

Installation Manual

VARIO^{iP} PoE



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

BOX CONTENTS

VARIO IP PoE LAMP
60° x 25° Diffuser
Waterproof RJ45 connector

Infra-Red (IR) or White-Light (WL)

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



Warnings

- Install in a well ventilated area
- Do not stare at the lamp 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 lamp. Hazard distance is 1840mm.

Product Introduction

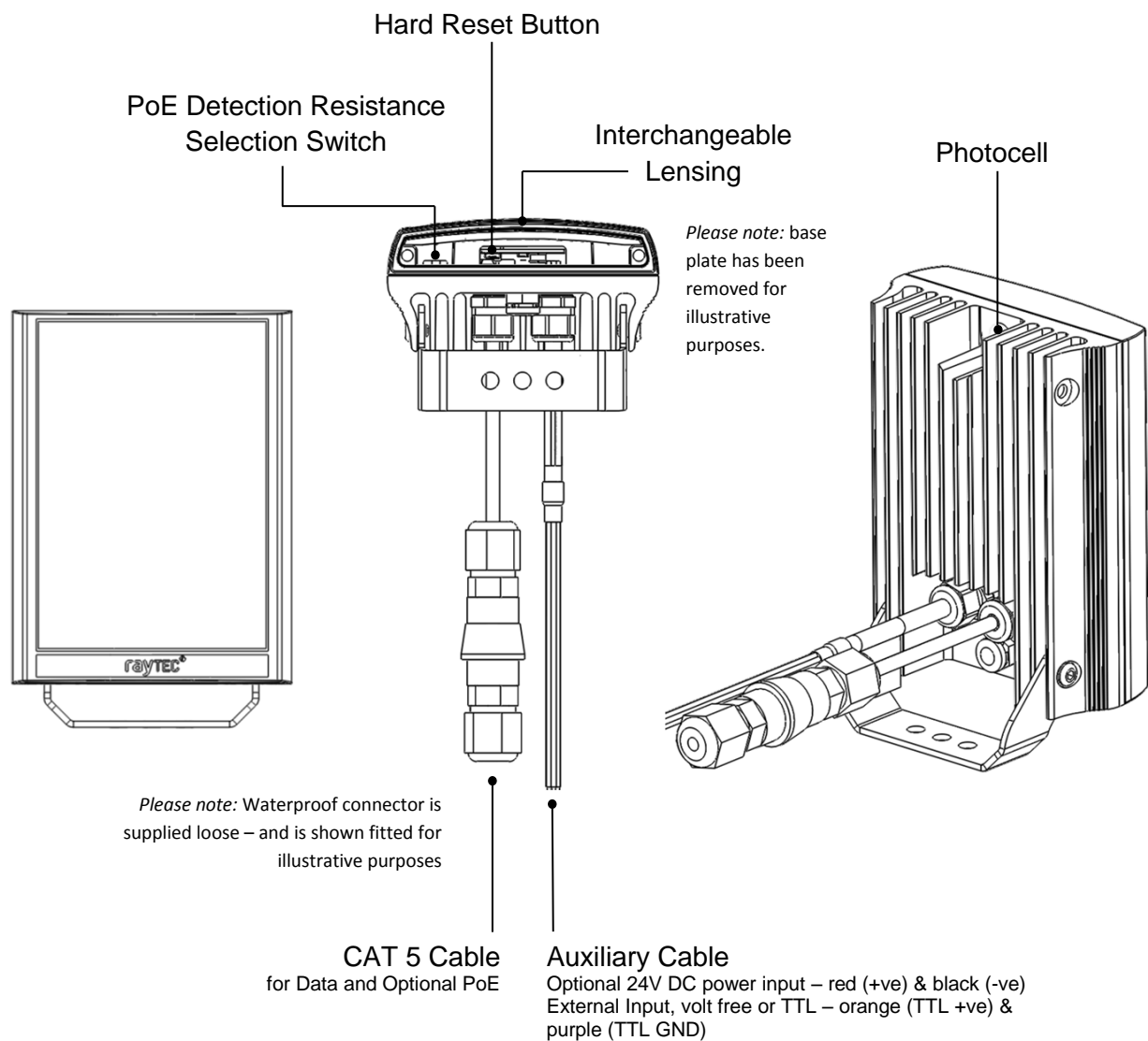
VARIO IP is a Network Illuminator designed to connect to a suitable network and is provided with an integrated Web Interface. There is the Raytec Discovery Tool for easy identification and connection to the lamp or you can connect directly to the lamp via its IP address.

The lamp has a CAT5 cable for data connection and can be powered from PoE and is supplied with a waterproof Cat 5 connector. The lamp also has an auxiliary cable if low voltage 24V DC operation is preferred.

The lamp 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) and benefits from Raytec's interchangeable lens system so that the correct angle of illumination can always be achieved easily.

The lamp has Operator and Administrator log-on 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 lamp also has an HTTP API to control the lamp via HTTP commands.



Basic Steps and Index

STEP 1: Safety Information and Product Introduction (Pg. 1-2)

STEP 2: Wiring (Pg. 4-5)

For PoE, use standard CAT 5 or better for both power and data. For all 8 sized products, check the PoE detection resistance of the lamp is compatible with your PoE equipment (24.9KΩ is factory default).

For low voltage (non-PoE) 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 PoE equipment or 24V PSU are suitably rated

For 8 sized products check PoE detection resistance is set correctly

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

If using low voltage, a CAT 5 cable must still be connected to the network for communication

If not using auxiliary cable, it must still be suitably terminated and waterproofed

STEP 3: Physical Installation (Pg. 5-6)

Adjust interchangeable lens if required.

Fix to wall, pole or camera unit using U bracket provided or other Raytec bracketry.

IMPORTANT:

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

Ensure lamp is orientated in the correct direction

STEP 4: Change IP address and connect to the lamp (Pg. 7-8)

All Vario IPs 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 lamps is using the Raytec Discovery Tool where the IP address can be altered or DHCP enabled.

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

IMPORTANT:

We recommend Raytec Discovery Tool as being the easiest way to establish communication.

If using IP address for direct communication, lamp and computer must be in same network range.

STEP 5: Lamp Set-Up (Pg. 9-12)

Log-on and Security

Basic Lamp Setup

Basic Web Page Functionality

STEP 6: Basic Troubleshoot (Pg. 12-14)

For full, detailed instructions and troubleshooting visit www.rayteccctv.com

Wiring

The lamp is supplied with a terminated CAT5 cable with a waterproof Ethernet connector (supplied loose i.e. not fitted) and an auxiliary multi-core cable.

Option 1 – Power via PoE

Connect an Ethernet cable (category 5 or better) using the T-568B wiring standard between the Power Sourcing Equipment (PSE) and the lamp. Ensure that the PSE is sufficiently rated to power the Vario IP device as follows:

Model	PoE Requirement
VAR-IPPOE-w4-1, i4-1, i4-1-c	IEEE 802.3at (HP PoE) $\leq 25.5W$
VAR-IPPOE-w8-1, i8-1, i8-1-c	4-pair PoE $\leq 51W$

The CAT5 cable is both the power and data connection for the lamp. The maximum Ethernet cable length is 100m (328') without boosting the signal.

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 lamp

RJ45-RJ45 connector

To Network

Option 2 – Power from 24V DC

If using low voltage power, connect **24V DC** to the red (+ve) and black (-ve) cables of the auxiliary cable. In this case the Ethernet cable is a data connection only.

For either Option 1 or Option 2 above, 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 multicore auxiliary cable must be waterproofed and terminated appropriately even if it is not in use.

PoE Detection Resistance Selection Switch

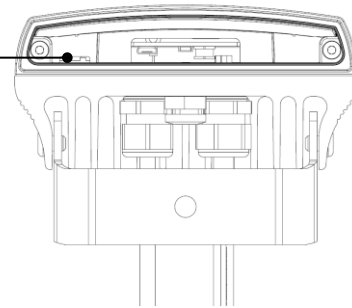
There is a switch on the **VAR-IPPOE-w8-1**, **i8-1** and **i8-1-c** lamps which can be used to change the PoE detection resistance of the lamp (24.9K Ω is the factory default setting).

Turn the power to the lamp OFF, remove the baseplate and access the switch as shown.

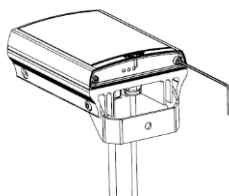
The majority of PSE equipment requires a detection resistance of 24.9K Ω to establish a PoE link. Some models of PSE equipment require a 12.5K Ω detection resistance. Check with your supplier of PSE equipment.

For 24.9 K Ω , slide switch to the LEFT (factory default – as shown). For 12.5 K Ω , slide switch to the RIGHT.

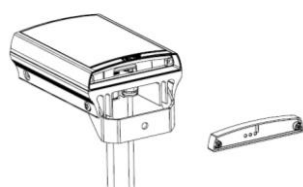
Detection Resistance Selection Switch



Interchangeable Lenses: Changing the Angle



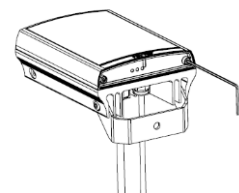
Step 1
Unscrew baseplate



Step 2
Remove baseplate



Step 3
*Remove / Replace
diffuser slider*



Step 4
*Replace baseplate
& tighten*

The lamp 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.

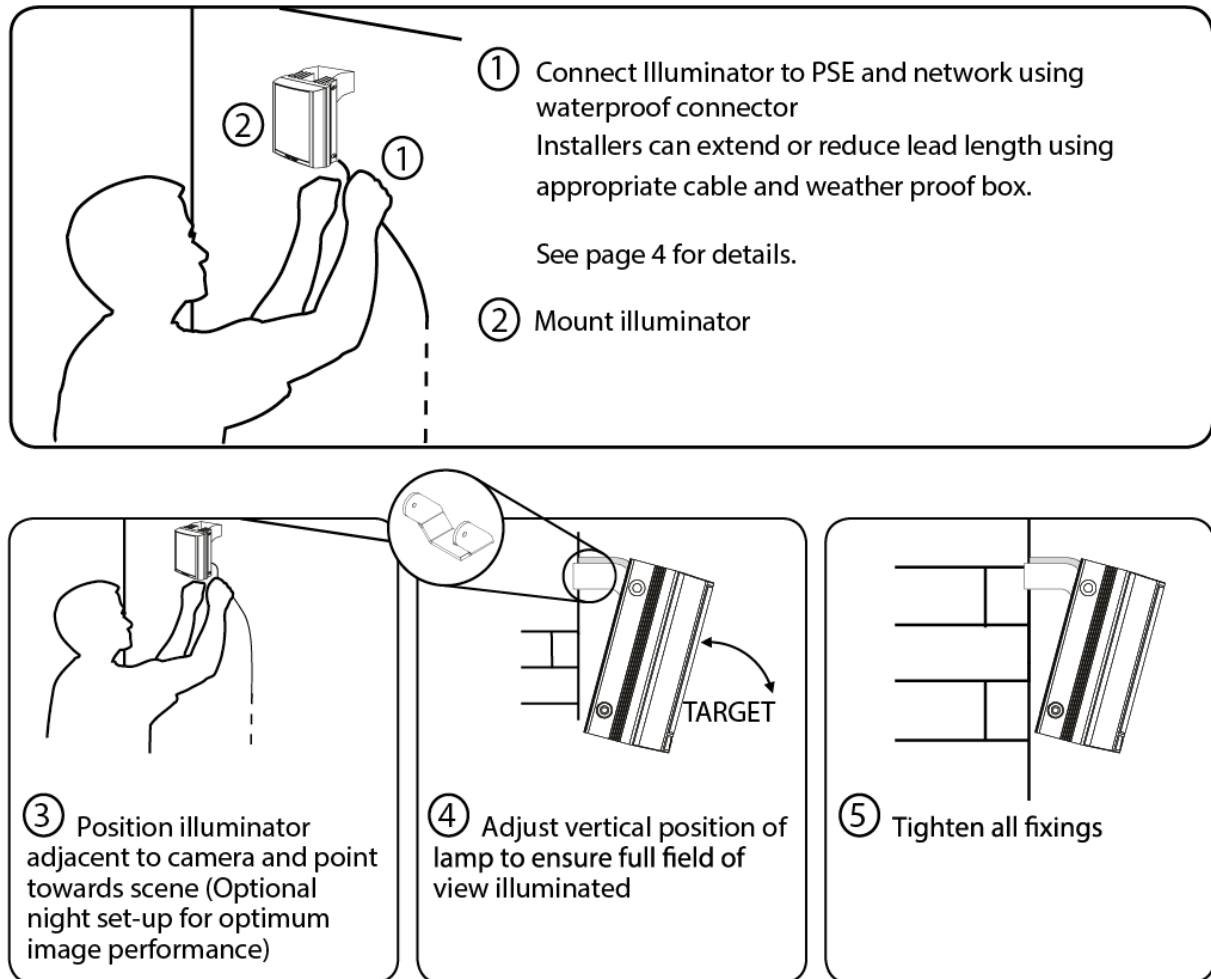
The angles available as standard are: 10°x10° (NO lens / diffuser in place), 35°x10° and 60°x25°. Other angles are available to order: 80°x30° and 120°x50°.

Installation

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

Attach lamp to wall, housing or pole using U-bracket provided or dedicated Raytec bracketry.

Connect lamp to PSE and network.



Connecting to the Network

Assign an IP Address

All Vario IPs 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 a lamp:

OPTION 1: Raytec Discovery Tool

We recommend the easiest and fastest way to identify and connect to lamps is using the Raytec Discovery Tool where the IP address can be altered or DHCP enabled. Using the Raytec Discovery Tool avoids the need to have the computer and lamp in the same network range in order to alter the IP address. This free application is downloadable from our website, included on the USB memory stick provided with this product, or you may request it from Raytec.

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

A. Run the Raytec Discovery Tool. Single click on lamp 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 lamp should now appear with a valid IP address. You can now double click lamp to navigate to it.

WARNING: Your network must have DHCP capability.

B. Run Raytec Discovery Tool. Single click on lamp to highlight it. Select **Network** from bottom menu. Write 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 lamp to navigate to it.

OPTION 2: Use the Lamp’s Web Interface

Alternatively, type the IP address of lamp 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 lamp 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 lamp have IP addresses in the same range.

Basic Raytec Discovery Tool

The Raytec Discovery Tool is downloadable from our website , included on the USB memory stick provided with this product, or you may request it from Raytec.

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

The lamp responds to multicast messages - and therefore does not need to have a valid IP address in the same network range for the Raytec 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 VARIO IP powered and attached to the same network, Press **Discover** and the Raytec Discovery Tool will display a list of lamps available on the network.

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

Once the IP address of the lamps have been changed, you can double click onto the lamp from the Raytec Discovery Tool to navigate directly to the lamp.

The Raytec Discovery Tool allows you to:-

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

Hierarchy of Photocell vs. Telemetry

If the telemetry function is enabled, then the photocell must detect that is it 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.

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

If Lamps are in Groups the following rules apply

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

Log-on & Basic Lamp Setup

Log-on 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, you may want to consider changing the passwords at the earliest opportunity (for further information, please see page 36 of full installation instructions available at www.rayteccctv.com).

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

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

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

VMS integration allows the lamp(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 lamp 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 lamp mode can be changed on the Settings / Groups page. The default lamp mode is **Local**.

Standard Setup – Factory Defaults

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

The lamp 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 lamp 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	VARIOIP
Group Name	<<Deliberately Left Blank>>
IP Address	192.168.2.80
Enable DHCP Checkbox	Not Selected – IP addresses will NOT be automatically allocated. If lamp is being operated on a DHCP enabled network, DHCP can be selected for automatic allocation of IP address.
Lamp Mode	<i>Local</i> : Control the lamp using the web interface. Lamp will respond to its own photocell and telemetry events.

	<i>Photocell</i>	<i>External Input</i>
Trigger Control	Lamp Control	Lamp Control
Respond to Group Commands	No, ignore group command	No, ignore group command
Lamp 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

Countdown Duration = 30 mins

Photocell Sensitivity = 20 lux

External Input

Type of Input = Volt Free

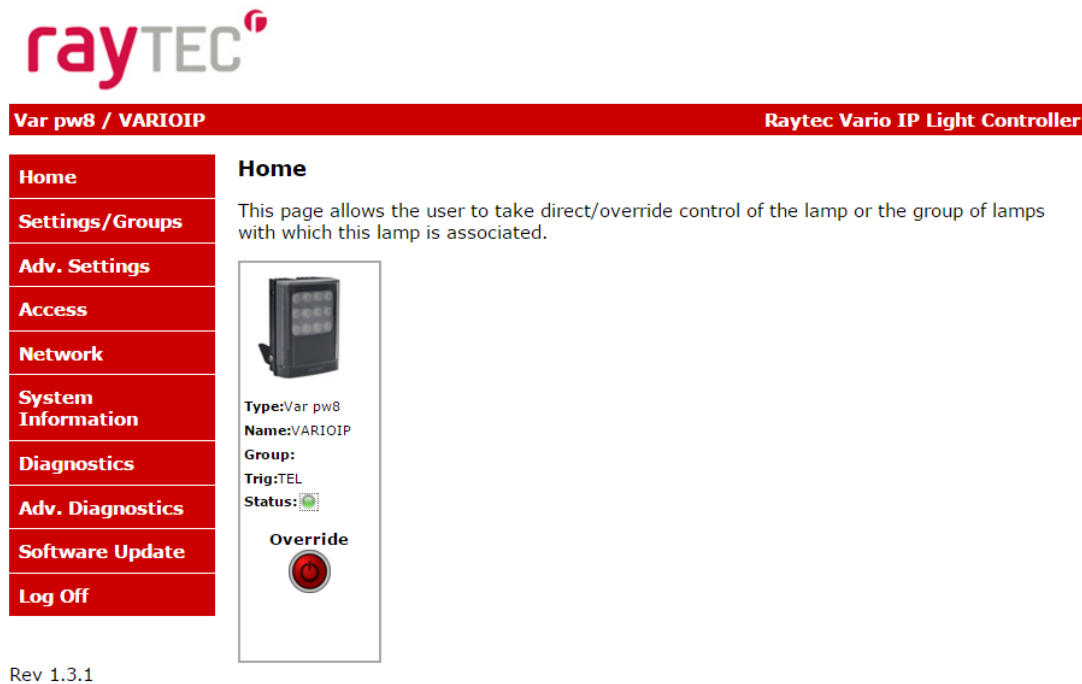
Active State = Short Circuit / Low

External Output

Trigger State = Photocell Only

Active State = Short Circuit / Low

Basic Web Page Functionality



User has access to Home Page and Diagnostics pages.
Admin has access to all pages.

<u>Page Name</u>	<u>Functions available</u>
Home Page	Allows manual control of an individual lamp or group of lamps including power adjustment, boost and deterrent controls. Select override to operate above functions.
Settings / Groups	Allows detailed set-up and configuration of the lamp 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 lamps to be allocated to a group or to create a new group. Selectable control of lamp 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 lamp name
System Information	Indicates basic information about the lamp. Ability to restore factory settings or restart lamp.

Diagnostics	Basic diagnostics to enable 1 st level troubleshooting
Adv. Diagnostics	Advanced diagnostics to enable 2 nd level troubleshooting
Software Update	Indicates current software / firmware version. Ability to upload updated software / firmware version.
Log Off	We recommend logging off lamp after every session

Ping

The lamp will respond to a standard Ping command sent to its valid IP address. For the ping command to work the lamp 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.
- If powering from PoE, ensure Power Sourcing Equipment (PSE) is suitably rated for the Vario IP unit – see page 4 for required ratings – and for all 8 size units check correct PoE Detection Resistance has been selected – see page 5.
- If powering from low voltage 24V DC, check voltage applied and that power supply is suitably rated for the Vario IP unit – see page 4 for required ratings.
- Check connection and wiring of CAT5 / 6 cable to VARIO IP. Verify link has been established with the router / switch to which the lamp is connected and that the wiring is compatible with T-568B wiring standard.
- If the lamps are correctly wired to the network, run the Raytec Discovery Tool and try to discover the lamp on the network.
- If the lamp is discovered and the “State” indicator is grey, this indicates that there is no communications with the lamp. Ensure IP Address and Subnet Mask of computer

and lamp are set within the same range. If not, alter IP address of lamp or Enable DHCP on lamp for automatic allocation of suitable IP address.

- Enter a Ping command to see if the lamp 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 Raytec for further support or consider a Hard Reset of the lamp.

FOR A FULL SET OF DETAILED INSTRUCTIONS AND IN-DEPTH TROUBLESHOOT
PLEASE CONTACT RAYTEC OR DOWNLOAD FROM www.rayteccctv.com

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 lamp – refer to Hard Reset instructions below. This will restore the lamp to factory defaults which includes User Names and Passwords.

Hard Reset Button – Located on lamp

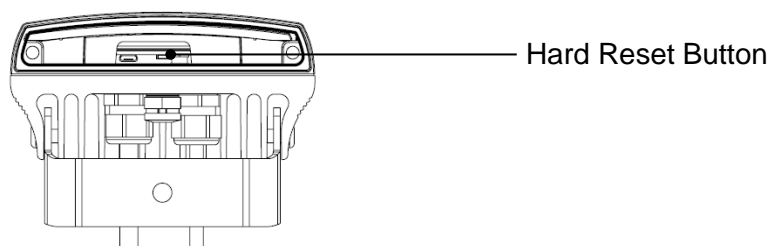
A hardware reset button feature has been provided that will restore ALL factory default settings including IP address, user names and passwords etc. and can be used in cases where communication is lost and the lamp does not respond.

WARNING: We recommend attempting to reconnect with the lamp by firstly restarting the lamp or restoring factory settings via the integrated web interface. The hard reset button on the lamp 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 lamp.
2. Remove the bottom cover plate on the lamps 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 lamp flashes.
Release the Reset button.
5. Replace the bottom cover securely to ensure unit remains waterproof.

The lamp can now be discovered using the Raytec 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.





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