



HD-SDI H.264 Video Encoder



HD-SDI Video To IP Encoded Video Converter



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Document History

Version	Date	Change Summary	Author
v1.0	16/11/2020	Initial Draft	RE

About the User Manual

This user manual describes the operation of the HD-SDI to H.264 Encoder.

As part of this, hardware interfacing, connections, viewing video and configuration of the module's functions are all described in detail.

Additionally the use of software control tools to view video are explained.

The guide follows a step by step approach, describing the simple initialisation sequence to get the user up and running in the shortest possible time.

This is followed up with a description of technical specifications.

Warranty and Support

All Visual Engineering products are supplied as standard with a 12 month 'Return to Base' warranty.

Please note: Any unauthorised product disassembly, modification or the removal of tamper proof labels will void the warranty.

In the event of a suspected product failure, users should contact the Visual Engineering support team on the telephone number +44 (0) 1206 211842 or please email us at:

support@visualengineering.co.uk

Should the fault persist or if the support team are unable to resolve the fault, it may be necessary to return the equipment.

Equipment should be returned using the RMA (Returns Management Authorisation) process. Users should contact the support team on the above number and request an RMA number.



Introduction

The encoder is a simple to use rugged in-line module that accepts an HD-SDI video stream and outputs an ONVIF compliant H.264 IP stream.

Together with the built-in microphone it provides a complete hardware solution to translate HD-SDI video and audio and broadcast it as encoded IP.

Through the integral web page interface the user can set various parameters of the encoded output video to include resolution, frame-rate and bit-rate parameters.

The accepted video input frame rate can be adjusted to either 1080p or 720p to match the connected HD-SDI camera.

Motion alerts can be configured such that the any movement in the picture will trigger an alarm.

The IP stream is ONVIF compliant such that the unit can be easily integrated and viewed in any Video Management System of choice, such as Milestone, this is described in the [VMS platforms](#) section.

Both the input and output connections incorporate high quality Fischer connectors. So as to avoid incorrect cable installation each connector is key specific.

This is all housed in a CNC machined aluminium IP67 casing to produce a high quality unit that is robust, reliable and suitable for professional use.

The kit comes in a foam lined case which includes an AC/ DC power supply and all interface cables.

Future development of the encoder will feature the inclusion of SD recording and WiFi connectivity.



The Encoder Kit

The kit comes complete in a foam lined carry case, which includes the following parts described with their part numbers:



- HD-SDI H.264 Encoder 110-0235



- Fischer BK2 to BNC HD-SDI Cable 110-0237



- Fischer CAT 5 Cable 110-3507



- Passive PoE Cable Set 110-8301



- AC/DC Power Supply & Adaptors 110-8661



- Supporting Documentation 110-8679



Encoder Connections

The encoder has two Fischer connectors which are key specific.

- The Fischer BK2 to BNC HD-SDI cable connects to an HD-SDI video source.
- The Fischer CAT 5 cable connects to the power input and is the H.264 video out.



HD-SDI Video In

Connect a HD-SDI video source to the BNC of the Fischer BK2 to BNC HD-SDI cable.

The encoder is capable of accepting both 25fps and 29.97fps video in either 1080p or 720p video resolutions. Ensure the camera and encoder are set to the same video format.

H.264 Video Out

Insert the Passive PoE cable set between the AC/DC power adaptor and the RJ45 connector of the Fischer CAT 5 cable. Connect the RJ45 plug of the Passive PoE cable set to a PC or similar networked enabled device.

Control of the encoder can be accessed through the web browser interface.

To view the streaming video from the camera users should have a video player installed on their PC.

Visual Engineering recommends the use of the [VE Camera Viewer](#) to view the video.

Alternatively users can use VLC, this free media player that can be downloaded from: http://www.videolan.org/vlc/index.en_GB.html



PC Connection

Once the encoder is powered it is possible to view the encoder's video and configure the encoder's parameters over an IP connection to a PC.

The web browser control of the encoder allows the configuration of parameters such as resolution, bit rate, and network settings, once saved all configuration changes will be retained.

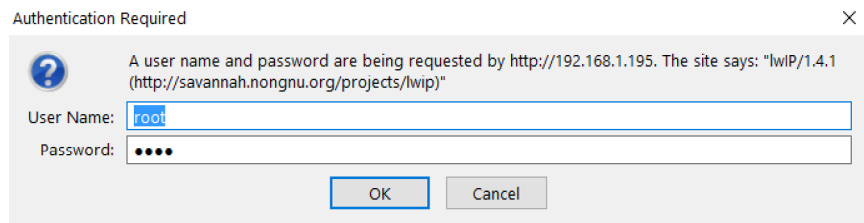
Browse to the encoder's web page by typing the encoder's IP address into the web browser address bar.

Encoder Login

On trying to establish a connection the user will be prompted for the User Name and Password, enter the following details:

Default **User Name** is:
root

Default **Password** is:
1234



Default IP Address

Encoders are by default set with a fixed IP address of **192.168.1.195**, this is detailed on the encoder's part number label.

If the encoder is not responding on this address it is possible that the IP address has been changed.

If the new IP address is unknown, the user can use the VE Camera Viewer software application to locate the IP address. This method is explained in the [VE Camera Viewer](#) section.

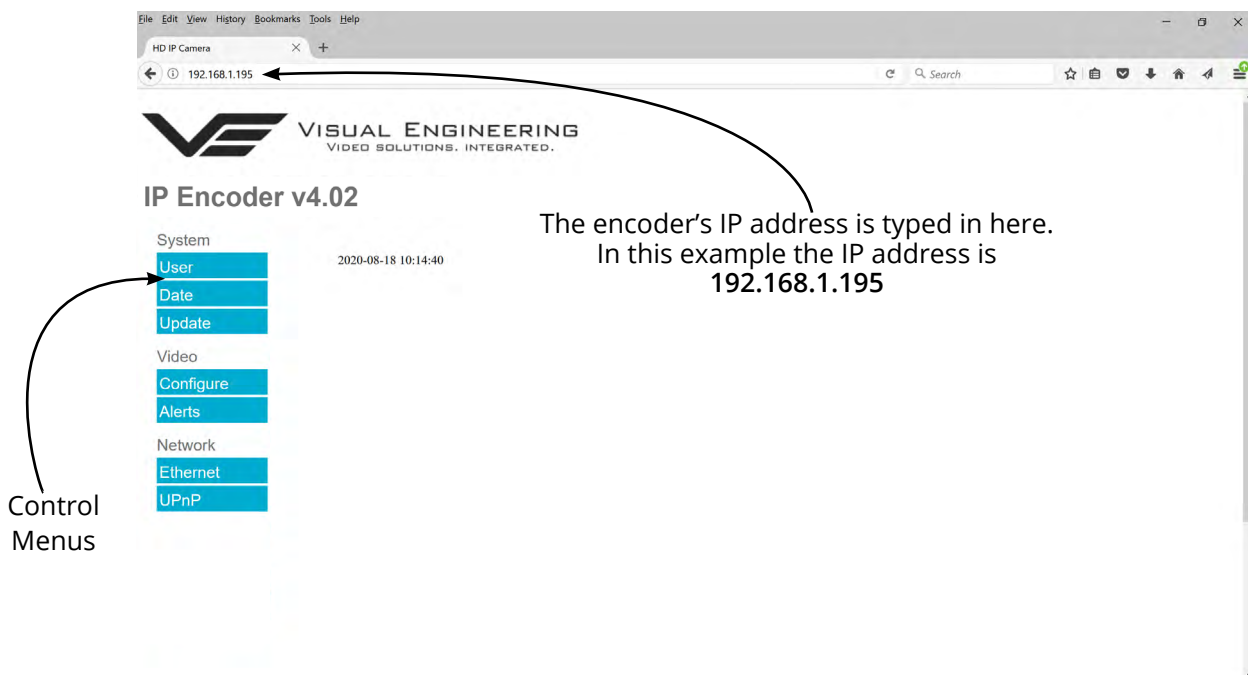


Web Browser Control

The primary mechanism for configuring the encoder is its web browser interface.

The example screen below shows what is to be expected once a valid connection between the PC and encoder has been established by typing the encoder's IP address into the web browser address bar. In this example it is the default address of **192.168.1.195**

On the left side of the screen are the Control Menus which allow the user to configure various settings in the encoder. The functions of these menus are described in the following sections.



User Menu

The user menu page allows users to configure the user ID and password of the encoder. It is necessary to confirm the password to change it.

There is also the option to enable/disable the following:

- FTP Server Connection
- OSD (On Screen Display)
- Audio Out

Changes are only enabled when the **submit** button is pressed.



IP Encoder v4.02

System	
User	User <input type="text"/> <input type="submit" value="submit"/>
Date	ID <input type="text" value="root"/>
Update	Password <input type="password" value="...."/>
	Confirm <input type="password"/>
Video	FTP Server <input checked="" type="radio"/> ENABLE <input type="radio"/> DISABLE
Configure	OSD Print(H.264) <input checked="" type="radio"/> ENABLE <input type="radio"/> DISABLE
Alerts	Audio Out <input checked="" type="radio"/> ENABLE <input type="radio"/> DISABLE
Network	
Ethernet	
UPnP	



Date Menu

The date menu page allows the user to synchronise the encoder time to an SNTP server. In this instance it is necessary to have the PC connected to a network.

If a network connection is not available it is possible to synchronise the encoder to the PC time by ticking the "Sync Camera to PC Time" check box and pressing the **submit** button.

The "UTC Offset" can be altered to align the encoder time with the local time zone. Changes are only enabled when the **submit** button is pressed.

To align the encoder to the actual PC time the "UTC Offset" should be made same as the value displayed in the "PC UTC Offset" field.



IP Encoder v4.02

System	
User	Date <input type="button" value="submit"/>
Date	SNTP Server <input type="text" value="0.uk.pool.ntp.org"/>
Update	Camera Time <input type="text" value="2020-08-18 10:14:51"/>
	PC Time <input type="text" value="2020-08-18 10:14:51"/>
	UpTime <input type="text" value="18492 Days 08:14:51"/>
Video	UTC Offset <input type="text" value="2"/>
Configure	PC UTC Offset <input type="text" value="2"/>
Alerts	Sync Camera to PC Time <input type="checkbox"/>
Network	
Ethernet	
UPnP	

Tick this box and press **submit** to sync the encoder to the PC time

Update Menu

It is possible to update the firmware of the encoder. There are three steps to updating the firmware, as shown on the right.

! Only update the encoder with files that have been approved by Visual Engineering. Use of other files will render the encoder inoperable. !



IP Encoder v4.02

System	
User	Update <input type="button" value="Submit"/>
Date	Firmware Download <input type="button" value="Browse..."/> No file selected. <input type="button" value="Submit"/>
Update	<input type="button" value="Restore Defaults"/>
Video	
Configure	1. Select the Update tab
Alerts	2. Browse to the file
	<input type="button" value="Reset"/>

3. Submit the file

Following a **Submit** the encoder will update the firmware and display the following text: Programming in Progress...Do not remove power
Wait until the web page clears this text before trying to move away from the current web page or powering off the encoder. Updates typically take approx 3 minutes to complete.

! Important: To fully ensure the upgrade has finished it is advised to refresh the web page and check the banner displays "IP Encoder v4.02" or the encoder starts to once again stream video before switching off the power. It is advised that following a firmware update that the **Restore Defaults** button is pressed, this will revert the encoder back to a default start state. The IP address of the encoder will **revert** to its **default IP address of 192.168.1.195**

Pressing the **Reset** button will completely re-start the encoder.



Video Menu

The Video Page is where the encoder's parameters can be configured.

The encoder supports two encoding formats, H.264 and MJPEG. The choice of the format is initiated by the user when the video stream is started.

To initiate a H.264 stream from an encoder with an IP address of 192.168.1.195 the URL is:
rtsp://192.168.1.195/h264

To initiate an MJPEG stream from an encoder with an IP address of 192.168.1.195 the URL is:
rtsp://192.168.1.195/jpeg

It is possible to change the Encoder Type to any one of the following options:

- HD IP Camera
- PAL Input
- NTSC Input
- Guardian Node
- SWZ HD Camera
- LVDS Input 25Hz
- LVDS Input 29.97Hz
- SDI Input 25Hz
- SDI Input 29.97Hz

Changing the Encoder Type between SDI Input 25Hz and SDI Input 29,97Hz and then pressing the **submit** button will display the message on the web page as shown here.

Once the message clears the encoder will be set to the new format.

Ensure the connected video camera matches the Encoder Type.



IP Encoder v4.02

System

User	Video Configure submit	
Date	Source	SDI
Update	Resolution	1920 x 1080
	Max FPS	25 FPS
Video	Encoder Type	SDI Input 25Hz
Configure	RTSP Port	554 (1 to 65535)
	Input Resolution	<input checked="" type="radio"/> 1080p/25 <input type="radio"/> 720p/25
Alerts	H.264 Resolution	1920 x 1080
	H.264 Quality	30 (0 to 51)
Network	H.264 IDR Frame	25 (1 to 1800)
	H.264 FPS	25fps
Ethernet	Bitrate Control	<input checked="" type="radio"/> Constant Bitrate <input type="radio"/> Constant Quality
	H.264 Bitrate	6Mbit/s
UPnP	M-JPEG Resolution	800 x 450
	M-JPEG Quality	30 (0 to 63)
	M-JPEG FPS	25fps
	Bitrate Control	<input checked="" type="radio"/> Constant Bitrate <input type="radio"/> Constant Quality
	M-JPEG Bitrate	6Mbit

SDI Input 25Hz and SDI Input 29.97Hz are the only two valid Encoder Types for this device.



Switch between the two types of input to match the connected video camera.



IP Encoder v4.02

System

User	Changing encoder type...
Date	Ensure hardware matches!
Update	
Video	
Configure	



RTSP Port

The port number the IP video stream will be transmitted on, this has the default port number 554, which can be configured to another port number as required.

Input Resolution

The accepted video input frame rate can be adjusted to either 1080p or 720p to match the output of the connected HD-SDI camera.

The encoder has two fundamental modes of operation:

- **Constant Bitrate.** This will output a constant bit rate IP video stream, as set in the Bitrate field.
- **Constant Quality.** In this mode the bit rate is varied in a effort to maintain a constant quality. The target quality is set using a number between 0 to 51, the lower the number the higher the quality, this is set in the quality field. Amendments to this value are only allowed when the constant quality mode is enabled. In this mode the 'ceiling' bit rate is controlled by the value set in the Bitrate field, the encoder will attempt to limit the maximum bit rate to this value.

H.264 Resolution

The maximum resolution is 1920x1080, users can select lower resolutions if there is restricted bandwidth available.

H.264 FPS (frames Per Second)

The maximum frame rate is 25fps or 30fps, users may choose to select lower frame rates, thereby reducing the bandwidth required.

H.264 IDR Frame changes to the I frame interval balances the stream's quality against latency, the lower the number the lower the latency. Lower latency however can incur picture degradation due to the effect of limiting the decoder buffer.

Video Frame Preview

It is possible to view a single still image from the connected camera via a web browser using the following URL format:

<http://192.168.1.195/still.jpg>

The above URL is applicable when the encoder is set to its default IP address.



Example Settings

The bit rate of the IP stream can be adjusted to suit the system bandwidth available. Changes to the resolution and frame rate will adjust the stream's bit rate. The following table shows H.264 example bit rates for particular resolution and frame rate values.

Bit rate Available	Resolution	Frame Rate
5-10MB/s	1920x1080	30
4-5Mb/s	1920x1080	15
3-4Mb/s	1280x720	30
2-3Mb/s	800x450	30
1-2Mb/s	800x450	15
512kb/s-1Mb/s	640x360	15
256-512kb/s	320x180	15



Alert Control

Motion and light level triggers can be configured such that an audible tone and a visual alarm alerts the viewer.

These controls can also be set using the [VE Camera Viewer](#)

Motion and dark to light level triggers can be used to trigger an OSD (On Screen Display) event. For this to occur users should ensure that the OSD Print option in the [User Menu](#) is enabled.

The level of motion required to invoke a trigger can be set with the Trigger Sensitivity between: Off, Low, Mid or High.

The duration of the alarm event will be the duration of the motion event plus the time set in the Trigger Duration field, values from 0 to 100 seconds are valid.

Users should press the **submit** button to enable any changes.



IP Encoder v4.02

System	
User	Alert Control submit
Date	Motion Sensitivity <input checked="" type="radio"/> Off <input type="radio"/> Low <input type="radio"/> Mid <input type="radio"/> High
Update	Trigger Duration <input type="text" value="10"/> Secs (0 to 100)
Video	
Configure	
Alerts	
Network	
Ethernet	
UPnP	

Triggered OSD Alerts





Ethernet Menu

Network parameters can be set on the encoder by selecting the Ethernet menu.

The encoder can operate with a fixed IP address, or can be allocated an IP address from the network, these modes are controlled using the DHCP button enable/disable.

Users should press the **submit** button to enable changes.



IP Encoder v4.02

System	
User	Ethernet submit
Date	
Update	
Video	
Configure	
Alerts	
Network	
Ethernet	
UPnP	

IP Address	192.168.1.195
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary DNS Server	210.94.0.73
Secondary DNS Server	211.33.40.5
Use DHCP Server	<input type="radio"/> ENABLE <input checked="" type="radio"/> DISABLE

HTTP Ports	80
------------	----

HTTP Ports

The default HTTP port and ONVIF HTTP port to control and configure the encoder is 80.

Selecting one of the five options as shown in the drop down box on the right will set both the HTTP port and ONVIF HTTP port number.

Moving the encoder's HTTP port number should only be carried out by users confident of keeping a track on what settings have been applied to the encoder.

Setting a new IP address and new HTTP port simultaneously should be avoided.

Following changes.....users should press the **submit** button to enable changes.



IP Encoder v4.02

System	
User	Ethernet submit
Date	
Update	
Video	
Configure	
Alerts	
Network	
Ethernet	
UPnP	

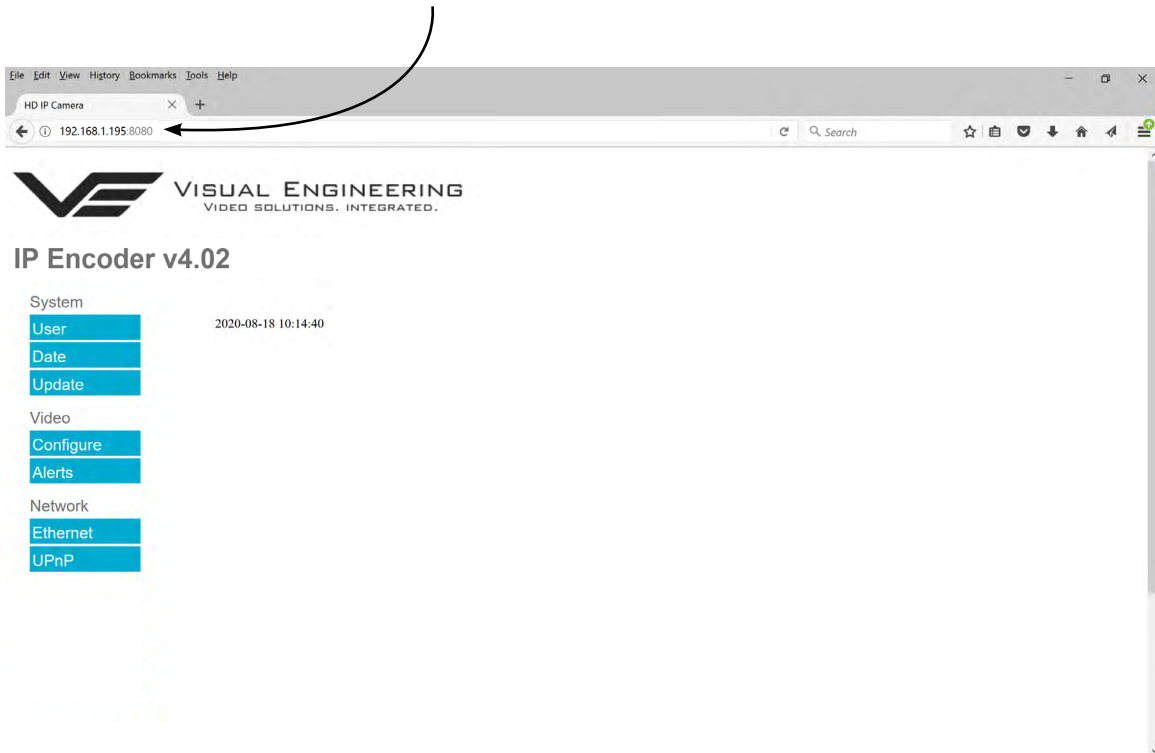
IP Address	192.168.1.195
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
Primary DNS Server	210.94.0.73
Secondary DNS Server	211.33.40.5
Use DHCP Server	<input type="radio"/> ENABLE <input checked="" type="radio"/> DISABLE

HTTP Ports	80
	80
	8008
	8080
	8081
	8082



Once an encoder has been set to a new port or IP address the web browser will be automatically re-directed to the encoder's new URL.

In the example shown below the encoder has been set to an IP address of 192.168.1.195 and port 8080. This extended URL format should be used to address encoders reconfigured to a HTTP port number which is not the default number of 80.



Unreachable Encoders

If an encoder has been set to an unknown IP address it can be found by using the [VE Camera Viewer](#) this will find any encoder's IP address regardless of the IP subnet.

If unsure which port the encoder has been configured to run a VMS software tool such as the ONVIF Device Manager. More information on VMS tools can be found in the [Video Management System](#) section.



UPnP Menu

The Universal plug and play menu allows the user to set the Device ID and Camera Name.

Users should press the **submit** button to enable changes.



IP Encoder v4.02

System

User	UPnP		<input type="button" value="submit"/>
Date	Device ID	<input type="text" value="VE_195"/>	
Update	Camera Name	<input type="text" value="VE_30P_FHD"/>	

Video

- Configure
- Alerts

Network

- Ethernet
- UPnP



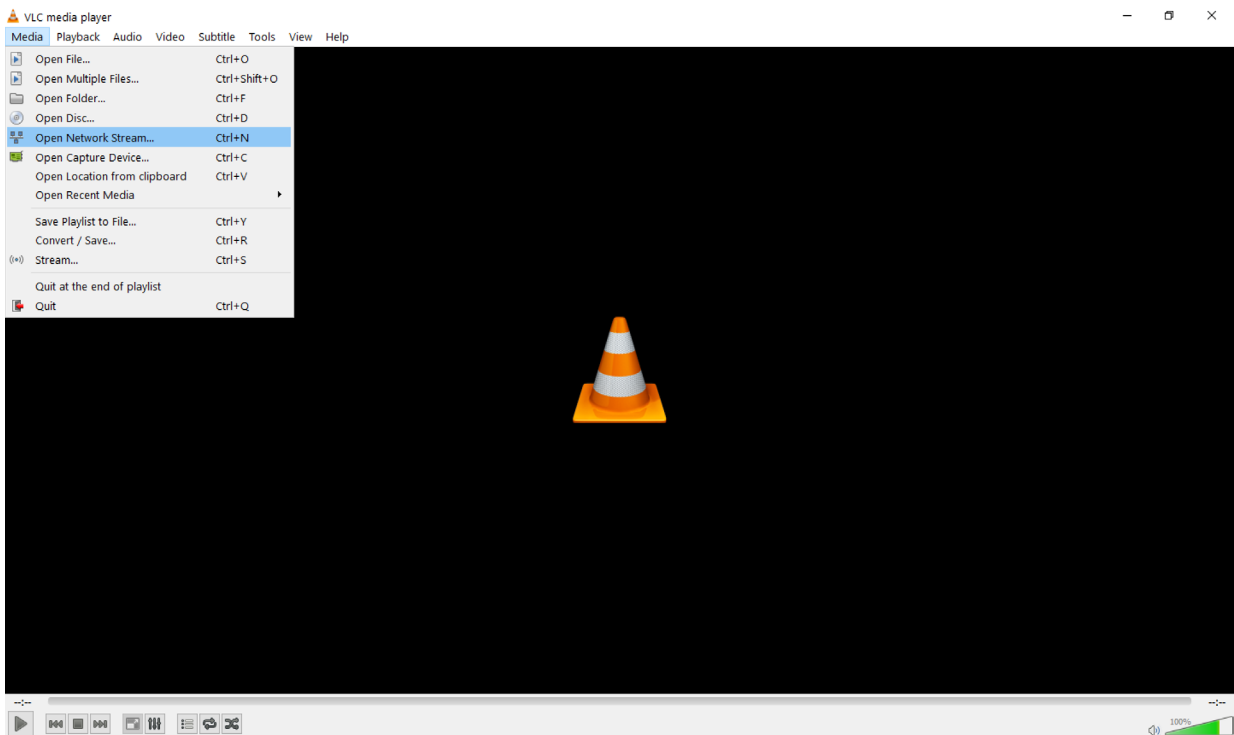
Using VLC to Play Streams

The encoder is compatible with many players, a simple freeware player is VLC Media Player. Users should download VLC Media Player and run the application.

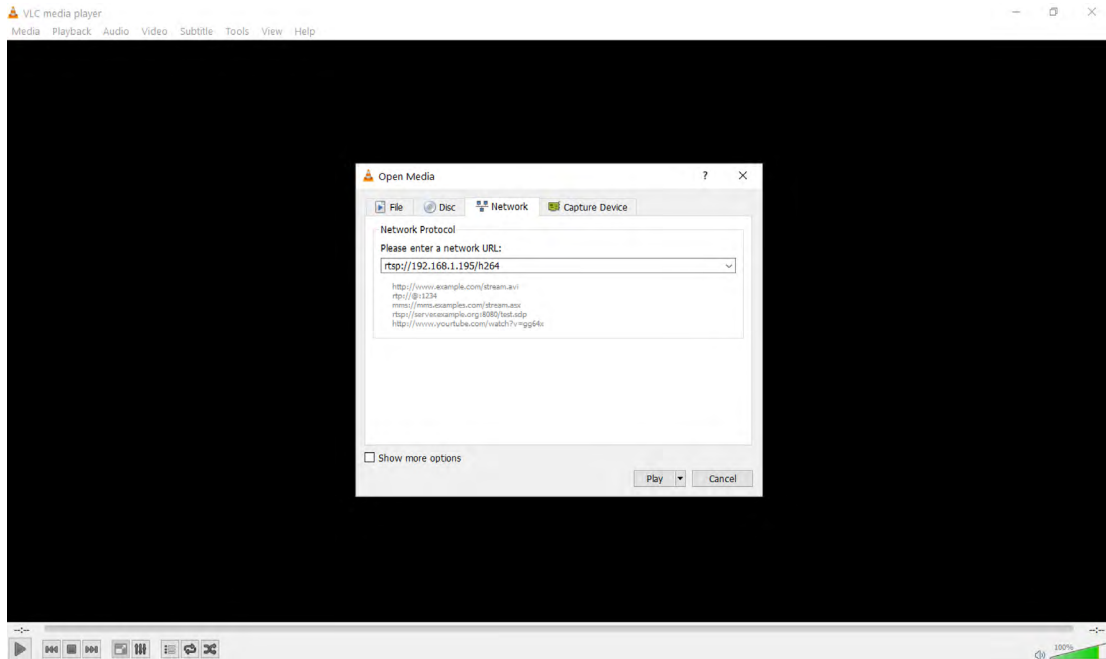
VLC is a free media player and can be downloaded from:

http://www.videolan.org/vlc/index.en_GB.html

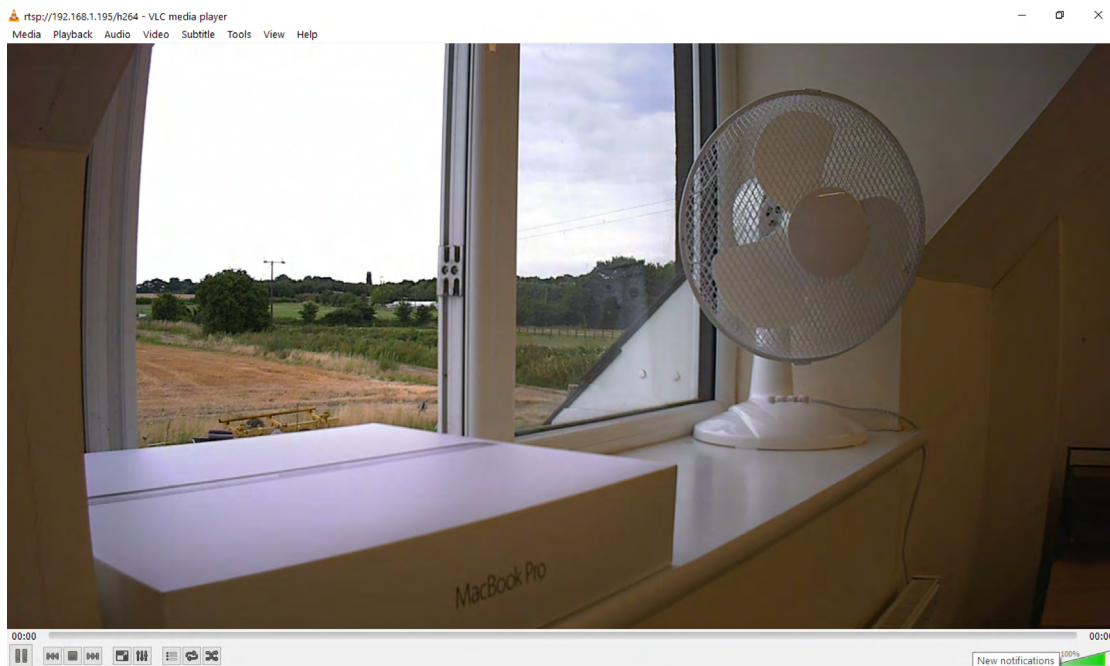
- Enable the VLC Media Player application.
- From the Media menu select the 'Open Network Stream' as shown below.



- Enter the encoder URL and stream type, eg: `rtsp://192.168.1.199/h264`
The URL depends upon the IP address of the encoder and the stream type, eg: h264 or jpeg. This is shown below



- Press play and wait for a few seconds, the video stream will appear.





The VE Camera Viewer

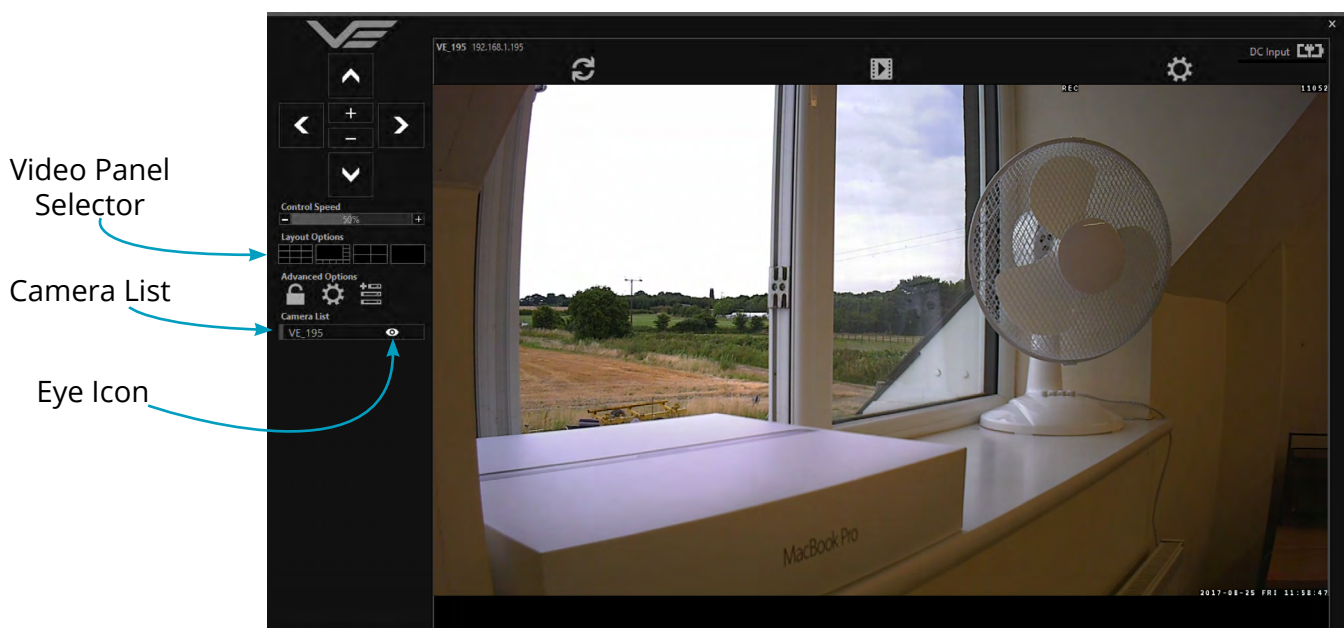
The VE Camera Viewer is a software application used to display the video from all video sources in the system. It will auto detect any VE cameras and encoders that are on the network and populate a list on the left hand side of the player.

The VE Camera Viewer software can be downloaded from the VE website support page or from the memory stick provided in the kit.

www.visualengineering.co.uk/supportdownload/26

Viewing Video

The VE Camera Viewer is intuitive and simple to use. Any encoder on the network will be displayed in a list on the left hand side of the player. The video can be viewed by clicking the "Eye Icon" next to its name. The video panel selector can be used to select how the video panels are arranged, this is useful when several video feeds are in the system.



Video Panel Options

The top of the video panel displays information on the playback mode of the displayed video. In the above instance the video playback is a Live stream. Since the encoder camera does not contain an integrated battery the power source will be displayed as a DC input.



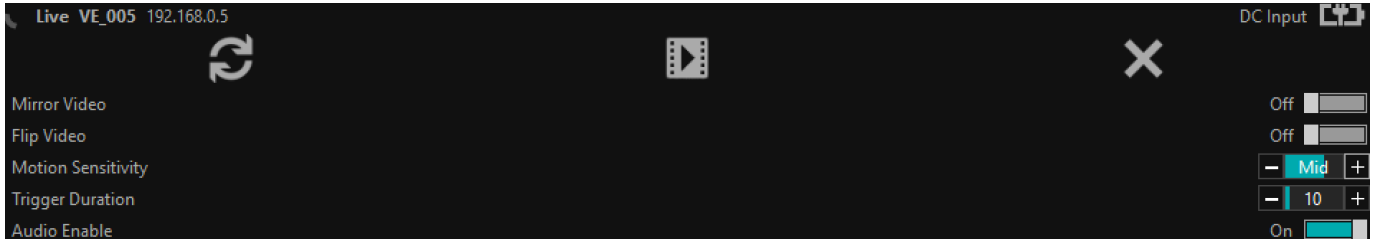
If the mouse is hovered between the video panel and the above information the player will offer the user the three options of: Refresh the video session, Play a Recording or edit the Settings.





Settings

- The encoder does not support the Flip Video or Mirror Video options
- The Motion Sensitivity can also be set to: Off, Low, Mid or High
- The Trigger Duration sets the alarm time (in secs) following the end of the triggered event
- The audio can be enabled and disabled as required



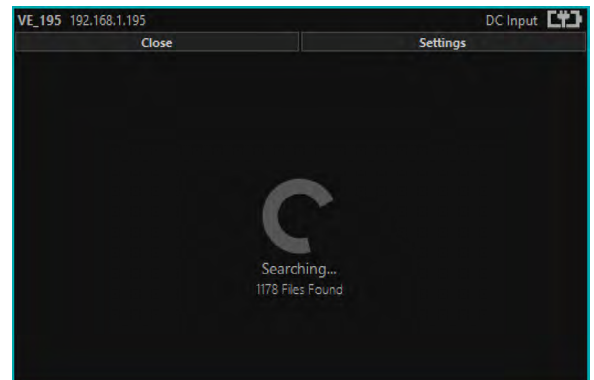
Play Recordings

Recordings will only be available if the encoder is fitted with the recording option, this is currently not included and is a future development of the encoder.

If the Play Recording option is selected the player will allow the user to select a recording to playback.



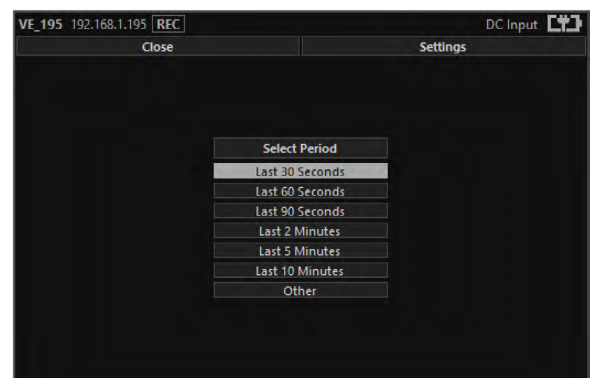
The player will find all available files that are stored on the SD card in the encoder. The update screen as shown on the right will be displayed until all files are discovered.



Users can then select a segment of recorded video to be played back from memory. Options are from 30 seconds to 10 minutes.

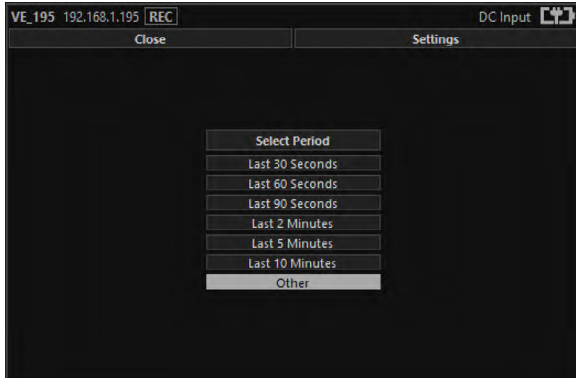
The full range of download periods is only available in advanced mode.

To access the advanced mode the user needs to hold keyboard keys "A", "D", and "V" then click on the padlock icon next to the Advanced User text.





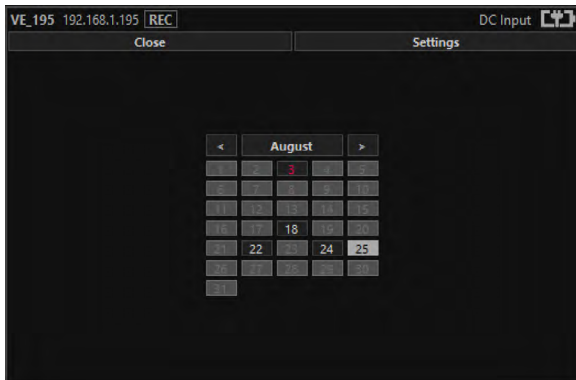
Select "Other" to choose a specific period of timed recording.



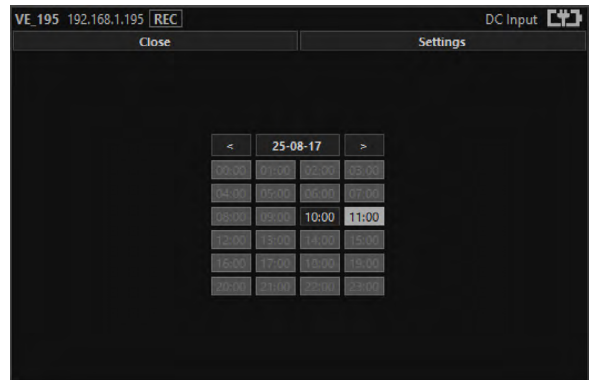
Select the required month, months that don't hold recordings are greyed out.



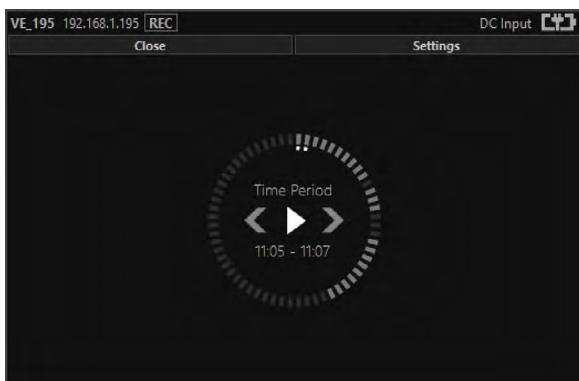
Select the required date, days that don't hold recordings are greyed out.



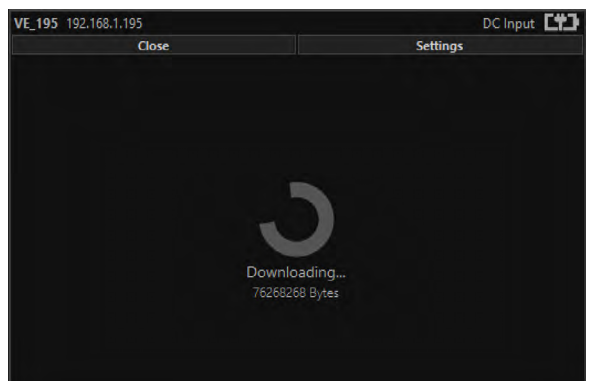
Select the required hour of day, hours that don't hold recordings are greyed out.



Select the required start and end time from the time dial. Press the play icon.



The files will then be downloaded, after which time the video recording can be viewed in the video panel.





Video Panel Coloured Border

The video panel is edged in a colour, the meaning of which is described in the following table.

Video Panel Edge Colour	Meaning
Red	A trigger alarm has occurred
Blue	The panel has been selected for Pan Tilt Zoom Control
Grey	No trigger alarms & not selected for PTZ Control

Trigger Alarms

The trigger alarms are enabled either via the player or the web interface. Once a trigger event occurs it will be displayed and sounded in the player. The video panel will have a red edge border and an icon will be shown in the bottom left corner. The trigger icon is either a motion trigger or a low to high light level change as described in the table below.

Trigger Icon	Trigger Source
	A low light level to high light level transition has been detected.
	Motion has been detected in the video.

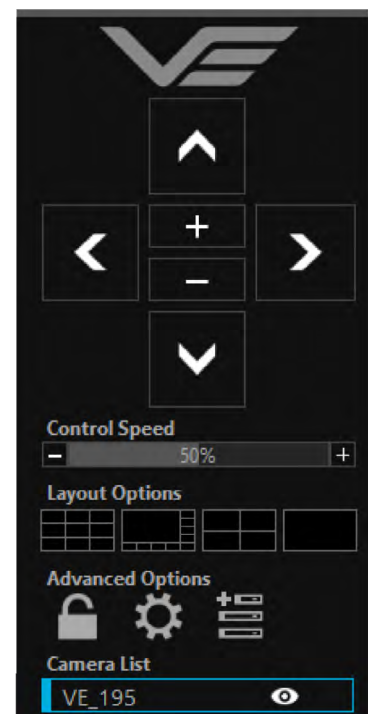
Pan, Tilt & Zoom Control

Select a camera from the Camera List, this will cause the selected camera description being edged in blue, as shown on the right. The video panel for the camera will also be edged in blue.

- Pan Control: left & right arrows
- Tilt Control: up & down arrows
- Zoom in: + symbol
- Zoom out: - symbol

Advanced User

To access the advanced mode, which allows full access to the stored recordings, the user needs to hold keyboard keys "A", "D", and "V" then click on the padlock icon next to the Advanced User text.





Selecting the centre settings icon allows access to several player settings including:

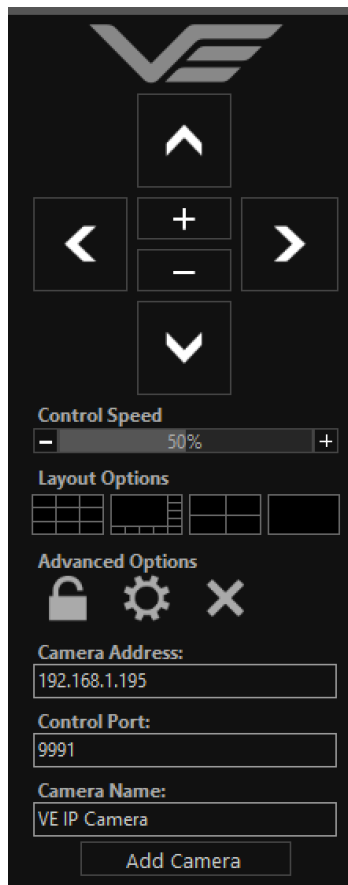
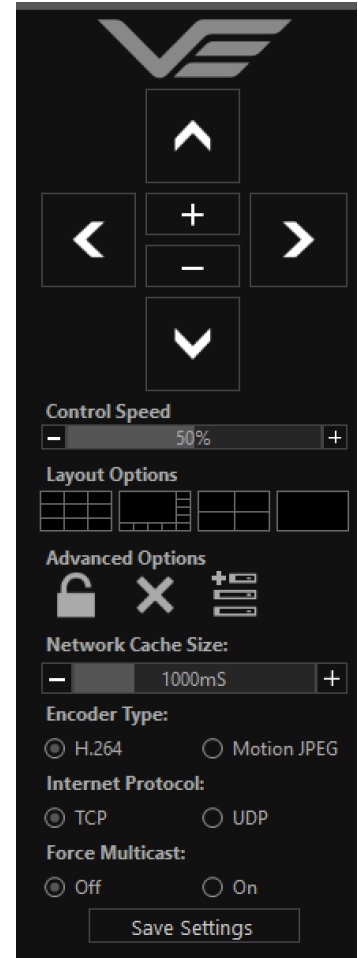
- Network Cache Size
- Encoder Type
- Internet Protocol
- Multicast

Increasing the Network Cache Size will cause the player to cache more data before streaming video. Decreasing this value will result in the latency of the video stream being reduced, values below 350mS are not recommended.

The encoder is capable of transmitting H.264 and MJPEG video streams, select the preferred stream to be viewed.

The video stream packets can be sent over TCP or UDP, select the preferred transport method. More information on these methods is described in the [TCP Vs UDP](#) section.

Select Multicast to On sends a request to the encoder to send a multicast video stream. Currently the encoder does not support multicast streaming.



Selecting the right hand side icon allows the user to manually add a camera or encoder by IP address.

Adjustment to the TCP/IP control port and camera name settings can also be made.



Multiple Viewing

Multiple Viewers

It is possible to connect multiple instances of a video player to a single encoder.

There is however a maximum limit at which the encoder bit rate can be set to whilst streaming video to multiple viewers using the unicast method of transmission. Bit rates set to a value greater than the allowed maximum value for a given number of clients will result in video breakup.

With the encoder set to constant bit rate mode, the table below describes the maximum bit rate the encoder can be set to for a given number of connected viewing clients using the unicast method of network transmission.

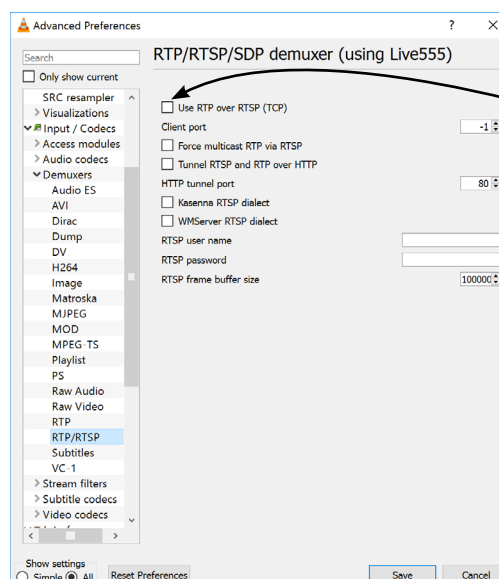
Client Count	Maximum Camera Bit rate
1	10Mb/sec
2	8Mb/sec
3	6Mb/sec
4	4Mb/sec

TCP Vs UDP

The encoder is capable of transmitting a video stream over either UDP or TCP transmission protocols. The benefits of each protocol is particular to the specific deployment of the encoder. In general terms UDP is a more efficient method which carries less overhead than TCP but lacks some reliability as not all video frames are required to be received in full.

For example, if the encoder is used in a scenario where the video is being monitored in real time and the stream is being sent across an RF link that is susceptible to break up, UDP would be the best choice. The reason for this is that re-sending any missed video packets using the TCP method will result in out of date video frames being reconstructed, which will ultimately result in an increase to the video latency.

TCP/UDP in VLC



If this checkbox is ticked VLC will request that the camera sends video packets over TCP, otherwise it will request that the camera sends video packets over UDP.



ONVIF

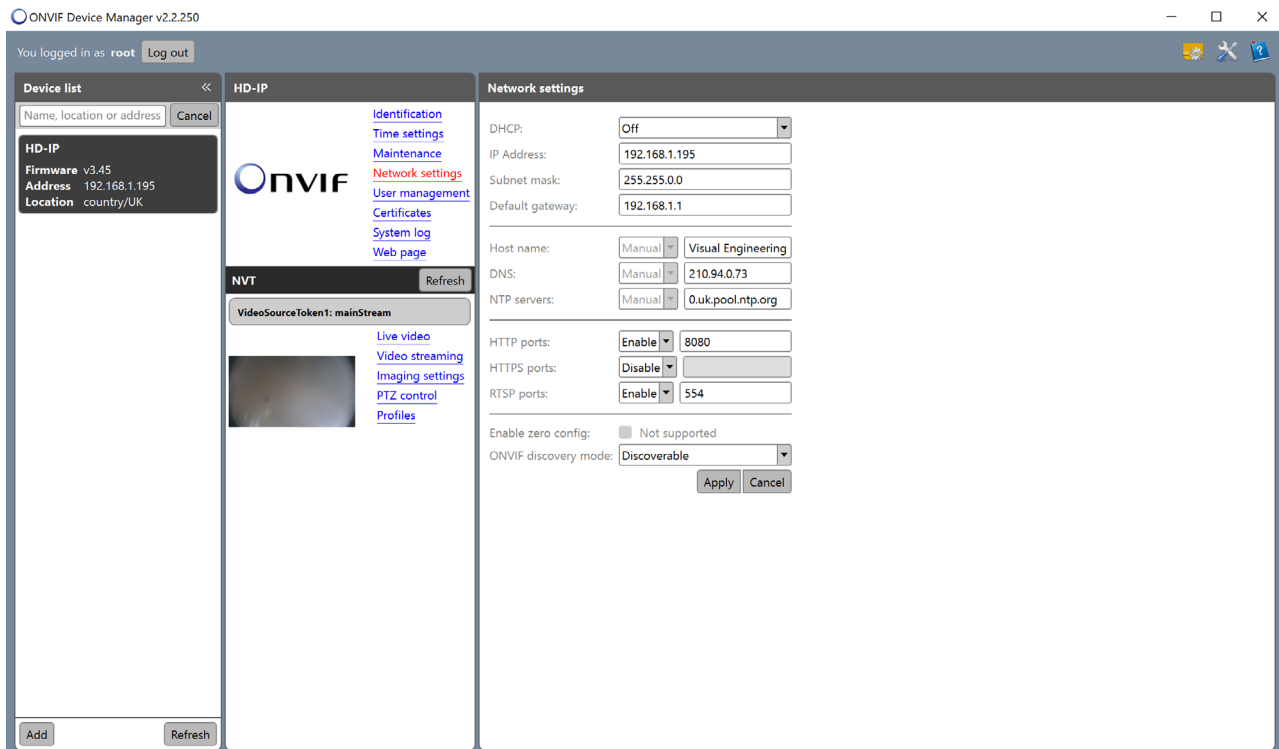
Video Management Systems

The encoder supports the ONVIF protocol such that it can be controlled and viewed on ONVIF compliant VMS platforms such as the ONVIF Device Manager, Milestone and Airship.

ONVIF Device Manager is available as a free download available here:

<https://sourceforge.net/projects/onvifdm/>

The software will locate cameras and encoders on the network. Click the Network settings tab to display the port that the encoder is currently configured to. In the example shown below encoder's port is set to 8080, therefore the encoder's URL is 192.168.1.195:8080



If the controlling PC and encoder are on separate IP subnets and the encoder's IP address is unknown run the [VE Camera Viewer](#) application, which will find the IP address of the encoder.



Control Across The Internet

Port Forwarding

It is possible to control the encoder and view its video remotely through an internet connection. One way of achieving this is through port forwarding on a router that is connected to the internet and also connected to the encoder.

As many internet enabled routers are capable of providing this gateway, the settings and control interface will differ dependant on manufacturer and model.

The example below shows a router's NAT/PAT (Network Address Translation/Port Address Translation) configured to forward port 8080 (the HTTP port) and port 554 (the RTSP port) of the camera which has an IP address of 192.168.1.194

Both of these ports can be configured in the encoder through the following encoder web pages:

- The HTTP port can be configured in the [Ethernet Menu](#)
- The RTSP port can be configured in the [Video Menu](#)

NAT/PAT settings

these rules are needed to authorise a remote communication from Internet to reach a specific device of your LAN. you can also define the ports(s) that this communication will use.

NB: following rules are only applied with IPv4.



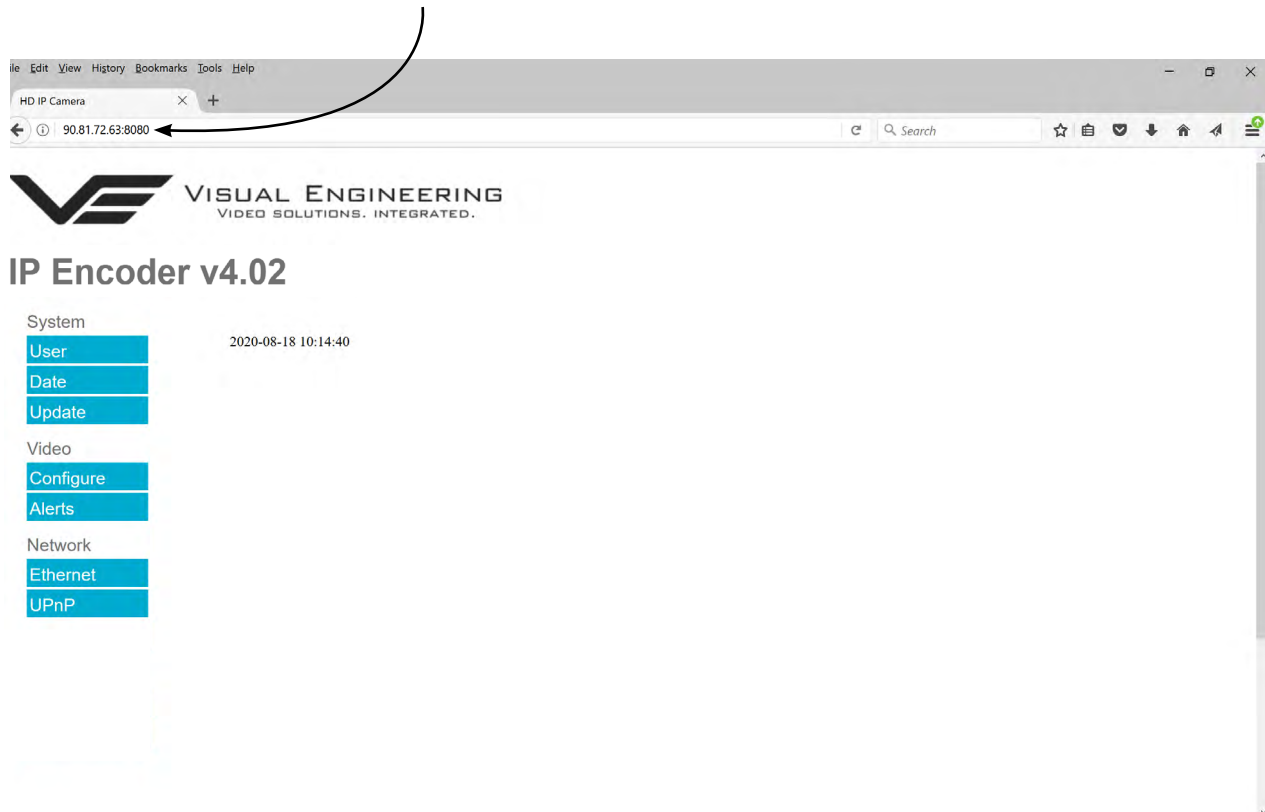
warning : make sure you have not filtered these ports in the firewall.

customize rules						
application / service	internal port	external port	protocol	device	activate	
Camera H	<input type="text" value="8080"/>	<input type="text" value="8080"/>	TCP	<input type="text" value="192.168.1.194"/>		<input type="button" value="save"/>
HD IP Camera	554	554	both	192.168.1.194	<input checked="" type="checkbox"/>	<input type="button" value="delete"/>
Camera HTTP	8080	8080	TCP	192.168.1.194	<input checked="" type="checkbox"/>	<input type="button" value="delete"/>



Remote Configuration

Access to the remote encoder's web pages are addressed by using the gateway IP address of the router along with the HTTP camera port that has been forwarded.



Remote Video Streaming

To stream the encoder's video across the internet a URL similar to the ones described below should be used.

- `rtsp://90.81.72.63:554/h264`
- `rtsp://90.81.72.63:554/jpeg`

In the above URL examples the internet router's gateway IP address (90.81.72.63) and the encoder's RTSP port (554) should be substituted where relevant.

Ensure that the video bit rate of the encoder is matched to the available connection capacity.

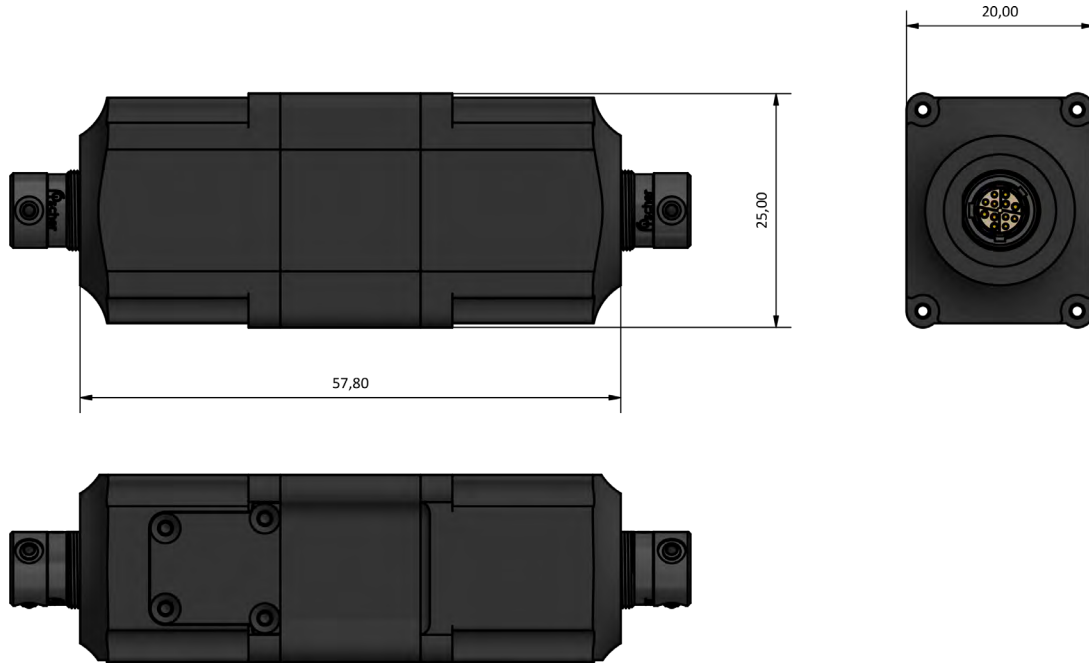


Specifications

Specifications			
Input Video	HD-SDI	VMS Compliance	ONVIF
Video Encoding	H.264	Input Voltage	5 to 16V DC
Audio Encoding	G711	Power Consumption	2.5W
Microphone	Integral	Temperature	-20 to +50°C
Output Video Resolutions	1920x1080 to 320x180	Environmental	IP67
Input Video	1080p or 720p	Weight	48g
Streaming Protocol	RTSP over TCP or UDP	Dimensions	58 x 25 x 20mm



Dimensions



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