" can be modified directly from the RayLED Discovery Tool or via the web interface.

To change these via the RayLED Discovery Tool, highlight the illuminator you want to change. Then press ***Status***.

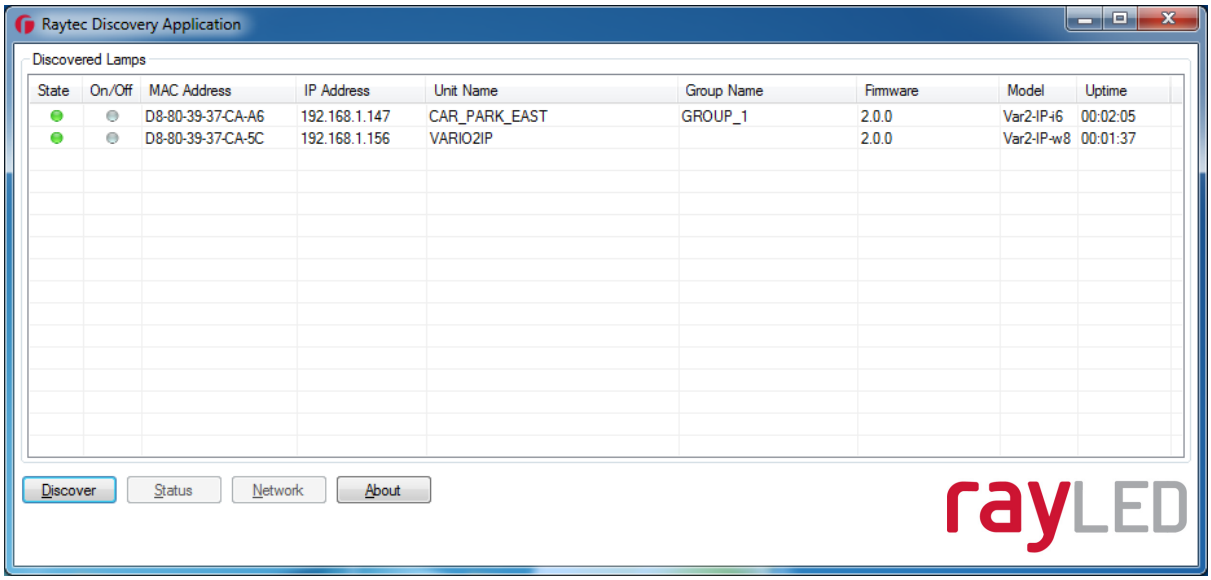


"Unit Name" and "Group Name" can both be edited by entering a new value in their fields.



After the change has been made save the edited names by pressing ***OK***.

The selected unit name and group have now been changed. Refresh the RayLED Discovery Tool by pressing ***Discover*** and the updated information should be displayed.



Illuminator Status

The RayLED Discovery Tool has two status indicators for each illuminator. The colours of these indicators change depending on the state of the illuminators as described below:-

	Red	Green	Grey
State	Illuminator Fault	Illuminator OK	No communication
On / Off	N/A	Illuminator On	Illuminator Off

An illuminator fault is indicated if:-

1. An LED fault exists within the illuminator.
2. The input voltage is outside specified limits.

Other Information

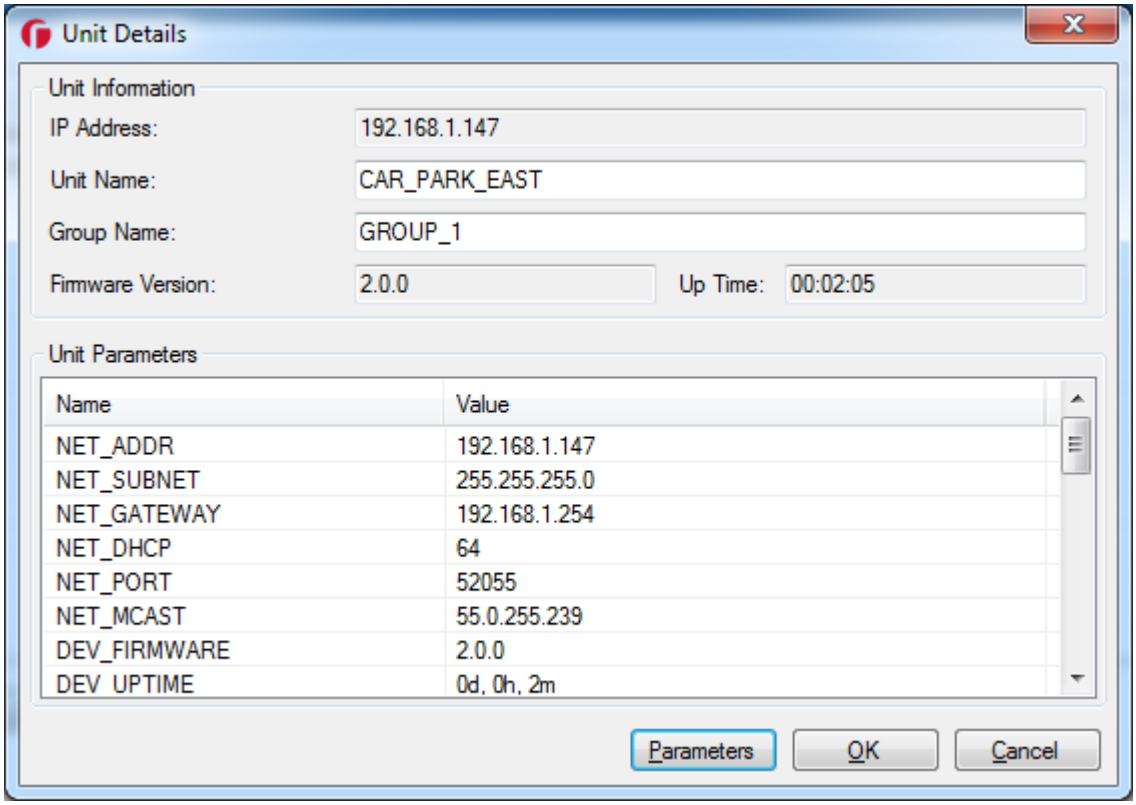
The RayLED Discovery Tool does not automatically refresh, therefore to view any

changes it is important that the page is refreshed by pressing ***Discover***.

When changes are made to an illuminator or a new illuminator is added there may be a small delay in making contact or updating the information and so ***Discover*** may need to be pressed more than once.

Unit Details – Parameters

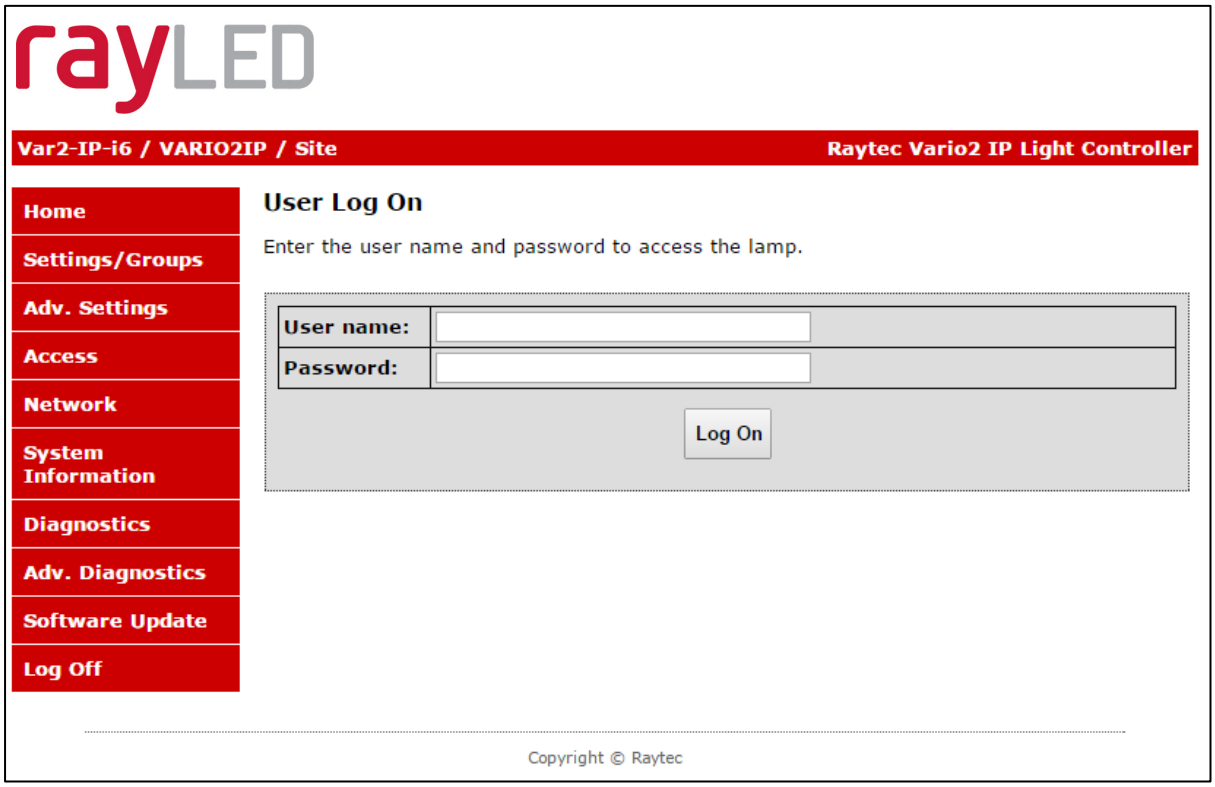
Selecting the Parameters button within the "Unit Details" screen provides a high level of detailed information regarding the performance and operation of the illuminator. This is designed to be used during technical support of the illuminator with RayLED or your supplier.



Detailed Illuminator Setup: Web Interface Pages

Log-In Page

Access Log-In Page for individual illuminator by double-clicking on the illuminator from the RayLED Discovery Tool or by typing the IP address into the web browser.



User Names & Passwords are case sensitive. (Max 32 characters – alphanumeric, symbols allowed)

Log on using either **Operator** User Name and Password or **Administrator** User Name and Password.

The Operator only has access to Home Page and Diagnostic Pages only.
Administrator has access to all pages.

The Administrator can change passwords by using the "Access" Page.
Ensure you keep a note of passwords used in a secure place.

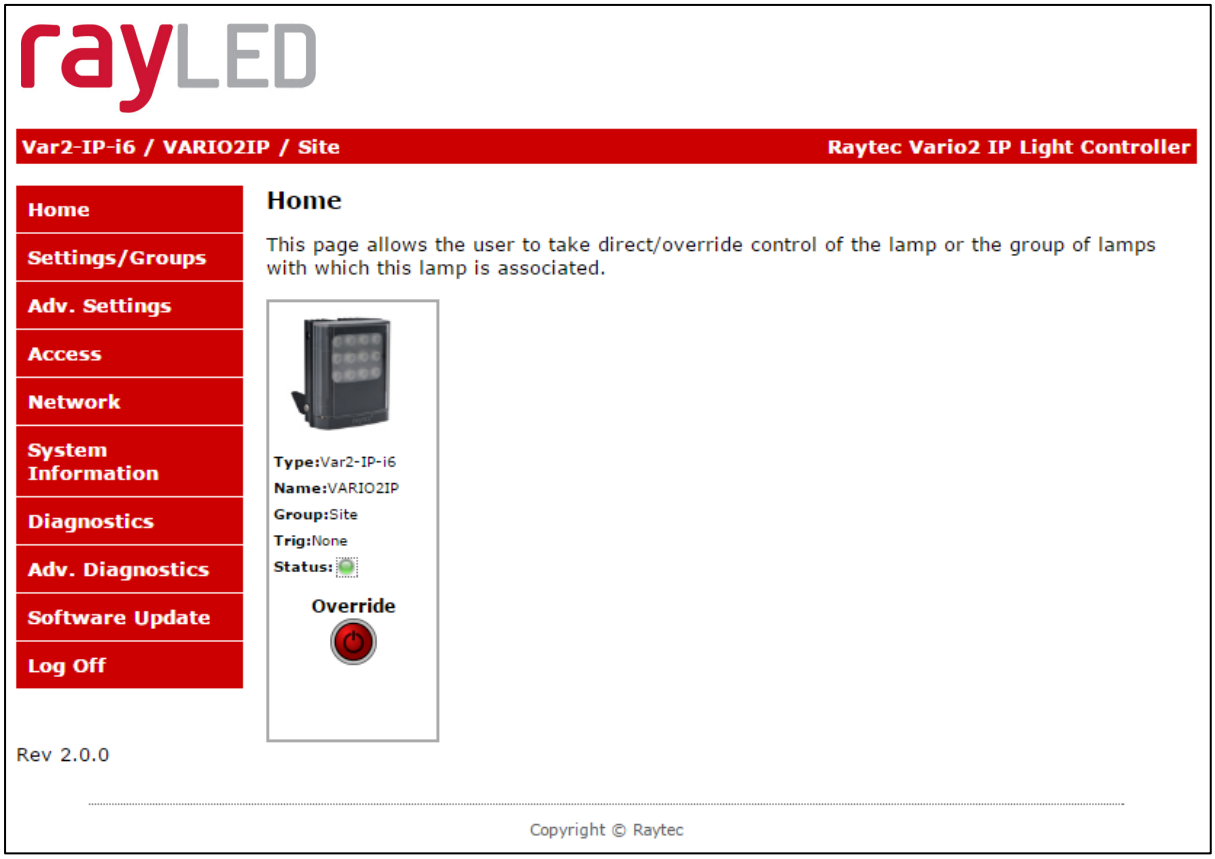
User	User name	Password
Operator	user	password
Administrator	admin	password

Forgotten Password

If you are an operator, please request the assistance of the administrator. They can reset the password through the "Access" Web Page.

If you are an administrator, you will have to use the Hard Reset button on the illuminator – refer to Access / Passwords section on page 49. This will restore the illuminator to factory defaults which includes user names and passwords.

Home Page



After a successful log-in, the Home Page / Manual Override Page will be displayed. You can navigate to all pages using the side navigator bar which is available on all pages.

The Home Page / Manual Override Page displays the current status of the illuminators including the following information:

- A visual representation of the product and its current state (ON or OFF)
- Product Type & Model
- Product Name - if a name has been assigned (using Network Page or RayLED Discovery Tool)
- Group Name - if a name has been assigned (using Settings / Group Page or RayLED Discovery Tool)
- Trig – if illuminator is on, this will indicate the type of input trigger
- Status – LED indicator will indicate if the illuminator is healthy (green LED) or if there is potentially an issue with the illuminator (amber LED)

Home Page / Manual Override

All users can access Manual Override features shown below by selecting the ***Override*** button.

When selected, additional features will appear and Manual Override countdown will commence. Factory default Manual Override countdown is 30 minutes. This setting can be adjusted by the administrator on the "Adv. Settings" Page. The countdown duration can be reset at any time and will restart from maximum time. The Manual Override function can be deselected at any time and the illuminator will return to normal operating mode.

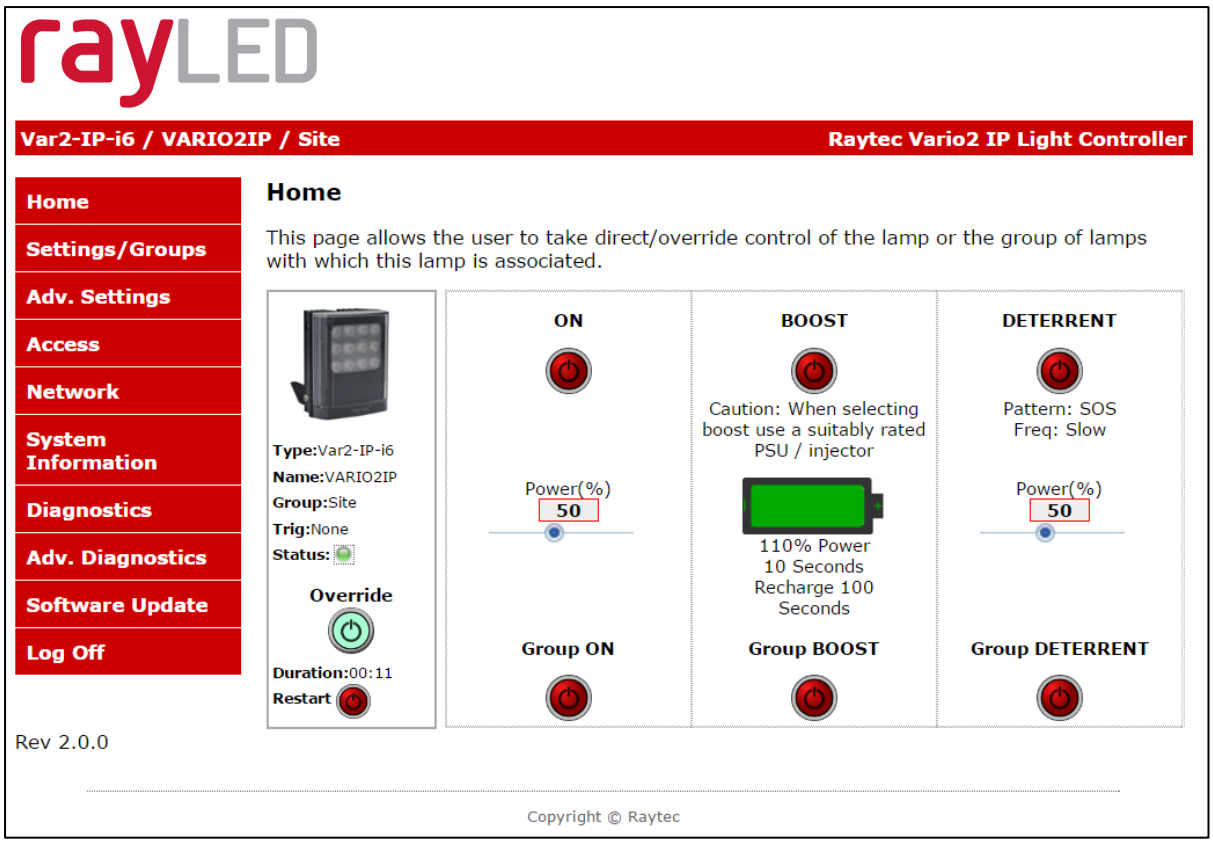
On & Group On

The current ON / OFF status will be displayed by the red / green button together with the current power level of the illuminator. Use the slider bar to change the power level.

To turn all illuminators ON in the same group and control power level – select the ***Group ON*** button.

All illuminators in a group will turn on to the power setting selected.

When ***ON*** or ***GROUP ON*** button is turned OFF, illuminators will return to their normal operating mode.



Important - If an illuminator is in group override control from another illuminator you will not be able to access the override control on that illuminator.

Boost & Group Boost

This will boost the individual illuminator or all illuminators in the group (if GROUP BOOST selected) to 110% of normal output power for a period of 10 seconds. Boost will then be disabled for 100 seconds whilst the illuminator recharges.

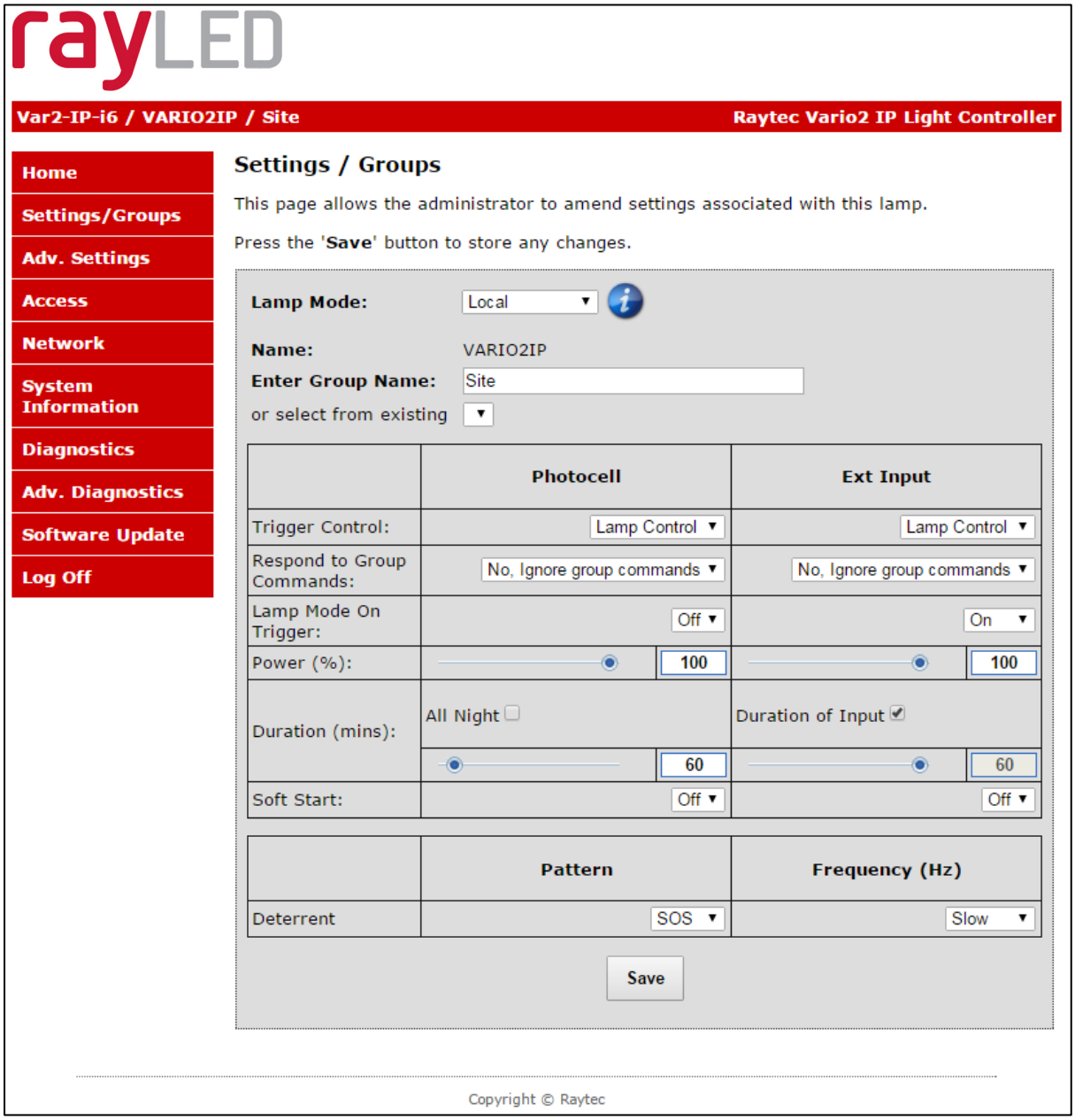
Deterrent & Group Deterrent

This will turn the individual illuminator or all illuminators in the group (if GROUP DETERRENT selected) into deterrent mode. The current pattern and frequency of the deterrent is displayed and can be changed on settings / groups page. Power setting of illuminator(s) in deterrent mode can also be adjusted by using slider bar.

Settings / Groups

This page is used to configure the operation of the illuminator based on Photocell and / or External Inputs, configure the illuminator to operate in Local, VMS or HTTP mode, assign the illuminator to a Group and configure the deterrent mode of the illuminator.

The illuminator can be configured to operate from the above inputs independently and the power level, duration and soft start function can be configured.



WARNING: For changes to take effect, the *SAVE* button must be pressed

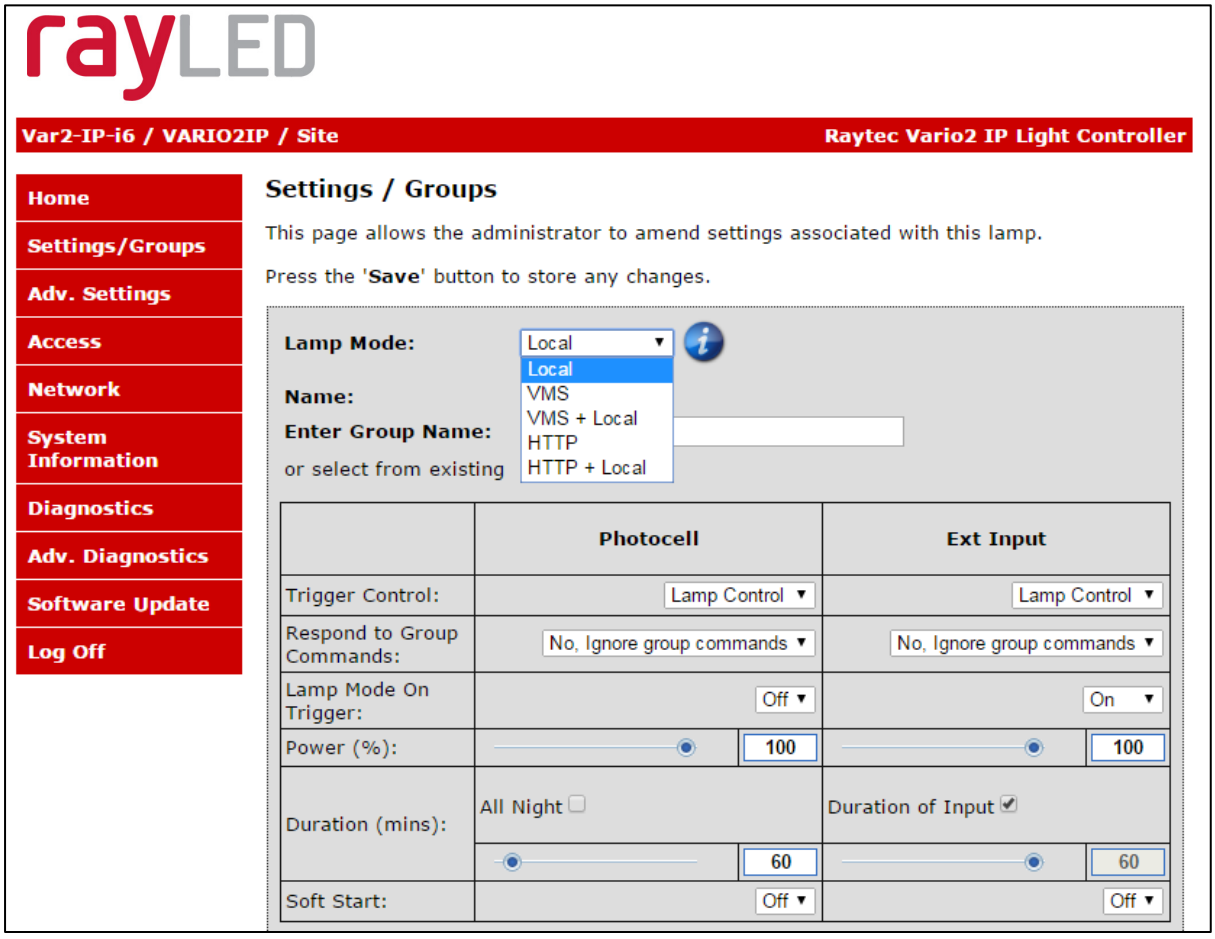
WARNING: You cannot see the effect of your changes if the *Override* button on the Home Page is still active (green) or your illuminator is in group Override control from another illuminator

Illuminator Mode

The illuminator can be operated in five different modes:

1. Local
2. VMS
3. VMS + Local
4. HTTP
5. HTTP + Local

These modes are selected in the illuminator mode selection box.



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1. Local

The illuminator will respond ONLY to photocell and telemetry events. The user may also take direct Manual Override control through the Home Page interface. This is the default setting.

2. VMS

The illuminator will respond ONLY to third party VMS systems and any applications that use the RayLED API. The illuminator will NOT respond to photocell and telemetry events. The user CANNOT take direct manual override control through the web interface.

3. VMS + Local

The illuminator will respond to third party VMS systems and any applications that use the RayLED API and the illuminator will ALSO respond to photocell and telemetry events. The user may ALSO take direct Manual Override control through the home page of the illuminators web interface.

IMPORTANT:

For detailed instructions on "VMS" and "VMS + Local" modes please refer to the RayLED API Document.

4. HTTP

The illuminator will respond ONLY to any device / application generating valid HTTP commands and any applications that use the RayLED HTTP API. The illuminator will NOT respond to photocell and telemetry events. The user CANNOT take direct Manual Override control through the web interface.

5. HTTP + Local.

The illuminator will respond to any device / application generating valid HTTP commands and any applications that use the RayLED HTTP API and the illuminator will ALSO respond directly to photocell and telemetry events. The user may ALSO take

direct Manual Override control through the web interface.

IMPORTANT:

For detailed instructions on "HTTP" and "HTTP + Local" modes please refer to the RayLED HTTP API Document.

VMS Options – Additional Information :

There is a RayLEDAPIInstaller.exe and a RayLED API Quick Start guide available to support VMS integration.

HTTP Options – Additional Information :

There is a RayLED HTTP Command Summary guide and a RayLED HTTP API guide available to support HTTP integration.

Groups

The VARIO2 IP illuminator is configured so that it can work individually or as part of a group of illuminators. This group control gives the user more flexibility and capability in terms of how they want their illuminators to operate.

Illuminators can respond to Group commands in three ways and each illuminator can be configured individually to respond to Photocell or External Input triggers:

- ***Ignore group commands*** – the illuminator will ignore all group commands
- ***Yes, Send and Receive*** – the illuminator can both originate a group command and will respond to group commands
- ***Yes, Receive only*** – the illuminator will only respond to group commands

The maximum possible number of illuminators in a group is 16.

Some examples of illuminator functionality in a group:

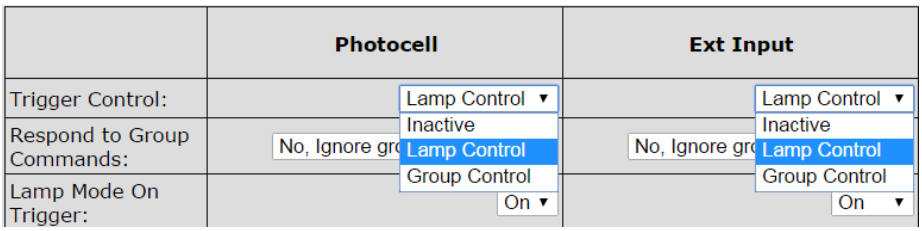
- All illuminators to come ON at the same time and go OFF at the same time

- One illuminators External Input trigger can turn all illuminators in the group ON (E.g. Car park entrance / Alarm)
- The Group Override function on the Home Page allows the user to take instant control of the group of illuminators all at the same time

Group Name

An illuminator can be associated with a new or existing group to enable it to follow group commands from the photocell input and / or External Input. A new group name can be created by typing into the "Enter Group Name" box. Ensure that duplicate names are avoided. Or the illuminator can be allocated to an existing group by selecting an existing group from the drop down list of groups.

Trigger Control

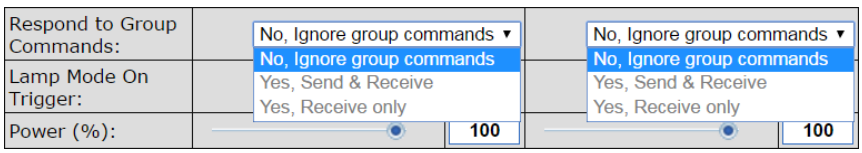


For both Photocell and External Input, the user can select 3 action states:

1. Inactive — The illuminator ignores the input
2. Lamp Control — The illuminator will respond to its own input
3. Group Control — The illuminator will respond to an input from illuminators within its group – based on selection from Respond to Group Commands below

Factory Defaults: ***Photocell*** ***Lamp Control***
External Input ***Lamp Control***

Respond to Group Commands



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If Group control is NOT selected from Trigger Control options, then the illuminator will not respond to any Group commands.
If Group Control is selected from Trigger Control options, then the user can select two modes of operation in response to Group Commands:

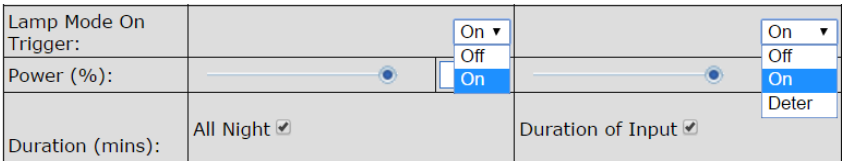
1. Yes, Send & Receive — The illuminator will both originate group commands based on the trigger AND respond to group commands from other illuminators in its group.
2. Yes, Receive only — The illuminator will only respond to group commands from other illuminators in its group but it will NOT originate any group commands.

Factory Defaults:	***Photocell***	***No, ignore group commands***
	External Input	***No, ignore group commands***

Some examples of illuminator functionality in a group:

- All illuminators can come on at the same time and go off at the same time by either Photocell or Ext input control from a single illuminator
- The Group Override function on the Home Page allows the user to take instant control of the group of illuminators all at the same time

Lamp Mode On Trigger



This dictates the status of the illuminator on receipt of a valid instruction from Photocell and/or External Input. For both the Photocell and the External Input, the illuminator can either be programmed to stay off or to turn on.

In addition, the External Input can activate the Deter mode – which can be configured below.

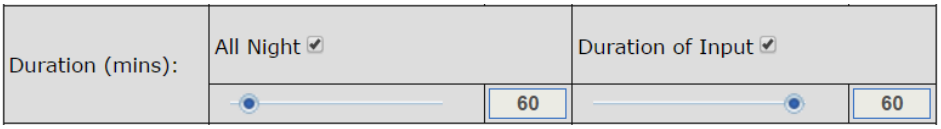
Factory Defaults: ***Photocell*** ***On***
External Input ***On***

Power

This dictates the power level that the illuminator turns on at in response to a valid instruction. Power levels can be set from 20% to 100% using the slider bar.

Factory Defaults: ***Photocell*** ***100%***
External Input ***100%***

Duration



This will dictate how long the illuminator will stay on (if ON command is selected) on receipt of a valid instruction.

For the Photocell input the user can select ***All Night*** in which case the illuminator will stay ON (if ON command is selected) for the whole period of time that the photocell indicates it is dark. Alternatively, a specific time period can be selected using the slider bar.

The timer will only operate whilst the photocell indicates it is dark. If the photocell indicates it is light before the timer has elapsed then the timer is ignored and the light turns OFF.

For the External Input, the user can select ***For Duration of Input*** in which case the illuminator will stay ON or deter (if ON or deter command is selected) for the whole period of the duration of the input.

Alternatively, a specific time period can be selected using the slider bar. The illuminators will operate immediately and the timer duration starts from the end of the External Input signal. The External Input can be reactivated within the timer

period and it will have the effect of restarting the timer.

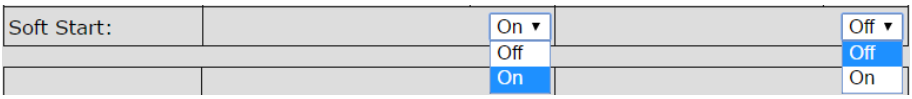
The illuminator will stay ON until the end of the timed period even if the illuminators photocell states it is daylight.

Min and Max timer settings are:

Photocell Min:	30 mins	External Input Min:	1 mins
Photocell Max:	720 mins	External Input Max:	60 mins

Factory Defaults:	***Photocell***	***All Night***
	External Input	***Duration of Input***

Soft Start

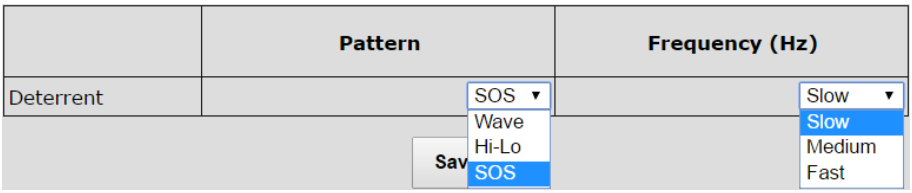


There is the option, when a valid on instruction is received, for the illuminator to either start immediately ***(Soft Start Off)*** or to ramp up to selected power level ***(Soft Start On)***.

The length of time of the ramp up depends on power level selected. (Max 10 seconds for 100% power)

Factory Defaults:	***Photocell***	***On***
	External Input	***Off***

Deterrent Pattern & Frequency



There are 3 selectable deterrent patterns available if Deter Feature selected from Illuminator Mode on Trigger:

Traditional SOS pattern	3 short on/off, 3 longer on/off, 3 short on/off
Wave	The illuminator slowly ramps up and down from 100% to 20%
Hi-Lo	The illuminator alternates between 100% and 20% power

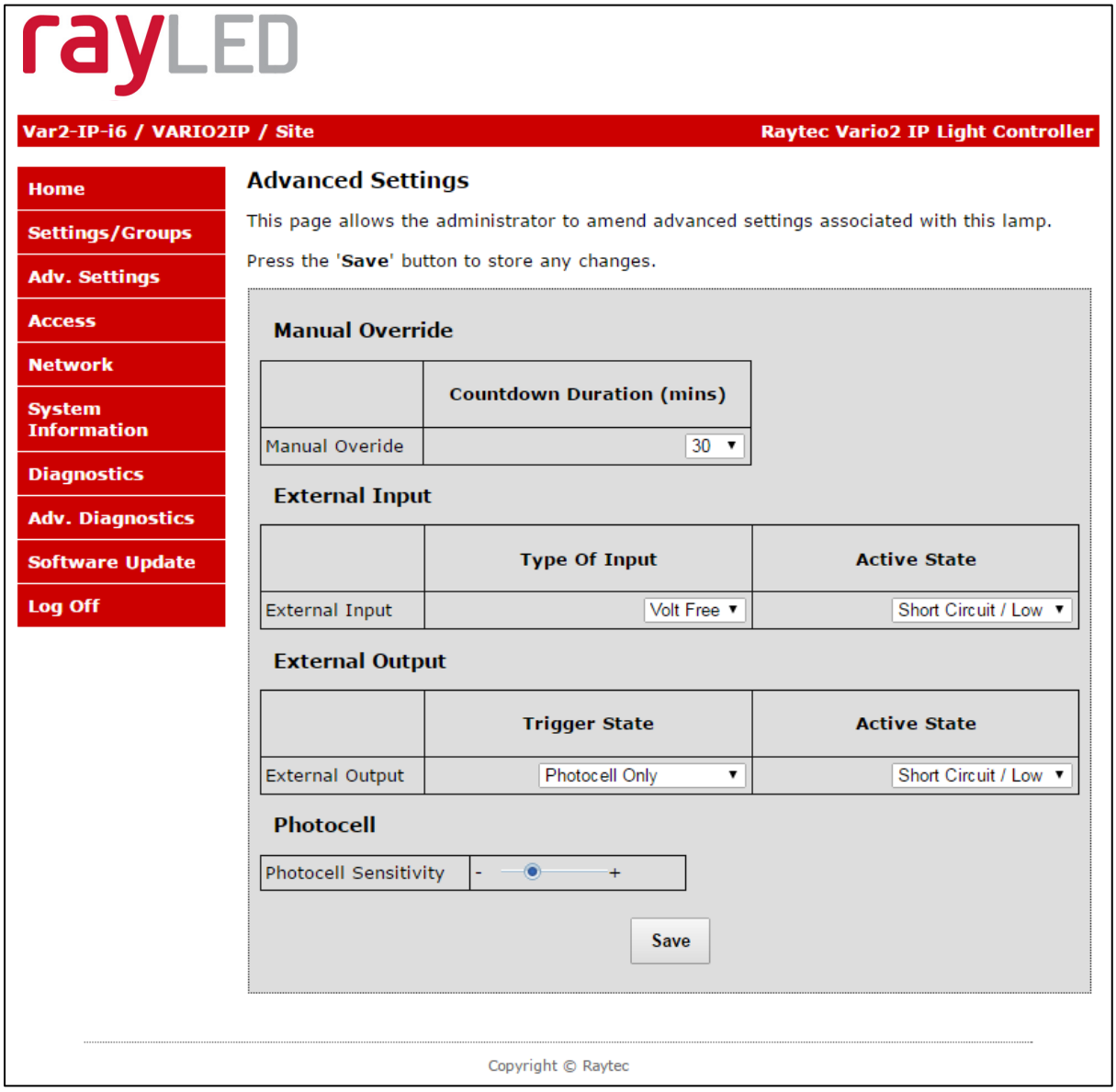
Factory Default: ***SOS***

There are 3 selectable deterrent speeds available; Slow, Medium, Fast

Factory Default: ***Slow***

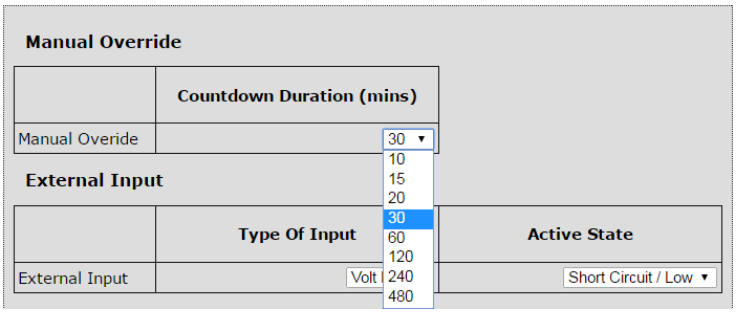
Advanced Settings

This page is used to further configure the operation of the illuminator based on more detailed requirements of the Photocell, External Input, External Output and to set the duration of the Override Timer.



Manual Override - Countdown Duration

There are 8 selectable durations from a drop down list for the Countdown Duration of the Manual Override feature on the Home Page. This determines the amount of time that the user can manually override the illuminator or group of illuminators.

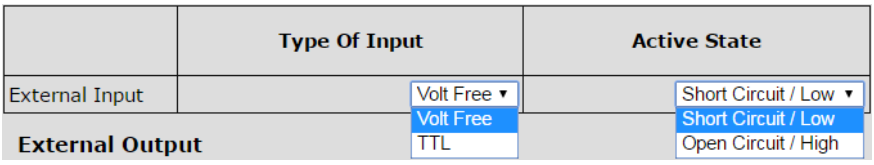


Factory Default: 30 minutes

External Input – Select type of Input & Active State on Input

The External Input wires will accept either volt free or TTL inputs – see polarity on wiring instructions on page 6. The correct type of input must be selected from the drop down list to match the input to ensure correct operation.

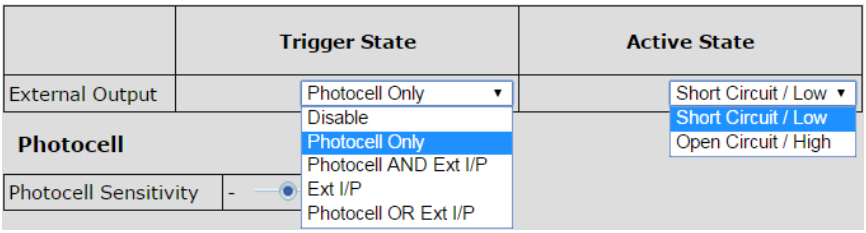
The Active State lets the user define the External Input State, either Short or Open Circuit. For example: configuring the setting to Short Circuit will activate the illuminator when the Input is closed, short circuit.



Factory Default: Volt free

Factory Default: Short Circuit/Low

External Output



The External Output is a volt free open / short output.

External Output Trigger State: The drop down box gives you the option to disable the external output signal or make the signal dependant on active states of either the photocell or External Input or a combination of the two. (Photocell Active State = Darkness. External Input Active State = Valid Trigger received.)

The External Output active state, provided above conditions are met, can be selected to be open / high or closed / low.

Note: External Output is triggered by the local illuminator Photocell and the local illuminator External Input only.

Factory Default: Photocell Only

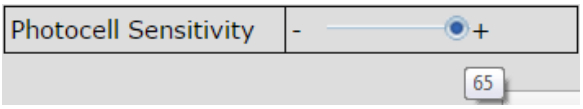
Factory Default: Short Circuit / Low

Photocell Sensitivity

The photocell switch-on level can be altered using the slider bar.

Levels are:

Minimum level = 5 lux
Maximum level = 65 lux

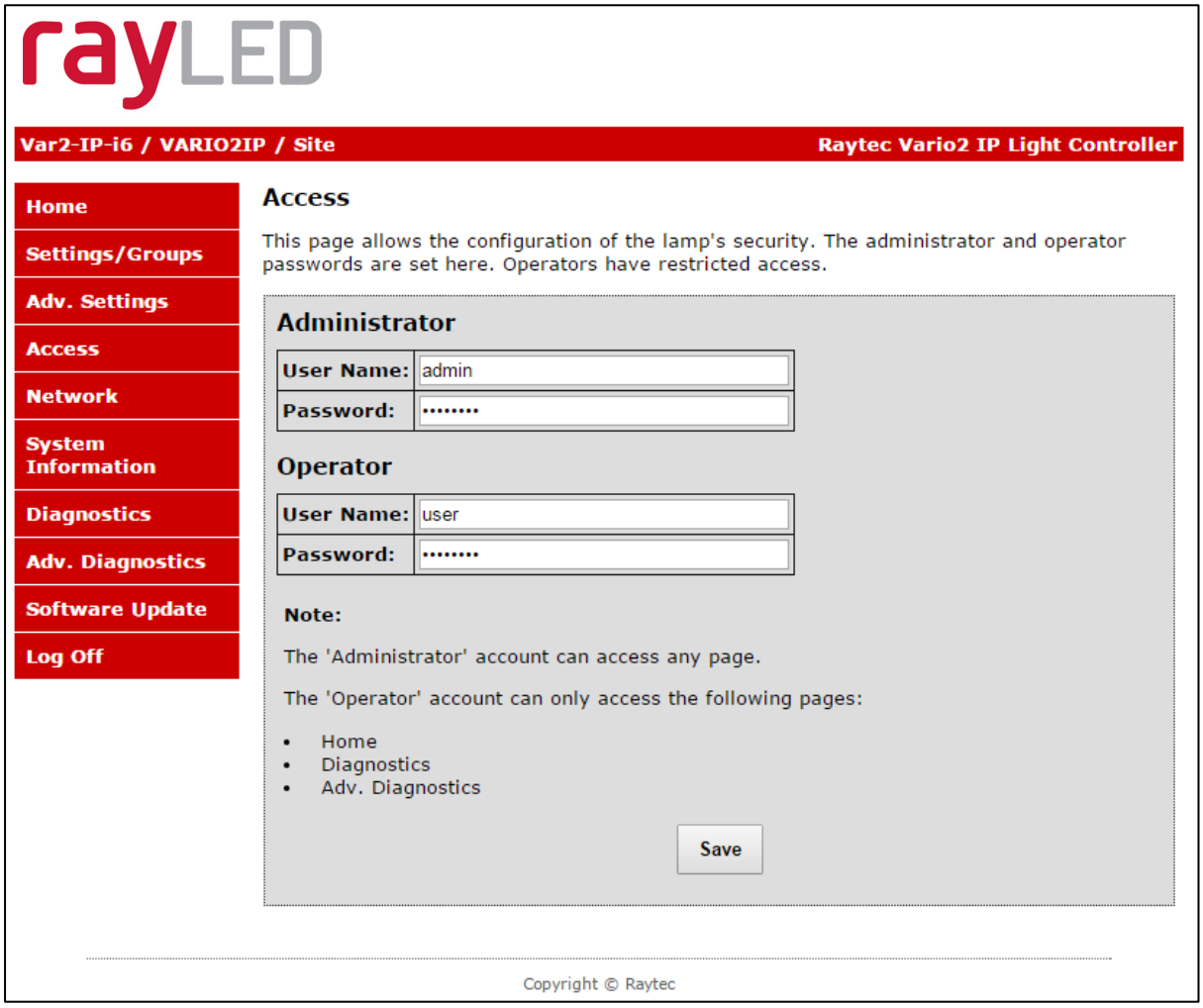


Factory Default: 20 lux

There is a high level of hysteresis and an in-built delay incorporated to avoid switching ON / OFF in marginal lighting conditions.

WARNING: For changes to take effect, the *SAVE* button must be pressed

Access / Passwords



Caution:

All passwords are case sensitive.
Keep a note of all passwords in a safe place.

Defaults:

User	User name	Password
Administrator	admin	password
Operator	user	password

Only the Administrator can change passwords.

Maximum number of characters:

User Name 32 characters – alphanumeric and symbols allowed
Passwords 32 characters – alphanumeric and symbols allowed

WARNING: For changes to take effect, the *SAVE* button must be pressed

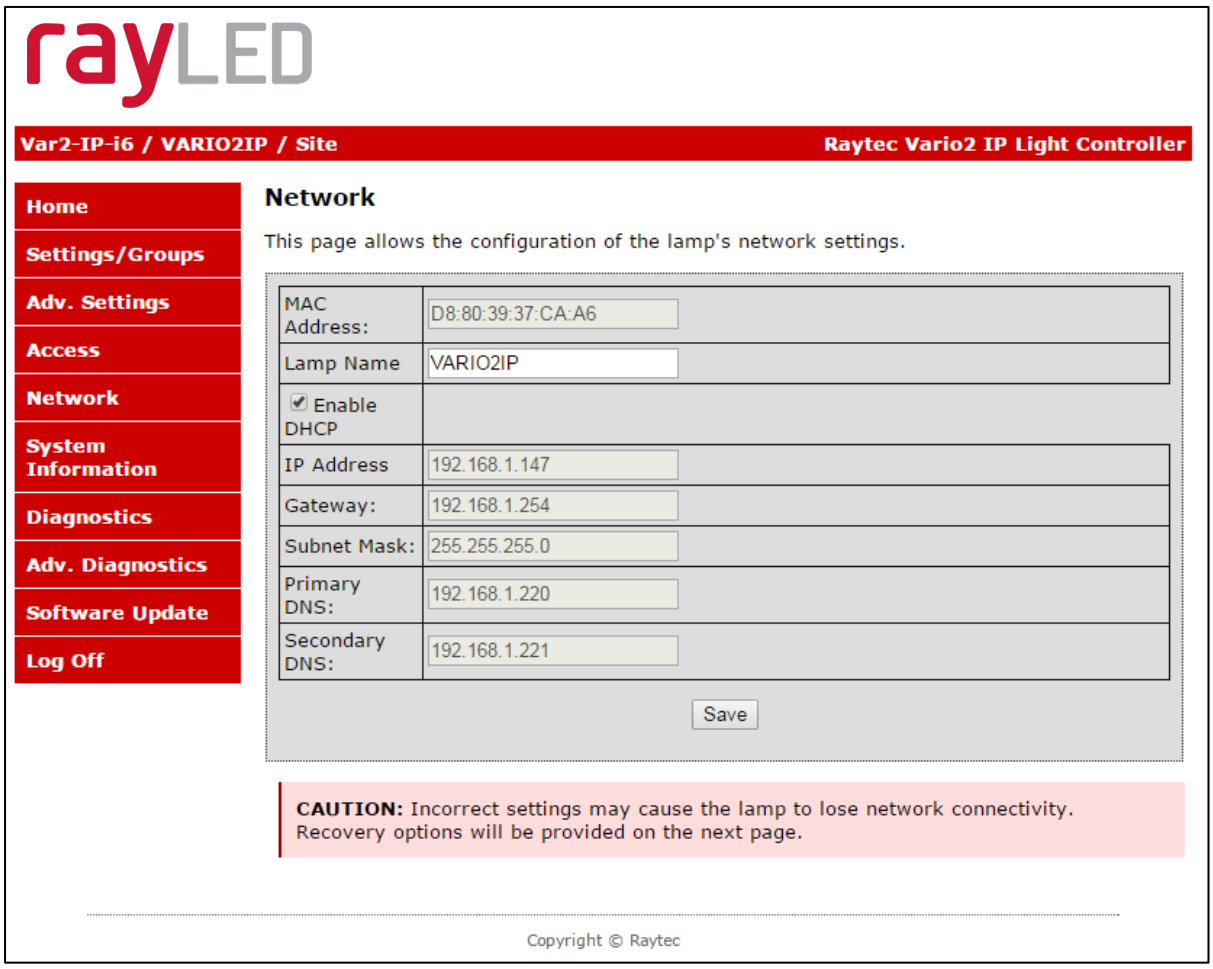
Recovery of Lost Passwords

If you are an Operator, please request the assistance of the Administrator. They can reset the password through the "Access" web page.

If you are an Administrator, you will have to use the Hard Reset button on the illuminator – refer to Hard Reset instructions on page 61. This will restore the illuminator to factory defaults which includes user names and passwords.

Network

This page allows the configuration of the illuminators network settings.



The MAC Address is a unique identifier and cannot be changed

The Illuminator Name can be changed on this page. Avoid duplicates. Maximum number of characters is 15 – alphanumeric.

Enable DHCP

You may enable DHCP if your network is compatible and then IP addresses will be allocated automatically without creating duplicates.

Manual IP Address

Alternatively, manually change the IP address into a suitable range for your network by unchecking the *"Enable DHCP"* box. It is vital to avoid duplicate IP addresses.

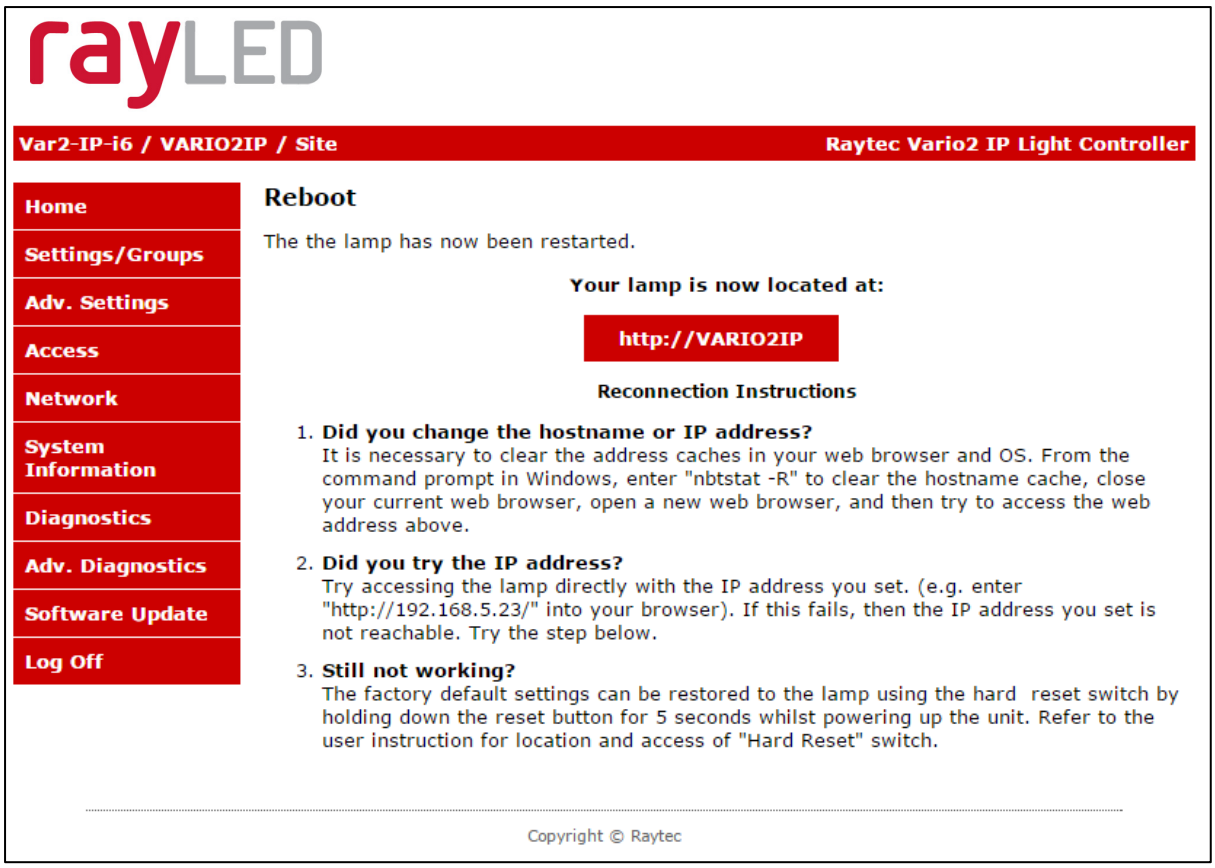
Gateway, Subnet Mask, Primary DNS and Secondary DNS can all be changed on this page if *"Enable DHCP"* is NOT selected.

WARNING: Please check with your IT Manager to ensure changes are compatible with your network and the VARIO2 IP illuminator. We suggest that these settings should only be changed by experienced users.

WARNING: For changes to take effect, the *SAVE* button must be pressed

Network - IP Address Changed- Reboot

After a network change the system will reboot to ensure that all changes have been applied. The Reboot Screen is shown to instruct the user on how to access the illuminator after the new network settings have been applied.

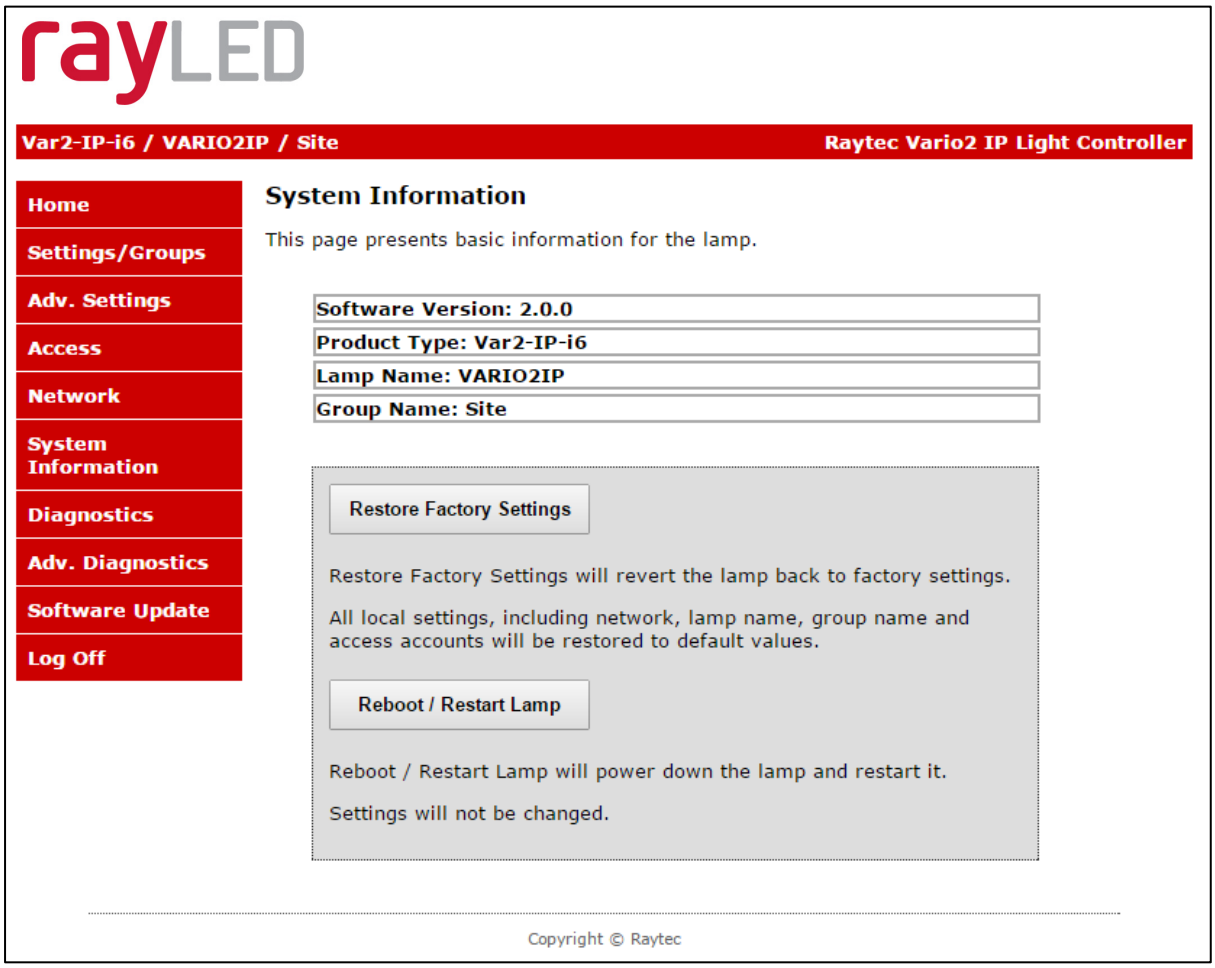


Warning: We strongly recommend that IP addresses are changed via the RayLED Discovery Tool. This is the safest way to ensure that the connection to the illuminator is not lost as a result of setting an invalid IP address.

All other settings remain unchanged.

System Information

This page shows basic information about the illuminator including software version, product type, illuminator name and group name. This is for information only and cannot be altered on this page.



Restore Factory Settings

At any stage, it is possible to restore ALL the original factory settings of the illuminator. Any settings that have been previously changed will be lost. During the "Restore Factory Settings" the illuminator may come on / flash for a short period.

WARNING: Please be aware that this will restore the default IP address of the illuminator, 192.168.2.80, which will likely be out of the normal range of IP addresses on your network. See Pages 10 onwards on how to set the IP address of your illuminator.

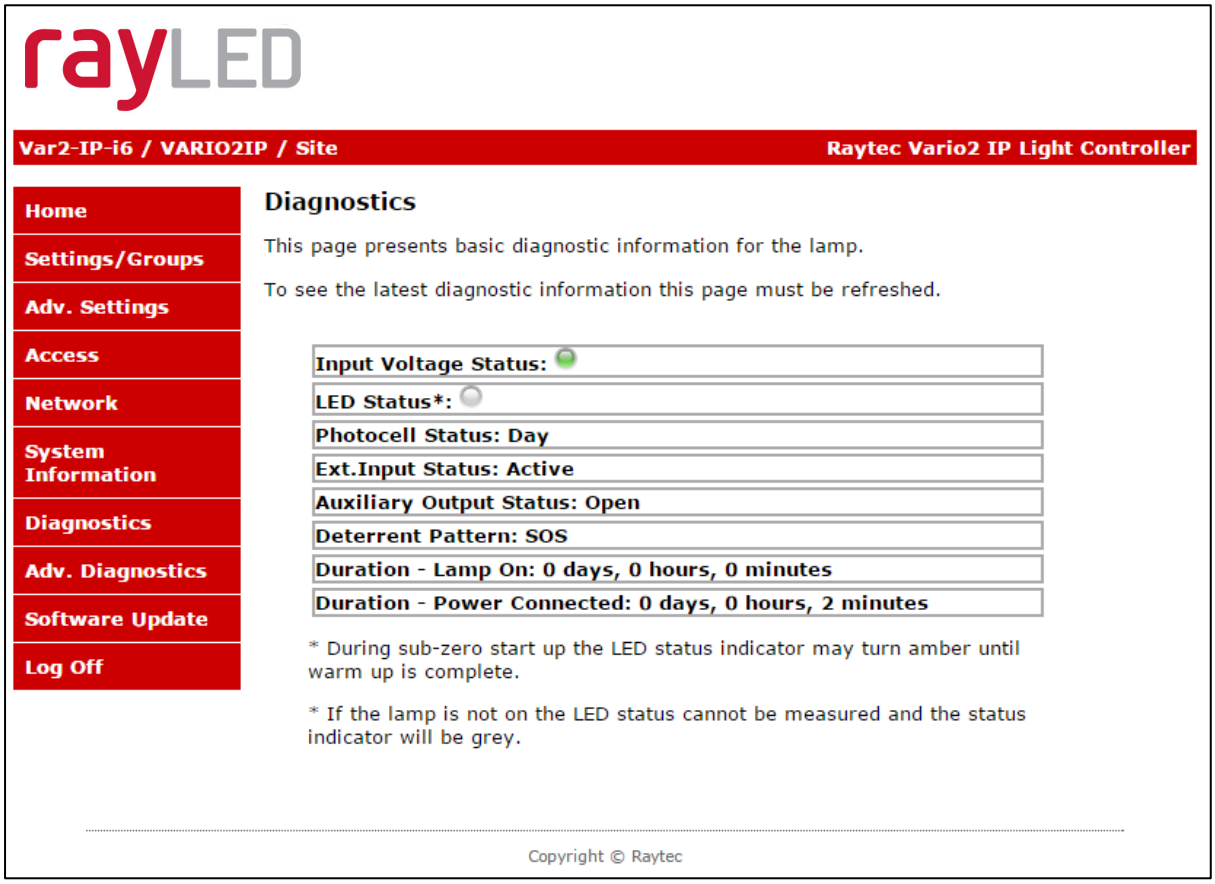
Reboot / Restart Illuminator

It is also possible to reboot / restart the illuminator. The illuminator will restart using the existing settings of the illuminator.

A reboot / restart is generally recommended if a system becomes unresponsive or you want to ensure settings have been reloaded correctly.

During the reboot / restart process the illuminator may come on / flash for a short period.

Diagnostics



This page is useful for first level troubleshooting and displays basic diagnostics and information of the illuminator as follows:

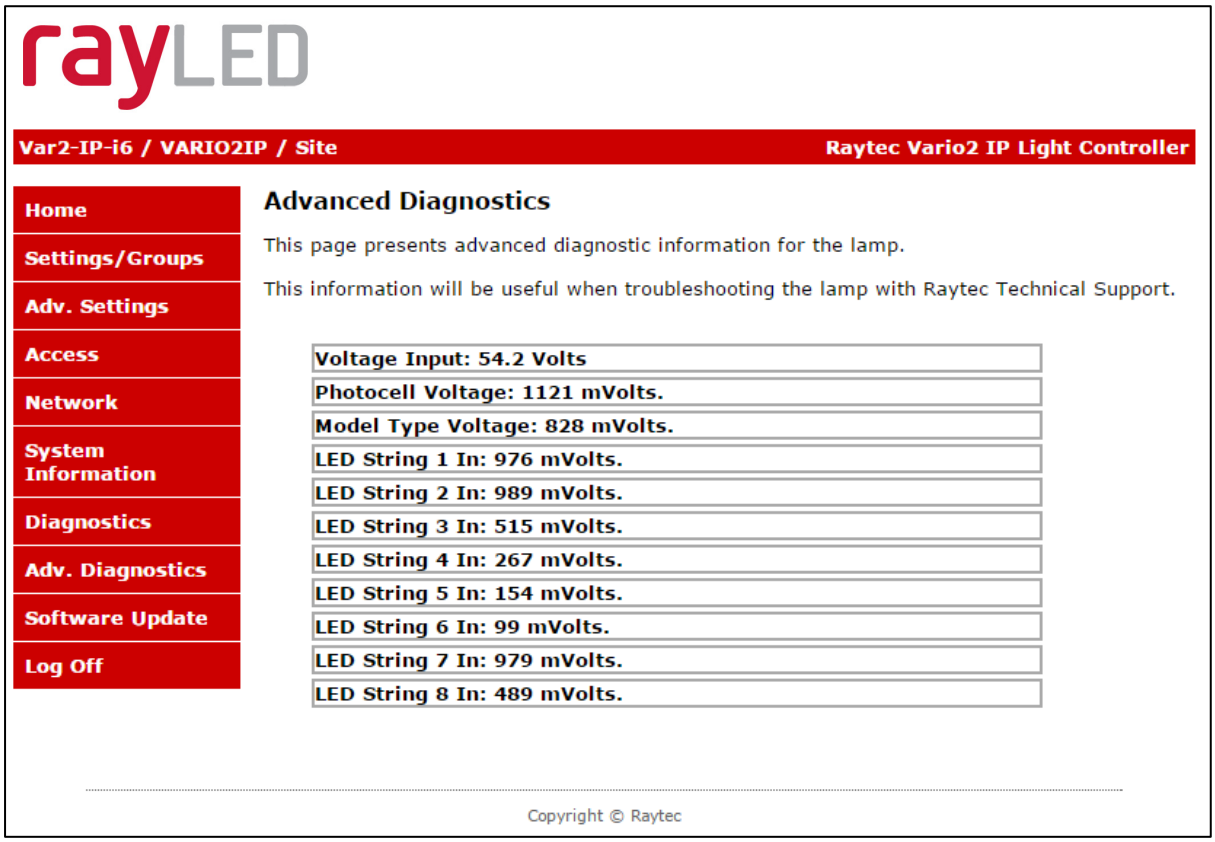
Input Voltage Status	Green LED – Input voltage correctly within specified range Amber LED – Potential fault Check Adv Diagnostics for more information
LED Status	Green LED – All LED strings of illuminator operating correctly Amber LED – Potential fault Grey LED – LED status is unknown e.g. LEDs not currently on. Check Adv Diagnostics for more information
Photocell Status	Indicates if photocell status is day or night
Ext Input Status	Indicates if external input is being received (active) or not (inactive)
Auxiliary Output Status	Indicates if external output is active (closed) or not (open)

Deterrent Pattern	Indicates which deterrent pattern is selected
Duration – Lamp On	Indicates the amount of time the illuminator has been on
Duration – Power connected	Indicates the amount of time the illuminator has been connected to a power source.

Note: Information on this page is NOT constantly updated or refreshed automatically. To refresh the page, press Function Key F5 or select the page again from the navigation bars on the left.

Advanced Diagnostics

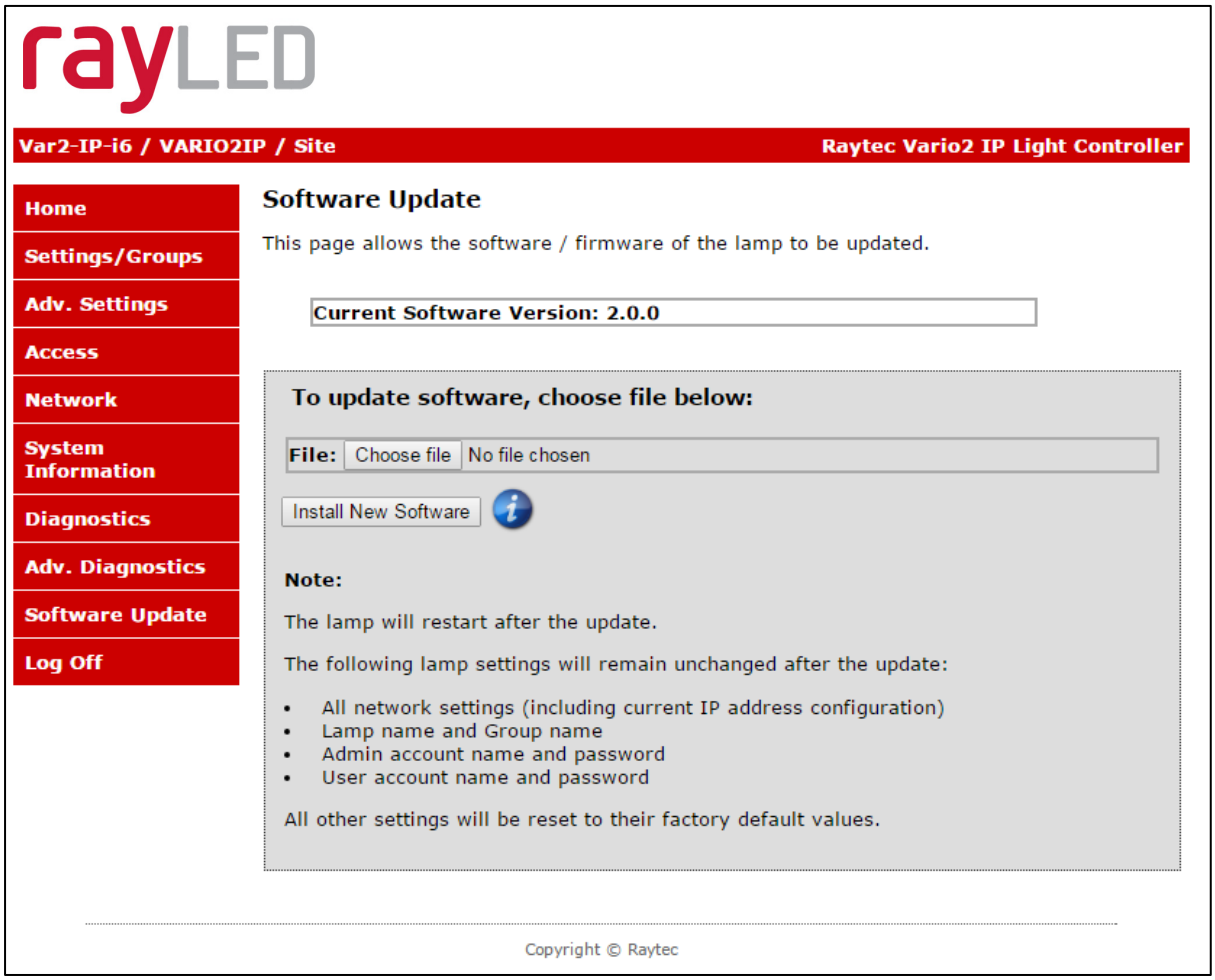
This page is useful for detailed troubleshooting and displays diagnostics and information about the illuminator. It is intended to be used for detailed troubleshooting with RayLED.



Note: Information on this page is NOT constantly updated or refreshed automatically. To refresh the page, press Function Key F5 or select the page again from the navigation bars on the left.

Software Update

This page indicates the current version of the software / firmware and also enables the software / firmware to be updated over the network.



To upload a new version of software / firmware, please contact RayLED to receive the latest version.

Upload new version onto a computer on the network, ***Choose File***, select file to upload – then press ***Install New Software***.

We would recommend that the software/firmware update is undertaken when network traffic is low.

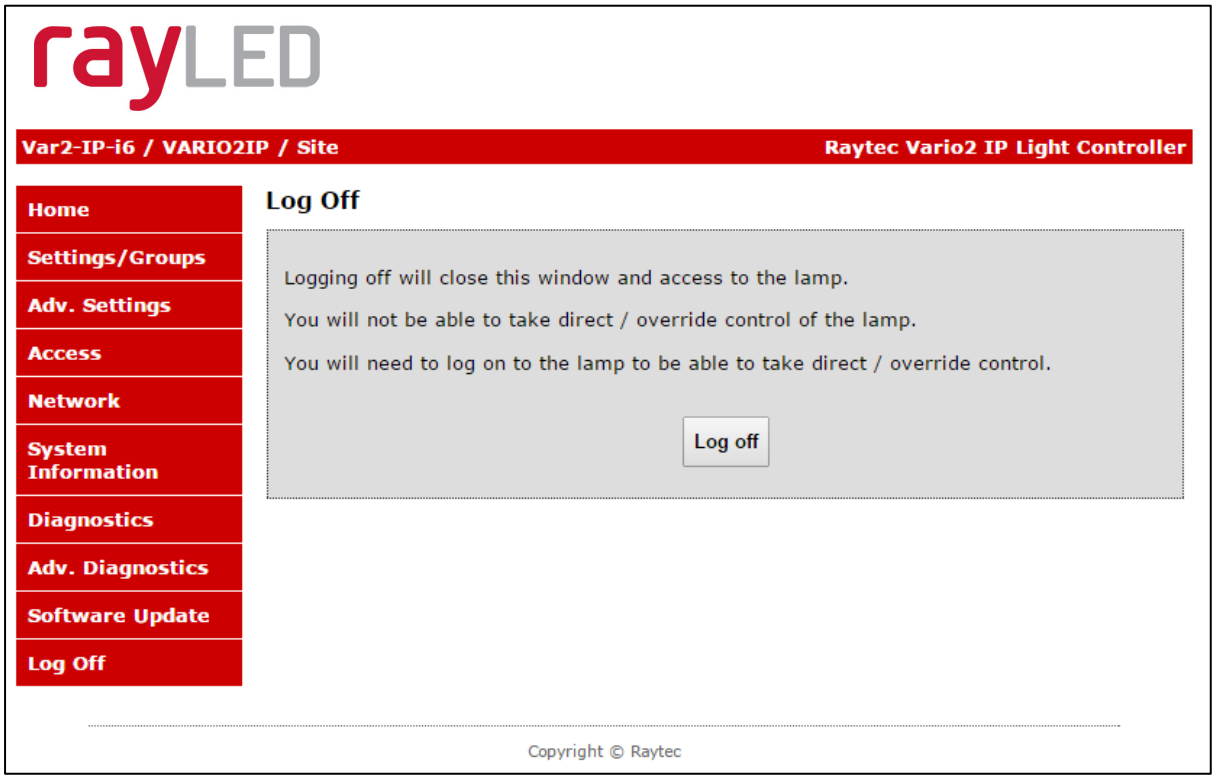
The update will restart the unit. From software / firmware version 2.0.0 and above, the following settings will remain unchanged:

- IP Address (if configured statically)
- DHCP mode
- Gateway address
- Subnet mask
- Primary DNS
- Secondary DNS
- Illuminator name
- Group name
- Operator user name and password
- Admin user name and password

All other settings will revert to the Factory Defaults of the new software / firmware version uploaded.

Log Off

We recommend after using the illuminator web interface that users log off using the Log Off Page.



Hard Reset Button – Located on illuminator

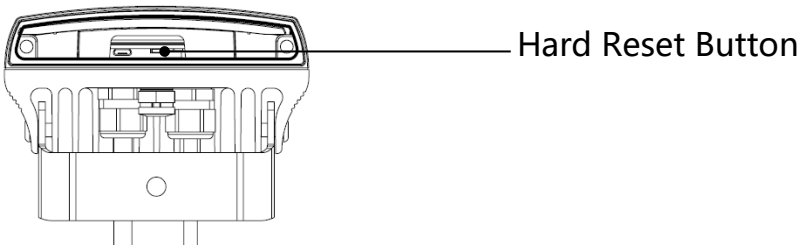
A hardware reset button feature has been provided that will restore ALL factory default settings including **IP address**, **user names** and **passwords** etc. and can be used in cases where communication is lost and the illuminator does not respond.

WARNING: We recommend attempting to reconnect with the illuminator by firstly restarting the illuminator or restoring factory settings via the integrated web interface. The hard reset button on the illuminator should be used only as a last resort.

To reset all parameters and the IP address to Factory Default settings:

1. Disconnect power from the illuminator.
2. Remove the baseplate on the illuminator to access the reset button.
3. Press and hold the Reset button and reconnect power.
4. Keep the Reset button pressed for approximately 5 seconds until the illuminator flashes. Release the Reset button.
5. Replace the baseplate securely to ensure unit remains waterproof.

The illuminator can now be discovered using the RayLED Discovery Tool and can be configured as normal following the instructions in this manual. Be aware that the IP address will have been restored to factory default, 192.168.2.80.



RayLED APIs (VMS and HTTP)

The RayLED Network Illuminator has been designed such that it can be integrated into 3rd party systems such as a VMS, BMS etc. as well as receiving HTTP commands and RayLED have suitable APIs to support such integrations. Please contact RayLED to discuss your particular requirements.

For full documentation to support API implementation, please contact RayLED.

Troubleshooting & FAQs

Typical Questions:

Please see Basic Troubleshooting on pages 20-21

Also, please feel free to contact us directly on the contact numbers below.

I have forgotten my Password. – *If you are an operator, contact your administrator. If you are an administrator, then you may need to perform a hard reset of the illuminator – see previous page.*

I cannot discover my illuminator on the network using the RayLED Discovery Tool. *– Check that there is power to the illuminator, check that the correct CAT 5 / 6 wiring is being used, check that your computers Firewall is allowing the illuminator access and is not blocking UDP traffic.*

I cannot communicate with my illuminator from the RayLED Discovery Tool – *Make sure the IP address of the computer and the illuminator are set to the same range to allow communication. The default IP address of the illuminator is 192.168.2.80.*

My illuminator turns on too early or too late – *First adjust the Photocell Sensitivity on the **Adv. Settings** web page. Make sure the illuminator is not mounted under or next to another another light source which may affect the performance of the photocell.*

I want my illuminator to turn ON via the photocell – *Photocell operation is activated as a factory default setting and will turn the illuminator on/off automatically provided*

*the illuminator is in "**Local**" , "**VMS + Local**" or "**HTTP + Local**" mode. See page 38 for more information.*

My illuminator does not trigger from an external input – *In standard mode, the photocell must detect that it is dark (or be disabled) before the illuminator will respond to an external input. Does your External Input work correctly? Are the respective telemetry wires (orange and purple) wired correctly? Has the illuminator been set to trigger from an External input on the illuminators web interface?*

My illuminator is not responding to group messages correctly – *Are all the illuminators in the same network range with correct IP Addresses and Subnet Masks? Have all illuminators been assigned to the correct group? Trigger Control must be set to "**Group Control**" . Make sure under the "Respond to Group Commands" is set to "**Yes, Receive Only**" or "**Yes, Send and Receive**" . Ensure that if an external trigger is used then that unit is set to "**Yes, Send and Receive**" . Ensure that override function is not running on the illuminators web interface.*

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